# CROSS-NATIONAL SIMILARITY IN SOCIAL MOBILITY PATTERNS: A DIRECT TEST OF THE FEATHERMAN-JONES-HAUSER HYPOTHESIS*


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*In 1975, Featherman, Jones, and Hauser formulated the hypothesis that national patterns of circulation mobility are basically the same, while national patterns of observed mobility differ. This hypothesis has often been tested and generally confirmed by means of multiplicative models. Previous tests have been indirect because the relationship of the circulation-mobility pattern to the underlying circulation-mobility frequencies remained unspecified. Using the linear programming approach, we determine circulation-mobility frequencies. Patterns for both observed and circulation mobility are expressed in terms of proportions, rates, and odd ratios. A re-analysis of data for 16 national samples demonstrates that, across countries, the patterns of circulation mobility are less similar than the patterns of observed mobility. An additional analysis for 22 countries shows that odds ratios computed from circulation-mobility frequencies correlate with macrostructural characteristics of societies. The results provide strong evidence against the tested hypothesis.*


Researchers have long been interested in explaining why various characteristics of social mobility differ across countries. In addition to the classical contributions of Lipset and Zetterberg (1956; Lipset and Bendix 1959) and Miller (1960), a succession of articles provides evidence for or against the thesis that social mobility depends on economic development (Matras, 1961; Marsh 1963; Fox and Miller 1965; Cutright 1968; Hazelrigg and Garnier 1976; Tyree et al. 1979; Erikson et al. 1979; McClendon 1980; Grusky and Hauser 1984). Recently, analyzing the general thesis about the relationship between social mobility and economic development, Goldthorpe (1985, p. 549) concluded that such a thesis "can be construed in a number of quite different ways, which call for different kinds of empirical tests." Concurring with this statement, we contribute a comprehensive empirical test of the well-known proposition of Featherman, Jones and Hauser (1975; 1978), named the "FJH hypothesis" by Erikson et al. (1982).


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An earlier version of this paper was presented at the meeting of the Research Committee on Social Stratification, International Sociological Association, Rome, April 3–5, 1986. We are grateful for comments of Melvin L. Kohn, John Goldthorpe, F. Lancaster Jones, Tadeusz Bromek, and anonymous reviewers. Private communication with Robert M. Hauser is also acknowledged.


## ANALYSIS OF THE FJH HYPOTHESIS AND ITS INDIRECT TESTS

The original formulation of the FJH hypothesis states "industrial societies can be shown not to have the same rates of *observed* mobility. However, there is reason to suppose they may have similar patterns of *circulation* mobility" (Featherman et al. 1978, p. 88–9). Further, ". . . the genotypical pattern of mobility (circulation mobility) in industrial societies with a market economy and a nuclear family system is basically the same. The phenotypical pattern of mobility (observed mobility) differs . . ." (Featherman et al. 1978, p. 89). More recently, Erikson et al. (1982, p. 2) restated this hypothesis: "The variation actually observed in mobility rates of advanced industrial societies . . . is essentially of a structurally induced kind, and . . . a basic similarity may thus prevail in the 'regimes' of exchange mobility. . . ." Kerckhoff et al. (1985, p. 282) wrote that, according to the FJH hypothesis, "the similarity among industrialized societies would be in circulation mobility and not in total mobility, which includes both circulation mobility and structural mobility."

Although these quotations present the essence of the hypothesis, its meaning is imputed by the theoretical and methodological context in which it appears. Various researchers have subsequently used a new terminology that changes the meaning of the original formulation. Some departures involve searching for invariance in social fluidity instead of attempting to compare the similarity of circulation-mobility patterns with the similarity of total-mobility patterns. We restrict our analysis to the original formulation and to those restatements that are formally equivalent to it. In this section we discuss some concepts involved in the hypothesis, theoretical arguments for and against it, and the indirectness of its previous tests.

### *The Concept of Circulation Mobility*

Featherman, Jones, and Hauser saw their hypothesis as a revision of Lipset and Zetterberg's (1959) proposition that, among industrial societies, the proportion of persons not inheriting their father's status is very similar. The revision restricts the proposition to a *particular kind of mobility*, called *circulation mobility*, or *exchange mobility*. Since any kind of occupational mobility denotes movements from origins to destinations, circulation mobility must be either defined or expressed in terms of these movements.

The fundamental question is *what constitutes circulation mobility*, understood as "*exchanges between occupations*?" (Grusky and Hauser 1984, p. 19). Although the authors of the FJH hypothesis do not explicitly define circulation mobility, one can assume that they use the commonly accepted social-scientific notion of exchange. The notion is used in sociology (e.g., referring to relationships in social networks), anthropology (e.g., with respect to gift giving), and economics (e.g., in studying monetary flows and market transactions). As used in everyday language and technical terminology, exchange refers to an "[a]ct of giving . . . one thing in return for another as an equivalent" (Webster's New Collegiate Dictionary 1956 p. 287). In the case of occupational mobility, exchange means that each occupational category "gives" to all other categories a certain number of persons "in return for . . . an equivalent." The concept of circulation or exchange mobility implies that the distributions of origin and destination are the same. This is an accepted understanding of circulation mobility and no departure from it was mentioned in the original elaboration on the hypothesis.

The authors of the FJH hypothesis made clear that its testing requires ". . . an analytical ability to distinguish circulation from structural mobility" (Featherman et al. 1978, p. 90). This analytical ability should result in displaying *circulation and structural mobility as components of total mobility*. The authors of the FJH hypothesis imply they understand both kinds of mobility as components of total mobility in statements such as "Once structural mobility has been taken into account [in total mobility], circulation mobility has been nearly constant over time" (Featherman et al. 1978, p. 89). In testing the hypothesis, later investigators expressed this idea in a similar way, e.g., "total mobility, which includes both circulation mobility and structural mobility" (Kerckoff 1985, p. 282). Accordingly, the frequencies of transitions of either circulation mobility or structural mobility should not exceed the corresponding frequencies of gross mobility since a part cannot be larger than the whole.

Simultaneously with the development and application of multiplicative models to the analysis of mobility tables, the meaning of circulation mobility has changed. This change is understandable since attempts to find the frequencies of circulation mobility were long unsuccessful; either some of the frequencies obtained were negative or exceeded the frequencies of total mobility, or circulation mobility was restricted to reciprocal flows. The intractability of the problem has led some researchers to equate certain characteristics of statistical association with circulation mobility. In consequence, the FJH hypothesis became understood as a statement about fluidity in observed mobility instead of being concerned with patterns of circulation mobility. In this paper we refer to the original formulation of the FJH hypothesis and use the frequencies of circulation mobility to determine its patterns.

