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AGE, EDUCATION AND OCCUPATION DIFFERENTIALS IN INTERREGIONAL MIGRATION :SOME EVIDENCE FOR CANADA.

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AGE, EDUCATION AND OCCUPATION DIFFERENTIALS IN INTERREGIONAL MIGRATION: SOME EVIDENCE FOR CANADA

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Discussion Paper No. 20

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I. Introduction

This paper reports an endeavour to bring together two strands of research on the migration of population within countries. The identification and measurement of differentials in migration among population groups of varying characteristics has received considerable attention from demographers. The study of migration by economists has typically been at a more aggregate level and has focussed on the redistribution of labor among regions in response to variations in economic opportunity. The issue that I explore in this paper is the extent to which differential rates of migration by age, education and occupation classes are related to variations in the responses of specific groups to the economic gains obtainable through migration. In approaching this I estimate for separate age, education and occupation groups a simple model of interregional mobility of labor of a type that has come to be common in the economic analysis of migration. The variations in the response of migration to the explanatory variables of this model gives some indication of the significance of differences in economic motivation in accounting for migration differentials.

Numerous reasons for migration differentials have

been suggested. Most closely studied have been age differentials which have been variously attributed to peculiarities of stages of the life cycle (Bogue, 1959; Shryock, 1964; Stone, 1969) to the greater adaptability of younger persons to new situations (Petersen, 1969) to the act of entry into the labor force (Stone, 1969) and to the more specifically economic act of job changes. Many of the reasons offered suggest that, in one way or another, there is a systematic relationship between age and responsiveness to the economic gains obtainable through migration. On the other hand, the venturesomness or adaptability of youth, or more rigid interrelationships with critical periods in the life cycle need not have any close relation to an individual's search for economic gain. The analysis offered in this paper is not especially sophisticated and the data that are used are subject to serious qualifications. Nevertheless, this attempt to tie together two traditions in migration research seems to be fairly fruitful in the light that it throws on the reasons for differential migration.

II. Migration Differentials in Canada

Distinct and systematic variations in the incidence of migration have been found for different age, sex, color, education and occupation groups. Of these, only age differentials appear to hold without exception. This claim was made as early as 1938 in the now classic review of migration

differentials by Dorothy S. Thomas. The considerable evidence that has come into existence since then has continued to bear out the virtual universality of a disproportionate concentration of migration among persons of younger adult ages. Rates of migration are low before adulthood, rise sharply to a peak in early adulthood and then fall off with increasing age. Recent evidence for the United States shows a sharp peak of migration rates in the age group 20-24, with the rate for 25-29 only slightly lower and with the rate then falling considerably for the 30-34 year group, (Eldridge, 1965; Shryock, 1964). Evidence for Canada (Stone, 1969) indicates a somewhat later peak, in the age group 25-29 and with a less precipitous fall in the rate for the 30-34 year group.[1]

Educational and occupational differentials are rather closely intertwined. A common influence is sufficiently great that these characteristics show pretty much the same pattern of variation in rates of migration. Broadly speaking the rate of migration rises with the level of education or the level of skill represented by the occupation. While this pattern appears to hold for the United States as a whole (Bogue, 1969), important exceptions have been found.

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1. The rate for males 30-34 remains higher than for the age group 20-24. Cf. Stone (1969) Chart 3.1.

The pattern of migration from the South of the United States has been intensively studied. For different periods and different bodies of data Hamilton (1959) and Fein (1965) both find a bi-modal distribution with the poorly educated and the highly educated both disproportionately represented. Lee (1966) speculates that this bi-modal selection is probably the norm. For Canada, though, Stone (1969) finds a monotonically positive association between migration and years of schooling.

The statistics of migration that are used in the present study are from the 1961 Census of Canada.[2] They were gathered from a twenty per cent sample of non-institutional households whose members were asked their place of residence five years previous to June, 1961. This body of data is ably discussed by Stone (1969).[3] I focus entirely on inter-provincial migrants. The patterns of differential migration shown by these statistics are summarized in Table I. High rates of migration in the age groups 20-34 are evident, with a pronounced fall at older ages. Rates of

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2. The published tabulations are presented in two 1961 Census Bulletins: 4.1-9 "General Characteristics of Migrant and Non-Migrant Population in the Labour Force." This study also makes considerable use of unpublished tabulations of interprovincial migrants by education and occupation classes. I want to thank Leroy O. Stone for arranging to have these tabulations made available to me and Miss Donna McInnis for a laborious job of transcription.

3. See especially his Appendix B.

interprovincial migration rise sharply with the level of schooling. Males with Secondary schooling exhibit rates of migration about double those of males with only Elementary schooling and males with University education have rates of migration about double again those with Secondary schooling. This is partly, but to only a slight degree, a consequence of the generally higher educational attainment of persons in the younger age groups. The rate of migration of men in Service and Recreational occupations is markedly above that for other groups.[4] The rate for Professional and Technical workers is also high and for 'blue collar' occupations - skilled and semi-skilled craftsmen, farmers, loggers, miners and laborers - it is lowest. In the case of the last, the broad grouping may hide some specific occupations of high spatial mobility.

The differential rates shown for occupational groups, and to a much lesser extent for educational groups, incorporate more than just geographical mobility. Persons are classed according to their occupation at the end of the period and after migrating. Hence the variations among occupation groups in rates of mobility include to some degree occupational as well as geographical mobility. The

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4. This group includes highly mobile military personnel but only those living in non-institutional households.

TABLE I

Rates of Interprovincial Migration in Canada, 1956-61, by Age, Education and Occupation Groups, Males, Per Hundred Thousand in 1961.