### *Theoretical Arguments*

The FJH hypothesis implies that a certain level of economic development unifies cross-national patterns of circulation mobility, while patterns of observed mobility remain diversified. The hypothesis has not been given a systematic theoretical justification which would specify the mechanism producing these effects. Featherman et al. (1978, p. 89) mentioned only that the pattern of observed mobility "differs according to the rate of change in the occupational structure, exogeneously determined . . . by . . . technological change, the supply and demand for specific kinds of labor . . . and changing social values affecting . . . the demand for higher education, the rate of economic change, family size, and the spacing of children." Recently, Grusky and Hauser (1984, p. 35) provided clues for explaining the invariance of patterns of circulation mobility by positing that it "may be the analogue to invariance in prestige hierarchies, in the sense that both may result from cross-national regularities in the resources and desirability accorded occupations."

Industrialization creates similar occupational structures and forces similar flows between occupational origins and destinations. According to the convergence theory of economic development (Inkeles 1981; see Form 1979 for a review of the literature), countries become similar in those aspects necessitated by a path of development stemming from the "logic of industrialization." The uniform direction of change in the occupational structure is certainly one of these aspects. Therefore one can expect that industrialization would produce similar patterns in the structural component of mobility, resulting in a uniform pattern of *total* mobility.

Why should the pattern of circulation mobility be invariant with respect to economic development? According to some theoretical arguments, the rates of circulation mobility are not impervious to such factors as the level of education, the distribution of mass communication, the level of urbanization, and the rate of geographical mobility (Treiman 1970). Moreover, social values rooted in the history of each country affect patterns of circulation mobility independently of economic development. Still, such countries as the United States, France, and Japan differ with respect to popular standards of success and emphasis on individual achievement. We think that it would be more difficult for a sociologist to explain a priori why cross-national differences do not affect a "free," nonstructural part of mobility than to explain some of its variation.

### *Indirectness of Tests*

Recent tests of the hypothesis used data from pairs or triples of countries (Erikson et al. 1982; McRoberts and Selbee 1981; Breen 1985) and from larger sets (McClendon 1980; Grusky and Hauser 1984). All major tests focusing on the FJH hypothesis were based on the multiplicative approach, which typically involves (a) specification of the model(s) that represent the pattern of circulation mobility; (b) estimation of the parameters of this model for a given data set; and (c) evaluation of the goodness of data-fit. If there is a good data-fit to a common cross-country model, the hypothesis is supported.

Researchers using this strategy do not investigate the relationship between the circulation-mobility pattern and circulation-mobility frequencies. Surprisingly, some basic questions are ignored. Do the discovered patterns of circulation mobility—or "patterns of fluidity" or "patterns of openness"—correspond to exchanges between origin and destination categories? What are the magnitudes of these exchanges? Because the relationship between circulation mobility (an object) and its pattern (an object's property) is not clarified in the multiplicative approach, we treat previous tests of the FJH hypothesis as indirect. One of the constituent objects of the FJH hypothesis, circulation mobility, *remains outside the scope of the investigation.*

Frequencies implied by the proposed patterns of circulation mobility cannot be represented in terms of exchanges (since they do not result in identical distributions of origins and destinations), and they are not components of total mobility (since they exceed corresponding elements of observed mobility). For a discussion of these issues, see Krauze and Slomczynski (1986, p. 264–5.) Parameters of multiplicative models measure certain patterns of association in the mobility table rather than distinguish between particular kinds of mobility transition. Since the FJH hypothesis refers to the patterns of circulation mobility, any test using the multiplicative-modeling approach would have to adequately represent the frequencies of circulation mobility.

## DESIGNING A DIRECT TEST OF THE FJH HYPOTHESIS

In its original formulation, the FJH hypothesis calls for a comparison of the intercountry similarity of observed-mobility patterns with the intercountry similarity of circulation-mobility patterns. The direct test consists of comparing the same characteristics of both kinds of mobility patterns. We assume that elements from which "patterns" of mobility are constructed include mobility proportions, rates, and odds ratios. Thus, the testable implication of the FJH hypothesis, in its generalized version considered by Grusky and Hauser (1983), is: *Among countries, national patterns of observed mobility are less similar than national patterns of circulation mobility.*

Direct testing of the FJH hypothesis requires that: (1) comparable mobility data for a set of countries are available; (2) the frequencies of both observed and circulation mobility are computed on the basis of mobility data; (3) the "mobility pattern" is operationally defined in the same way for both observed and circulation mobility; (4) a measure of the similarity of the patterns is established; (5) the criteria for rejection of the hypothesis are specified.

### *Mobility Data for Selected Countries*

The FJH hypothesis is restricted to countries as units of analysis; ideally, scholars should have mobility data from a representative sample of *all* countries. In practice, cross-national studies of intergenerational social mobility are limited to "accidental" samples of countries for which data are available. As Hazelrigg and Garnier (1976, p. 500) point out, the minimal requirement for such samples is that the countries have different levels of economic and political development. Data matrices must have identical occupational categories across countries. Since Grusky and Hauser's (1983) data for 16 countries satisfy the requirement of comparability and have been used for testing the FJH

Table 1. Definitions of Three Mobility Patterns for the $k$th Order Matrix $\mathbf{X}=(x_{ij})$ of Mobility Frequencies

| Type of Pattern | Definition of Elements of Pattern | Notation for Pattern Matrix | Abbreviated Notation |
|---|---|---|---|
| Pattern of proportions | $\alpha_{ij} = x_{ij}/x_{..}\ i,j=1,\ldots,k$ | $\mathbf{A} = (\alpha_{ij})\ i,j=1,\ldots,k$ | $\mathbf{A} = \mathbf{A}(\mathbf{X})$ |
| Pattern of inflow and outflow rates | $\beta_{ij} = x_{ij}/x_{i.}$<br>$\beta_{k+i,k+j} = x_{ij}/x_{.j}$<br>$\beta_{i,k+j} = \beta_{k+i,j} = 0,$<br>$i,j=1,\ldots,k$ | $\mathbf{B} = (\beta_{uv})$<br>$u,v=1,\ldots,2k$ | $\mathbf{B} = \mathbf{B}(\mathbf{X})$ |
| Pattern of odds ratios | $\gamma_{ijuv} = (x_{ij}\,x_{uv})/(x_{uj}\,x_{iv}),$<br>$i<u\leqq k,\ j<v\leqq k$ | $\mathbf{G} = (\gamma_{wz})$<br>$w,z=1,\ldots,k\,(k-1)/2$ | $\mathbf{G} = \mathbf{G}(\mathbf{X})$ |

hypothesis, we reanalyze these data. These mobility tables include the distinction between white-collar, blue-collar and farm workers.

### *Frequencies of Observed and Circulation Mobility*

We assume that the frequencies of observed (total) mobility for each country available from a cross-tabulation of raw data are subject only to sampling error. Circulation mobility, as a particular kind of mobility, should also be expressed in terms of frequencies of transitions between each pair of origin and destination categories. Following Krauze and Slomczynski (1986), we define circulation mobility as (1) the part of total mobility (2) consisting of interchange status transitions, (3) which result in identical origin and destination distributions; it is (4) limited to interchange status transitions and exhausts them. Interchange status transitions are direct and indirect exchanges among status categories. These transitions were shown by Krauze and Slomczynski (1986) to be decomposable into cycles capturing the essence of exchange; we use this definition because it expresses the underlying notion of circulation.

The frequencies of circulation mobility can be computed by means of linear programming. The linear program is: For a given matrix of observed mobility $\mathbf{N}=(n_{ij})$, find the matrix $\mathbf{C}=(c_{ij})$ such that

(a) $\sum_{i,j} c_{ij}$ is maximized under constraints:

(b) $0 \leqq c_{ij} \leqq n_{ij}$

(c) $\sum_j c_{ij} = \sum_j c_{ji}$ for all $i$.

In this program, the definitional requirement (1) corresponds to (b), (3) corresponds to (c), and (4) to (a). It is proven that the definitional requirement (2) is satisfied since $\mathbf{C}$ is decomposable into cycles with equal row and column margins. For the three-by-three matrices, the mobility frequencies of circulation mobility $c_{ij}$ are uniquely determined.

We notice that for a given matrix $\mathbf{N}$ stayers are included in the corresponding matrix $\mathbf{C}$. This is important for our testing procedure since the FJH hypothesis is not restricted to mobiles in either $\mathbf{N}$ or $\mathbf{C}$. Moreover, stayers were included in some previous tests utilizing the concept of fluidity (e.g., Erikson et al. 1982).

### *Patterns of Mobility*

We define the pattern of mobility as a transformation of the matrix of frequencies that allows one to retrieve these frequencies up to a scaling factor. According to this formal definition, the matrix of raw frequencies forms a pattern with the scaling factor equal to one. However, for comparative purposes, this pattern is of limited value since it depends on the sample size. In formulating and testing the FJH hypothesis, three kinds of mobility patterns have been considered and are analyzed in this paper: mobility proportions, inflow/outflow rates, and odds ratios (supplemented by some crossing odds). Table 1 formally defines these quantities, using the well-known summation convention.

Although neither the matrix of all outflow rates nor the matrix of all inflow rates forms a pattern by itself, together they do. The pattern of rates is a square matrix of order $2k$, where $k$ is the number of countries. We assume that the row sums and column sums are positive numbers. The pattern of all possible different odds ratios is a square matrix of order $k(k-1)/2$. If an element in the denominator is zero, the odds ratio is set equal to zero. For practical purposes, it is sufficient to take into account only nonredundant odds ratios (Bishop et al. 1975); they reproduce the initial matrix of frequencies up to a scalar constant only if they are supplemented by crossing odds; both quantities considered together form a pattern. In our analysis four crossing odds are taken into account: $x_{11}/x_{21}$, $x_{11}/x_{12}$, $x_{12}/x_{13}$, and $x_{21}/x_{31}$.

We assume that the same elements, proportions, rates, and odds ratios, would be used in forming patterns of both observed and circulation mobility. Ultimately, mobility patterns, as configurations of matrix elements, are derived from observed mobility frequencies (for the observed mobility pattern) or from circulation mobility frequencies (for the circulation mobility pattern). The patterns of observed mobility are denoted $\mathbf{A}(\mathbf{N})$, $\mathbf{B}(\mathbf{N})$, $\mathbf{G}(\mathbf{N})$ for proportions, rates, and odds ratios. The corresponding patterns for circulation mobility are denoted **A(C), B(C)**, and **G(C)**.

### *Similarity of Patterns*

Mobility patterns, regardless of the nature of their elements—proportions, rates, or odds ratios—are systemic properties of sampled countries. The measurement of similarity of a given kind of mobility pattern for two countries should be based on the closeness of corresponding elements in the patterns, averaged over all elements of the pattern. Since mobility patterns are expressed as matrices, their similarity can be assessed by a distance function defined in the metric space. The points of this space are matrices of patterns of a given kind; the smaller the distance, the greater the similarity between the compared patterns.

Let $\rho_1$ be the distance function defined on patterns of proportions. For any pair of matrices of mobility frequencies $\mathbf{X}^1$, $\mathbf{X}^2$, the Euclidean distance between them is given by

$$\rho_1 \{\mathbf{A}(\mathbf{X}^1), \mathbf{A}(\mathbf{X}^2)\} = \{\sum_{i,j=1}^{k} (\alpha^1_{ij} - \alpha^2_{ij})^2\}^{1/2}$$

Where $\mathbf{A}(\mathbf{X}^1) = (\alpha^1_{ij})$ and $\mathbf{A}(\mathbf{X}^2) = (\alpha^2_{ij})$. In a similar way, we define the distance functions $\rho_2$—(for patterns of rates) and $\rho_3$—(for odds ratios). We utilize the Euclidean distance function, selected from possible functions satisfying the distance axioms, because of its widespread use in measuring similarity in applications of taxonomic methods (Sokal and Sneath 1963).

### *Criteria of Rejection*

The FJH hypothesis can be formally expressed for each of the three types of mobility patterns and a set of countries 1, . . ., $w$. The formulation we plan to test for the proportions pattern and every pair of countries $r$, $s$ is

$$\rho_1 \{\mathbf{A}(\mathbf{C}^r), \mathbf{A}(\mathbf{C}^s)\} < \rho_1\{\mathbf{A}(\mathbf{N}^r), \mathbf{A}(\mathbf{N}^s)\} \quad r < s \qquad (1)$$

Let us check this formulation against a testable implication of the FJH hypothesis, which, for the proportions pattern, reads: among countries, national patterns of observed-mobility proportions are less similar than national patterns of circulation-mobility proportions. The left side of inequality (1) involves circulation mobility matrices $\mathbf{C}^r$ and $\mathbf{C}^s$ for countries $r$ and $s$ and their derived patterns of proportions $\mathbf{A}(\mathbf{C}^r)$ and $\mathbf{A}(\mathbf{C}^s)$. The similarity of these patterns is assessed by means of the distance function $\rho_1$. The same function appears on both sides of inequality (1), since similarity should be assessed in the same way for patterns of circulation and total mobility. On the right-hand side of the inequality, we have matrices of proportions of total mobility, $\mathbf{A}(\mathbf{N}^r)$ and $\mathbf{A}(\mathbf{N}^s)$, for the same countries. The direction of inequality is consistent with the testable implication of the FJH hypothesis for two countries, $r$ and $s$.

The operationalization of the testable implication of the FJH hypothesis for the pattern of rates and the pattern of odds ratios is

$$\rho_2\{\mathbf{B}(\mathbf{C}^r), \mathbf{B}(\mathbf{C}^s)\} < \rho_2\{\mathbf{B}(\mathbf{N}^r), \mathbf{B}(\mathbf{N}^s)\} \quad r < s \qquad (2)$$

$$\rho_3\{\mathbf{G}(\mathbf{C}^r), \mathbf{G}(\mathbf{C}^s)\} < \rho_3\{\mathbf{G}(\mathbf{N}^r), \mathbf{G}(\mathbf{N}^s)\} \quad r < s \qquad (3)$$

We can check formulations (2) and (3) in an analogous manner. The hypothesis is separately tested for all pairs of countries $r$, $s$ where $r < s \leqq w$. Each of the $w\ (w-1)/2$ pairwise comparisons gives a decisive result, either supporting or not supporting the hypothesis.

Grusky and Hauser (1984, p. 19) noted that "there is an element of subjectivity in any evaluation of the FJH revision; it is unclear how much similarity in mobility regimes is necessary to confirm the hypothesis." However, this observation does not preclude formulating clear criteria for rejecting the hypothesis according to our testing procedure. A very liberal criterion for rejecting the hypothesis is that, in a substantial number of pairwise intercountry comparisons, (for example, one third of all cases), the direction of inequalities (1), (2), or (3) is inconsistent with the hypothesis.

## REANALYSIS OF DATA FROM SIXTEEN COUNTRIES AND THE TEST OF THE FJH HYPOTHESIS

This section has two purposes: first, to present new analyses of exchange in circulation mobility and, second, to describe the results of our direct test of the FJH hypothesis. The empirical basis of the section is the set of mobility tables provided by Grusky and Hauser (1983) and previously used by Hazelrigg and Garnier (1976) and McClendon (1980).

### *Stayers and Movers in Circulation Mobility*

According to our definition, circulation mobility consists of stayers and all movers who participate in exchanges among occupational categories. Table 2 shows the decomposition of observed (total) mobility into frequencies of immobility, remaining circulation mobility, and

Table 2. Decomposition of Total Mobility Matrices into Three Components: Immobility (Bold face), Remaining Circulation Mobility (Roman print), and Structural Mobility (Italics), for 16 Countries with Sample Sizes Standardized to 1,000

| | Son's Occupation | | | Son's Occupation | | |
|---|---|---|---|---|---|---|
| Father's Occupation | White Collar | Blue Collar | Farm | White Collar | Blue Collar | Farm |
| | Australia, 1965 | | | Belgium, 1968 | | |
| White-collar | **158** | 92 | 16 | **296** | 59 | 7 |
| | – | *0* | *0* | – | *0* | *0* |
| Blue-collar | 108 | **328** | 20 | 66 | **258** | 4 |
| | *48* | – | *0* | *112* | – | *0* |
| Farm | 0 | 36 | **94** | 0 | 11 | **77** |
| | *44* | *56* | – | *61* | *49* | – |
| | Denmark, 1972 | | | Finland, 1972 | | |
| White-collar | **174** | 75 | 4 | **96** | 72 | 5 |
| | – | *0* | *0* | – | *0* | *0* |
| Blue-collar | 79 | **262** | 18 | 59 | **285** | 25 |
| | *42* | – | *0* | *0* | – | *0* |
| Farm | 0 | 22 | **185** | 18 | 12 | **196** |
| | *55* | *84* | – | *81* | *151* | – |
| | France, 1964 | | | Hungary, 1963 | | |
| White-collar | **209** | 100 | 7 | **40** | 16 | 1 |
| | – | *4* | *0* | – | *0* | *0* |
| Blue-collar | 94 | **237** | 6 | 17 | **217** | 29 |
| | *0* | – | *0* | *68* | – | *0* |
| Farm | 13 | 0 | **159** | 0 | 30 | **311** |
| | *46* | *125* | – | *43* | *228* | – |
| | Italy, 1963 | | | Japan, 1965 | | |
| White-collar | **174** | 56 | 8 | **249** | 65 | 11 |
| | – | *0* | *0* | – | *0* | *0* |
| Blue-collar | 64 | **217** | 17 | 76 | **138** | 11 |
| | *14* | – | *0* | *9* | – | *0* |
| Farm | 0 | 25 | **239** | 0 | 22 | **125** |
| | *53* | *133* | – | *152* | *142* | – |
| | Norway, 1972 | | | Philippines, 1968 | | |
| White-collar | **209** | 67 | 12 | **49** | 23 | 16 |
| | – | *0* | *0* | – | *0* | *0* |
| Blue-collar | 79 | **206** | 26 | 19 | **60** | 23 |
| | *88* | – | *0* | *0* | – | *0* |
| Farm | 0 | 38 | **109** | 20 | 19 | **637** |
| | *95* | *109* | – | *45* | *89* | – |
| | Spain, 1968 | | | Sweden, 1972 | | |
| White-collar | **150** | 42 | 7 | **198** | 67 | 0 |
| | – | *0* | *0* | – | *0* | *0* |
| Blue-collar | 49 | **178** | 12 | 67 | **316** | 7 |
| | *20* | – | *0* | *113* | – | *0* |
| Farm | 0 | 19 | **291** | 0 | 7 | **65** |
| | *90* | *142* | – | *60* | *100* | – |
| | United States, 1962 | | | West Germany, 1969 | | |
| White-collar | **170** | 66 | 4 | **301** | 70 | 22 |
| | – | *0* | *0* | – | *0* | *0* |
| Blue-collar | 70 | **278** | 7 | 85 | **140** | 25 |
| | *97* | – | *0* | *0* | – | *0* |
| Farm | 0 | 11 | **66** | 7 | 40 | **160** |
| | *72* | *159* | – | *81* | *69* | – |
| | West Malaysia, 1966 | | | Yugoslavia, 1962 | | |
| White-collar | **86** | 50 | 30 | **90** | 35 | 10 |
| | – | *0* | *0* | – | *0* | *0* |
| Blue-collar | 37 | **78** | 39 | 45 | **135** | 19 |
| | *0* | – | *0* | *9* | – | *0* |
| Farm | 43 | 26 | **490** | 0 | 29 | **327** |
| | *24* | *97* | – | *113* | *188* | – |

structural mobility. Inspection of this table reveals that, among circularly mobiles, symmetric exchanges leave a residual that needs to be explained. Specifically, with the exception of Sweden, in all countries some exchange, in the form of a cycle involving three occupational categories simultaneously occurs. One such cycle is: from white-collar to farm, from farm to blue-collar, and from blue-collar to white-collar. The other cycle has the opposite direction: from farm to white-collar, from white-collar to blue-collar, and from blue-collar to farm.

To illustrate the difference between the two cycles, Figure 1 presents two matrices of circulation mobility from which the symmetric flows were removed. Each matrix is accompanied by a diagram, graphically showing the *circularity* and *directionality* of exchange. Removing all symmetric exchanges makes it easier to notice that the Norwegian matrix contains more upward than downward mobility; for the Finnish matrix the opposite is true. *Upward mobility cycle* and *downward mobility cycle* are two forms of nonsymmetric exchange in the three-by-three matrix.

In Finland, a certain amount of upward circulation mobility, from farm to white-collar, is compensated for by the twice-larger downward mobility of some persons with blue-collar origin who become farmers and some persons with white-collar origin who become blue-collar workers. In consequence, fewer persons experience upward than downward mobility, even though the distribution of origin is equal to the distribution of destination. Of course, adding the symmetric exchanges cannot change this result, since in all symmetric exchanges the sum of upward movements is equal to the sum of downward movements.

With the exception of Sweden, the one-way flow from white-collar to farm occurs in all countries (see Table 2). However, in 10 countries this flow is not accompanied by a symmetric flow from farm to white-collar. As shown in Table 3, in Australia, Belgium, Denmark, Hungary, Italy, Japan, Norway, Spain, the United States, and Yugoslavia, the absence of symmetric exchanges between white-collar and farm occurs jointly with the upward-mobility cycle. Only in West Germany does the same cycle appear with symmetric exchanges between all pairs of occupational categories, white-collar and farm included. In Finland, the Philippines, and West Malaysia, symmetric exchanges are accompanied by a downward-mobility cycle, that is, a flow from farm to white-collar, from white-collar to blue-collar and from blue-collar to white-collar. France seems to be an exception, where the downward mobility cycle is forced by an absence of circular flow from farm to blue-collar.

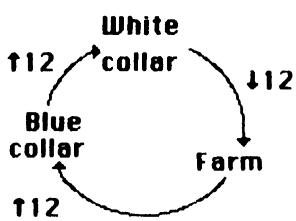
This qualitative description should be supplemented by an analysis of frequencies of nonsymmetric exchanges. In five countries

Norway

| | White collar | Blue collar | Farm | Total |
|---|---|---|---|---|
| White collar | 0 | 0 | 12 | 12 |
| Blue collar | 12 | 0 | 0 | 12 |
| Farm | 0 | 12 | 0 | 12 |
| Total | 12 | 12 | 12 | 36 |

Upward mobility = 12 + 12 = 24

Downward mobility = 12




Finland

| | White collar | Blue collar | Farm | Total |
|---|---|---|---|---|
| White collar | 0 | 13 | 0 | 13 |
| Blue collar | 0 | 0 | 13 | 13 |
| Farm | 13 | 0 | 0 | 13 |
| Total | 13 | 13 | 13 | 39 |

Upward mobility = 13

Downward mobility = 13 + 13 = 26

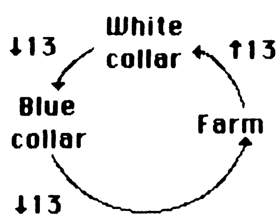



Fig. 1. Direction of Nonreciprocal Circulation Mobility

Table 3. Qualitative and Quantitative Characteristics of Circulation Mobility for 16 Countries

| Country and Year | Missing Symmetric Exchange in Circulation Mobility[a] | Three-element Cycle: Upward (U), Downward (D)[b] | Stayers as Proportion of Total Sample | Circularly Mobiles as Proportion of Total Sample | Nonsymmetric Flows as Proportion of the Amount of Circulation Mobility |
|---|---|---|---|---|---|
| Australia, 1965 | W-F | U | .580 | .272 | .176 |
| Belgium, 1968 | W-F | U | .631 | .147 | .143 |
| Denmark, 1972 | W-F | U | .621 | .198 | .061 |
| Finland, 1972 | None | D | .577 | .191 | .204 |
| France, 1964 | B-F | D | .605 | .220 | .082 |
| Hungary, 1963 | W-F | U | .568 | .093 | .032 |
| Italy, 1963 | W-F | U | .630 | .170 | .141 |
| Japan, 1965 | W-F | U | .512 | .185 | .178 |
| Norway, 1972 | W-F | U | .524 | .222 | .162 |
| Philippines, 1968 | None | D | .746 | .120 | .100 |
| Spain, 1968 | W-F | U | .619 | .129 | .163 |
| Sweden, 1972 | W-F | None | .579 | .148 | .000 |
| United States, 1962 | W-F | U | .514 | .158 | .076 |
| West Germany, 1969 | None | U | .601 | .249 | .181 |
| West Malaysia, 1966 | None | D | .654 | .225 | .173 |
| Yugoslavia, 1962 | W-F | U | .552 | .138 | .217 |

[a] W-F: exchange between white-collar and farm; B-F: exchange between blue-collar and farm.
[b] U: from white-collar to farm, from farm to blue-collar, and from blue-collar to white-collar; D: from farm to white-collar, from white-collar to blue-collar, and from blue-collar to farm.

(Denmark, France, Hungary, Sweden, and the United States), persons who are involved in these exchanges constitute less than 10 percent of all circularly mobiles. In all other countries, this percentage is large enough to warrant that nonsymmetric exchanges are an empirically important part of circulation mobility. Thus, the approach of Sobel et al. (1985), which identifies circulation mobility with symmetric exchanges has only a limited value for cross-national studies.

Since our algorithm for computing the frequencies of circulation mobility exhausts all exchanges, the remaining part of total mobility is structural. In all 16 countries, there is the expected upward shift in occupational distribution: the proportion of white-collar workers increases while the proportion of farmers decreases between generations. The most common feature of the mobility caused by this shift is a transition of persons from farm to white-collar and blue-collar categories. Usually, however, structural mobility is not limited to this flow but also includes a flow from the blue-collar to the white-collar category. (cf. Table 2).

For 16 countries, the proportion of circularly and structural mobiles varies from .254 to .488. If the Philippines and West Malaysia, the least industrialized countries, are excluded from the sample, the lower bound of the range rises to .370. The proportion of circularly mobiles varies from .090 to .249. Lipset and Zetterberg (1959, p. 13) stated that in industrialized countries the proportion of mobile persons appears to be much the same. Indeed, the maximum intercountry difference between proportions is .118 among 14 countries; this seems surprisingly small. For the same 14 countries, the range of the proportion of circularly mobiles is higher, .179, with the lower bound of .093 (for Hungary) and upper bound of .272 (for Australia). A comparison of range statistics does not suggest that the patterns of circulation mobility would be more similar than the patterns of observed (total) mobility.

### *Results of the Test*

Table 4 contains the numerical results of the analysis of proportions patterns. According to our operationalization of the FJH hypothesis in formula (1), the hypothesis is confirmed for a pair of countries if the entry above the diagonal is larger than its symmetric entry below the diagonal. A count of symmetric entries shows that the FJH hypothesis for proportions patterns is rejected in 105 out of the 120 cases. The cases in which the hypothesis is not rejected do not form any compact cluster of countries.

Table 5 is more condensed than Table 4. It presents the results of comparisons of symmetric entries in matrices of distances for rates patterns and odds ratios patterns. The entry above the diagonal is equal to one if formula (2) is satisfied for both outflow rates and inflow rates; otherwise it is zero. Similarly, the entry below the diagonal is equal to one if formula (3) is

Table 4. Intercountry Distances in the Pattern of Proportions for Total Mobility (Above Diagonal) and Circulation Mobility (Below Diagonal) for 16 Countries

| | AU | BE | DE | FI | FR | HU | IT | JA | NO | PH | SP | SW | US | WG | WM | YU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AU | — | .17 | .12 | .18 | .14 | .33 | .21 | .27 | .15 | .63 | .28 | .07 | .11 | .26 | .49 | .36 |
| BE | .21 | — | .18 | .29 | .17 | .42 | .25 | .23 | .12 | .67 | .31 | .12 | .17 | .18 | .52 | .40 |
| DE | .14 | .21 | — | .13 | .07 | .25 | .10 | .18 | .12 | .52 | .16 | .15 | .14 | .19 | .38 | .26 |
| FI | .17 | .30 | .11 | — | .15 | .19 | .12 | .22 | .20 | .51 | .16 | .22 | .19 | .26 | .37 | .21 |
| FR | .15 | .17 | .08 | .17 | — | .28 | .11 | .15 | .11 | .55 | .18 | .16 | .14 | .14 | .40 | .27 |
| HU | .41 | .50 | .31 | .25 | .37 | — | .19 | .30 | .32 | .40 | .16 | .36 | .31 | .35 | .28 | .13 |
| IT | .23 | .27 | .09 | .15 | .13 | .25 | — | .16 | .17 | .45 | .08 | .23 | .21 | .18 | .31 | .17 |
| JA | .28 | .21 | .18 | .28 | .15 | .40 | .16 | — | .15 | .52 | .17 | .26 | .22 | .10 | .37 | .23 |
| NO | .15 | .13 | .12 | .22 | .09 | .41 | .17 | .14 | — | .59 | .22 | .13 | .11 | .15 | .44 | .30 |
| PH | .73 | .77 | .60 | .58 | .63 | .37 | .51 | .59 | .67 | — | .39 | .67 | .64 | .55 | .16 | .35 |
| SP | .33 | .36 | .19 | .21 | .23 | .20 | .10 | .21 | .27 | .42 | — | .30 | .27 | .21 | .24 | .10 |
| SW | .12 | .15 | .19 | .23 | .19 | .46 | .27 | .30 | .18 | .78 | .37 | — | .08 | .25 | .52 | .38 |
| US | .08 | .15 | .16 | .21 | .16 | .44 | .25 | .28 | .15 | .76 | .35 | .03 | — | .24 | .50 | .34 |
| WG | .29 | .20 | .22 | .32 | .17 | .45 | .21 | .06 | .14 | .64 | .27 | .30 | .29 | — | .40 | .30 |
| WM | .55 | .60 | .43 | .42 | .46 | .27 | .35 | .42 | .50 | .19 | .25 | .61 | .59 | .46 | — | .21 |
| YU | .42 | .47 | .29 | .29 | .34 | .16 | .21 | .32 | .37 | .31 | .12 | .48 | .46 | .37 | .15 | — |

*Note:* AU—Australia, BE—Belgium, DE—Demark, FI—Finland, FR—France, HU—Hungary, IT—Italy, JA—Japan, NO—Norway, PH—Philippines, SP—Spain, SW—Sweden, US—United States, WG—West Germany, WM—West Malaysia, YU—Yugoslavia.

satisfied for both odds ratios and supplementary odds; otherwise it is zero. A count of ones shows that the FJH hypothesis is rejected in 65 cases for rates patterns and in 108 cases for odds ratios patterns.[1]

Pairwise comparisons of distances between matrices involve their functional dependence. For example, for 120 distances between matrices, a set of 92 distances determines all others. However, the inequality between the distance for a pair of circulation-mobility matrices and the distance for the corresponding pair of total-mobility matrices is not dependent in the functional sense but only in the stochastic one. To decrease the stochastic dependence, one can construct a subsample of, for example, three-fourths of the total cases. A conservative statistical test, favoring the nonrejection of the FJH hypothesis, is based on two assumptions: first, that all inequalities confirming the hypothesis occur in the "dependence-free" subsample, and second, that these inequalities constitute a substantial majority of all cases, e.g. at least 66 percent. For not rejecting the hypothesis at .05 significance level, the number of inequalities confirming the hypothesis would have to be at least 68 for the subsample of 90 cases. This number is larger than the numbers 15, 55, and 12 obtained in the three described tests. Thus, the FJH hypothesis is not supported on statistical grounds.

## NEW ANALYSIS: FLUIDITY IN CIRCULATION MOBILITY

The analysis presented in this section, based on data collected in 22 countries between 1962 and 1978, explores cross-country variation in circulation-mobility patterns. In the set of data provided by Grusky and Hauser (1983) we substituted some tables with more recent and/or more reliable data for eight countries (Australia, France, Hungary, Italy, Japan, Sweden, the United States, and West Germany). We also added six countries to the set (Austria, Canada, Czechoslovakia, England and Wales, New Zealand, and Poland).[2]

For each of the 22 countries, a matrix of circulation mobility was determined and its internal association between origins and destina-

[1] If for outflow and inflow rates the common distance is considered, formula (2) is satisfied in 89 cases, generally by a small margin. The statistical test for difference among averaged distances over matrix cells shows that at an acceptable level of significance $p<.05$ the FJH hypothesis is not supported in more than 60 percent of the cases. Odds ratios and supplementary odds differ in their magnitude to such an extent that considering them in space (by one distance) could produce distorted results. Formula (3) is satisfied in 14 cases for odds ratios and in 56 cases for the set of supplementary odds.

[2] The data for Belgium, Denmark, Finland, Norway, the Philippines, Spain, West Malaysia, and Yugoslavia are from Grusky and Hauser (1983). The sources of data for other countries are: for England and Wales, France, and Sweden—Erikson et al. (1979); for Australia—Broom et al. (1980); for Austria—Haller and Mach (1984); for Canada—Goyder and Curtis (1977); for Czechoslovakia—Ceskoslovensky Vyzkumny Ustav Prace (1972); for Hungary—Andorka (1976); for Italy—Ammassari (1977); for Japan—Kiso Shu Kei Ityo (1976); for New Zealand—Davis (1979); for Poland—Zagorski (1976); for the U.S.—Featherman and Hauser (1978); for West Germany—Handl (1975). The matrices of observed and circulation mobility for the 22 countries are available from the authors of this paper.

Table 5. Confirmation (1) and Rejection (0) of the FJH Hypothesis for Rates Pattern (Above Diagonal) and Odds-ratios Pattern (Below Diagonal) for 16 Countries

| | AU | BE | DE | FI | FR | HU | IT | JA | NO | PH | SP | SW | US | WG | WM | YU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AU | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| BE | 0 | — | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| DE | 0 | 0 | — | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| FI | 0 | 0 | 0 | — | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| FR | 0 | 0 | 0 | 0 | — | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| HU | 1 | 0 | 1 | 0 | 0 | — | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 1 | — | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| JA | 0 | 0 | 1 | 0 | 0 | 1 | 1 | — | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| NO | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | — | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| PH | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | — | 0 | 1 | 1 | 1 | 0 | 0 |
| SP | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | — | 1 | 1 | 0 | 0 | 0 |
| SW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 1 | 0 | 1 | 1 |
| US | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 1 | 0 | 1 |
| WG | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 0 | 0 |
| WM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — | 0 |
| YU | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | — |

*Note:* AU—Australia, BE—Belgium, DE—Denmark, FI—Finland; FR—France, HU—Hungary, IT—Italy, JA—Japan, NO—Norway, PH—Philippines, SP—Spain, SW—Sweden, US—United States, WG—West Germany, WM—West Malaysia, YU—Yugoslavia.

tions analyzed.[3] We computed two *measures of association in the form of odds ratios*. The first measure is an odds ratio for the *nonmanual-manual* division, in which the white-collar category is compared with the collapsed blue-collar and farm categories. The measure expresses the chances of an individual of nonmanual origin inheriting his father's status rather than moving to nonmanual status compared to the chances of an individual of manual origin moving to white-collar status rather than retaining his father's manual status. The second measure, an odds ratio for the *farm-nonfarm* division, reveals the chances for relative inheritance in the farm category.

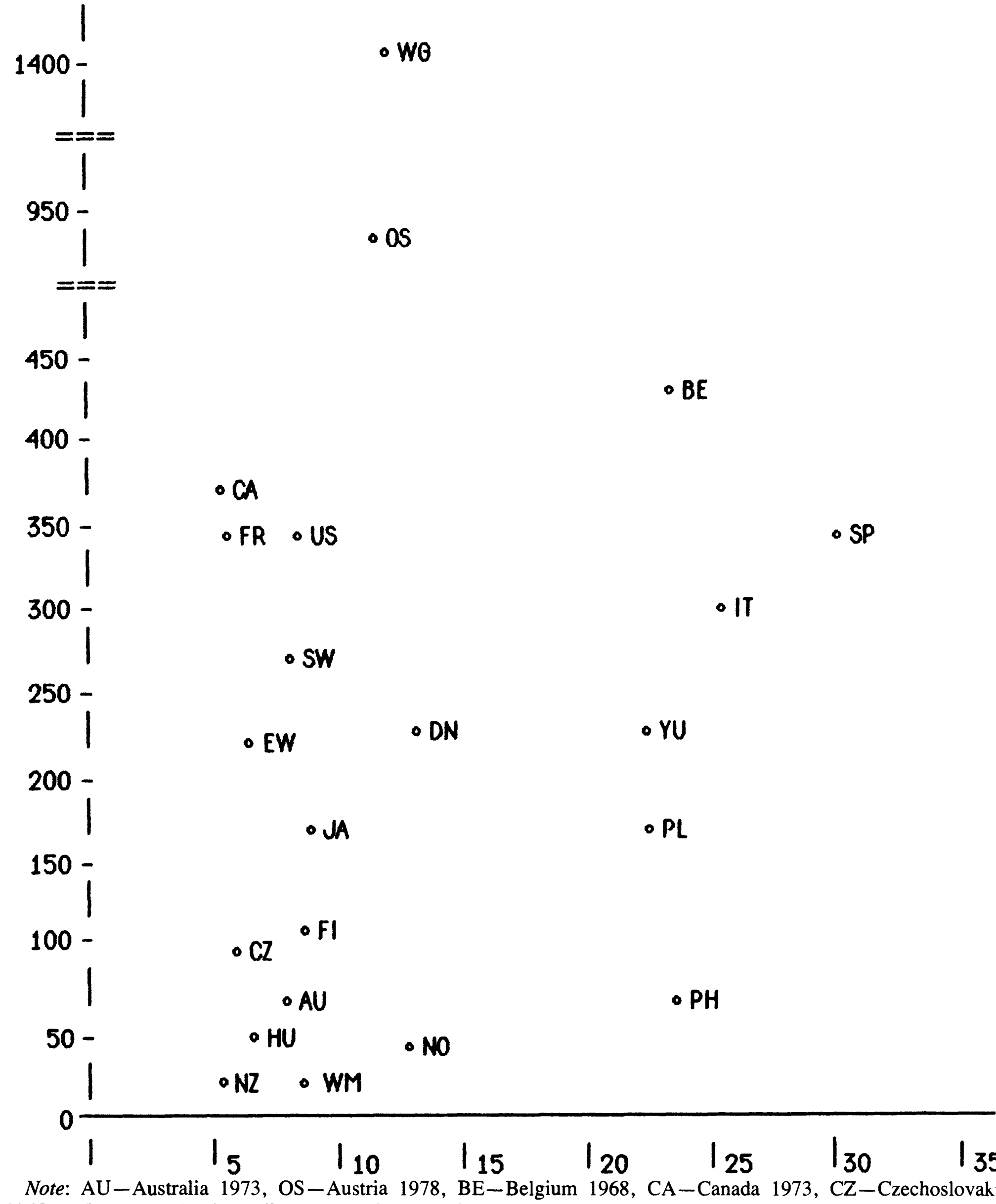
In Figure 2, the two measures provide dimensions for a metric plane in which points for the 22 countries are plotted. Contrary to the FJH hypothesis, the scatter plot does not reveal any common pattern of circulation mobility because the countries are widely dispersed in the plane along both dimensions. Moreover, the chart distinguishes clusters of countries that cross the division not only between high and low levels of industrialization, but also between market and nonmarket economies.

The scatter plot also suggests that associations between origins and destinations in circulation mobility are affected by social policies, historical heritage, and cultural factors. To illustrate, if low inequality of income and wealth in countries such as New Zealand, Norway, Australia, Hungary, and Czechoslovakia is accepted as an indicator of general egalitarian social policies, then it is not surprising to find these countries in a cluster characterized by low levels of relative inheritance in both nonmanual and farm categories. Also, two countries remarkably close in historical heritage, West Germany and Austria, share the same value on one dimension but are far from the nearest cluster of five other industrial countries: the United States, England and Wales, France, Canada, and Sweden. One can easily think of a nongeographical reason why Spain and Italy are close to each other but far from, for example, Australia and New Zealand. Without overinterpreting Figure 2, it seems fair to say that its content contradicts the invariance expected under the FJH hypothesis.

For the set of 22 countries, we have examined several potential determinants of mobility ratios. The most powerful variables include indicators of economic development, the role of agriculture in the national economy, and traditional values (see Table 6).[4] Most of these indicators

[3] Using these data, we have also performed a direct test of the FJH hypothesis, as described in the previous section. This new test, based on 231 pairwise intercountry comparisons, gave the following results. For mobility patterns involving proportions and odds ratios, the FJH hypothesis was rejected in more than 78 percent of all comparisons. In the case of mobility rates, the percentage of comparisons which disconfirm the hypothesis was 29 percent for outflow rates and 25 percent for inflow rates. Generally, the results of the test for 22 countries are similar to those for 16 countries.

[4] Our preliminary analysis also included additional variables, such as educational enrollment (proportion of the population between ages of five and nineteen enrolled in primary and secondary education), income inequality (percent of national income going to the top five percent of households), and "social democracy" (the proportion of seats in the national legislature held by social democratic parties). We used the same sources as Grusky and Hauser (1983; 1984), replacing the unadjusted educational enrollment ratio by the adjusted one (Tylor




*Note*: AU—Australia 1973, OS—Austria 1978, BE—Belgium 1968, CA—Canada 1973, CZ—Czechoslovakia 1967, DN—Denmark 1972, EW—England and Wales 1972, FI—Finland 1972, FR—France 1970, HU—Hungary 1973, IT—Italy 1974, JA—Japan 1975, NZ—New Zealand 1976, NO—Norway 1972, PH—Philippines 1968, PL—Poland 1972, SP-Spain 1968, SW—Sweden 1974, US—United States 1973, WG—West Germany 1971, WM—West Malaysia 1966, YU—Yugoslavia 1962.

Fig. 2. Relative Inheritance in Nonmanual Category (Horizontal Dimension) versus Relative Inheritance in the Farm Category (Vertical Dimension) for Circulation Mobility in 22 Countries

were used in previous cross-national analyses to explain circulation (exchange) mobility (Cutright 1968; Garnier and Hazelrigg 1976; McClendon 1980; Grusky and Hauser 1983, 1984). The results of these analyses are not conclusive.

Two indictors of economic development, the gross national product per capita and energy consumption per capita, correlate negatively with the measure of nonmanual inheritance ($r = -.533$ and $r = -.446$, respectively, both significant at

and Hudson 1972, Table 4.3). The correlation of each variable with the measure of social inheritance (for either the nonmanual category or the farm category) turned out to be low ($r \leq .256$) and not statistically significant (at $p \leq .05$).

Table 6. Correlations of Odds Ratios for Nonmanual and Farm Categories with Indicators of Economic Development, Importance of Agriculture, and Traditionalism, for 22 Countries

| | Odds Ratio for | |
|---|---|---|
| Independent Variables[a] | Nonmanual Category | Farm Category |
| *Economic development* | | |
| GNP per capita | −.533* | .174 |
| Energy consumption | −.446* | .166 |
| *Importance of agriculture* | | |
| Percent of GNP from agriculture | .348 | −.460* |
| Population in large cities | −.333 | .369 |
| *Traditionalism* | | |
| Percent of Catholics | .609** | .295 |
| Need-for-achievement | −.412 | .151 |

[a] For definitions, see text and the following sources: Russett et al. (1964, Tables 44, 49, 56, 73) and Tylor and Hudson (1972, Tables 4.1, 5.4, 5.7).
* $p<.05$.
** $p<.01$.

$p < .05$). The same indicators have a positive but weak and nonsignificant relation with the measure of farm inheritance. We hypothesize that high relative inheritance in the farm category occurs in industrialized nations in which agricultural production is on the periphery of the national economic system. Accordingly, we found a negative correlation of this measure of inheritance in circulation mobility with the proportion of domestic product originating from agriculture and a positive correlation with the proportion of the population living in cities with at least 100,000 inhabitants. Both these variables explain 25 percent of the variance in the measure of farm inheritance. Their effect is substantial even if the indicators of economic development are controlled. A partial multiple correlation showing this effect is .215.

A priori, relative inheritance in the nonmanual category is likely to covary with conservative or traditional values (Smelser and Lipset 1966, pp. 23–9). In our analysis we assumed that a high proportion of Catholics and low score on the need-for-achievement scale (McClelland 1961) are indicators of "traditionalism." For 22 countries the correlation for relative inheritance in the nonmanual category and the proportion of Catholics is high ($r = .609$) and statistically significant ($p < .01$). The scores on the need-for-achievement scale, available for only 18 countries, substantially covary with the same measure of relative inheritance ($r = -.412$). Together, these two indicators explain 56 percent of the variance in the mobility variable. Their joint impact is statistically significant even under the control of the impact of economic development. Therefore, if the indicators of social values have some validity, the null hypothesis about the independence between traditionalism and relative inheritance in the nonmanual category must be rejected.

These results provide a strong argument *against* the thesis about the invariance of fluidity in circulation mobility—invariance with respect to important macrostructural characteristics of countries. Some variables describing economic development, the role of agriculture in the national economy, and traditional values correlate significantly with some properties of circulation mobility. This may be seen as evidence that odds ratios computed directly from circulation-mobility tables are valid. Indeed, it is not likely that poorly defined or meaningless constructs would systematically correlate with external variables at a statistically significant level.

## CONCLUSIONS

We formulated the following testable operationalization of the original FJH hypothesis: "Among countries, national patterns of observed mobility are less similar than national patterns of circulation mobility." We gave precise meaning to the notions of circulation mobility, pattern of mobility, and similarity of patterns. This operationalization provided the basis for our tests.

Since the concept of circulation mobility is crucial to the hypothesis, we have consistently defined circulation as a kind of *mobility*—that is, in terms of transitions between origins and destinations. As *circulation* mobility, we expressed it as exchanges among occupational categories. Patterns for both observed and circulation mobility were operationalized as matrices of quantities which allow one to retrieve mobility frequencies up to a scaling factor. Proportions, inflow/outflow rates, and odds ratios derived from mobility tables were elements of respective mobility patterns. Similarity of patterns was assessed in terms of the Euclidean distance.

Applying these definitions, we tested the FJH hypothesis to verify whether intercountry similarity for circulation-mobility patterns is greater than for total-mobility patterns. We performed separate tests, using the same standard set of data for 16 countries, for patterns of proportions, rates, and odds ratios. Each test overwhelmingly rejected the hypothesis on both nonstatistical and statistical grounds. We claim that the FJH hypothesis has not been supported.

Sorokin (1959) assumed that "in any society the social circulation of individuals and their distribution is not a matter of chance, but is something which has the character of necessity, which is firmly controlled by many and various institutions" (p. 207). Under this assumption one would expect that countries that differ with respect to these institutions do not have similar characteristics of circulation mobility. To investigate the cross-national similarity in "social circulation," we applied the concept of fluidity to circulation-mobility matrices. The results show that, across countries, the index of relative inheritance in the nonmanual category correlates negatively with measures of economic development and positively with traditionalism, and that the index of relative inheritance in the farm category covaries with the peripheral role of agriculture in the national economy. Thus, fluidity in circulation mobility is related to important macrostructural variables that differentiate countries.

The FJH hypothesis is a revision of Lipset and Zetterberg's (1956; 1959) well-known proposition, because it substitutes the phrase about invariance in the observed-mobility rate for the phrase about invariance in the circulation-mobility pattern. This revision was formulated at a time when the invariance of observed-mobility patterns in Western countries was already being questioned (Jones 1969, Cutright 1968). Accumulating evidence, using the same data for more than 15 countries, is contradictory. Some researchers claim to have discovered substantial variation in circulation-mobility patterns (Hazelrigg and Garnier 1976; McClendon 1980), while others claim to have demonstrated invariance (Grusky and Hauser 1984). In recent years, the FJH hypothesis has gained increasing acceptance stemming from the application of log-linear and multiplicative modeling to smaller sets of national mobility tables. However, the need for a test which directly compares cross-national similarity in observed- (total) mobility patterns with similarity in circulation- (exchange) mobility patterns has been overlooked. Ours is the first such test. Its results show that the Featherman-Jones-Hauser hypothesis, a revision of the Lipset-Zetterberg generalization, should be rejected.

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