Age in 1961	Migration Rate	Schooling in 1961	Migration Rate
5-14	3441	Males 15+	
15-19	2408	Elementary	2079
20-24	5331	Secondary*	4681
25-29	6551	University**	8074
30-34	6583	Age Standardized	
35-44	3984	Elementary	2313
45-64	1848	Secondary	4681
65+	1385	University	7853

Occupation in 1961	Migration Rate
Managerial	4549
Professional	6758
Clerical and Sales	4138
Service	10603
Transport	3156
Craftsmen	2586
Farmers, Laborers and Other Primary	2036

* Includes persons with some years of Secondary schooling.

** Includes persons with some University as well as graduates.

rates for Service and Recreational occupations and for Professionals are undoubtedly biased upwards because these were growing occupations in all regions; those for Transportation workers and Laborers, Farmers and other Primary Workers are biased downward since these were declining occupations. The problem that this raised pervades the entire paper to varying degrees and constitutes one of the serious weaknesses of census migration data. For many analytical purposes, the lack of beginning-of-period, and origin-specific information robs the analysis of precision. For example, it is not possible with these data to compute migration rates with precisely the population 'eligible' or 'exposed to risk' as the base. The same problem makes it difficult to give a precise causal interpretation to regression analyses. The difficulty is evaded in this study to varying degrees but it must be counted as an overwhelming shortcoming of census migration statistics.[5]

III. The Economic Analysis of Labor Mobility

There has developed in economics a considerable tradition of analysis of the geographical mobility of labor

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5. The difficulty could be ameliorated by the collection in the census of retrospective information on occupation, income and perhaps even educational status. The Canadian census of 1971, it appears, will be no better on this account. The U.S. census evidently will include some retrospective information.

within the context of the economic theory of resource allocation. Studies that relate migration to indicators of economic gain or relative economic performance of origin and destination regions, and which view the migration decision as an essentially economic choice between regions of work have become common in recent years. The individual migrant or groups of migrants are assumed to be seeking maximum economic advantage. Where, through migration, they can increase their earnings by more than the costs of migration they will undertake to move. This is clearly an oversimplification of human behaviour that leaves out of consideration a whole range of non-economic motives. The evidence is, however, that to a considerable degree human migration, especially within nations, is bound up with decisions about where to work and at what job.

The theoretical underpinnings of this view of migration date back at least to Adam Smith. The idea has continued down as an almost self-evident part of the economics of labor markets although until recently with little systematic attempt at empirical verification. Evidence for Great Britain in the interwar period indicated that migration within the country was related to the degree of slackness or tightness of regional labor markets (Makower, 1939). Sjaastad (1960) and Raimon (1962) presented persuasive demonstrations that state income differentials were important factors in accounting for interstate migration in the United States.

Subsequently there has appeared quite a number of migration models, each offering a modification of the particular specification of the model selected for estimation, but based essentially on the view of the migrant as a seller of labor intent on maximizing the return to his services.[6] Inevitably, the recent upsurge of interest in the concept of human capital has led to a more precise formulation of the migration decision as a form of investment decision (Sjaastad, 1962).

An economic model of the geographical mobility of labor will have as its principal constituents variables that indicate the monetary gains from migration and the costs incurred. The model might be complicated by other variables whose inclusion is primarily to provide for more accurate estimation of the influence of income gain and costs. Variations in the number of persons in each region of origin who would be potentially 'eligible' as migrants are taken account of by analysing the rate of migration between regions in relation to the numbers initially in the region of departure. In its simplest form the theory is stated in equation [1] where $\frac{M_{ij}}{P_i}$ is the flow of migration from region i to region j, in relation to the number of people in region i,

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6. A parallel development has been the explicit introduction of variables representing relative economic advantage into migration models of the "gravity" type. See especially the work of Lowry (1966) and Rogers (1967).

E is the gain in earnings that can be obtained through

$$\frac{M_{ij}}{P_i} = f (E, C). \qquad [1]$$

migration and C the cost of making the move. Cost is conceived of broadly here to include indirect costs in the form of earnings foregone while making the move and getting settled into a job in the new region and the psychic costs of disrupting relations with friends and relatives, the schooling of children and so forth. Since the world is not one of perfect information wherein opportunities in region j are fully known to persons in region i, the cost variable might appropriately be extended further to include the costs of search involved in gaining information about opportunities at a distance. Similarly, the earnings variable, E, should be taken to represent the expected gain to be made from migration rather than any precise knowledge of what the gain might actually be.

This is, unfortunately, in no way an exact formulation and leaves considerable leeway as to what the actual specification might be for the purposes of estimating the parameters of the model. The nature of the data that are available imposes some distinct limitations so it is advisable to consider first what can be done before specifying what it is desirable to do. The statistical evidence from the 1961 Census of Canada provides observations on the

movement of persons, over a period of five years, between each of the ten provinces of Canada. These provinces differ considerably in size and the susceptibility of the data on province-to-province flows to sampling variability necessitates the grouping of the small Atlantic provinces into a single region.[7] There are, then, 42 observations on migration between particular regions. These flows are transformed into rates of migration per hundred thousand population in the regions of origin in 1956, although, as explained below, for education and occupation specific migration this has to be done in an approximate way. Data for the explanatory variables prove exceptionally problematic and some drastic compromises are necessary. First it is assumed that the gain in earnings that the prospective migrant could expect to make is measured by the extent to which the average earnings of the destination region exceed that of the origin region.[8] In a more sophisticated model that drew on human capital theory, a discounted value of lifetime earnings

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7. This region comprises the provinces of Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick. The individual Prairie provinces are retained as separate regions in the analysis. Manitoba and Saskatchewan have relatively small populations but rates of migration are very high and one runs into few cases of very small flows.

8. The earnings data were annual wages and salaries plus income from non-farm independent business. There was no way to incorporate farm incomes as well. As a consequence the earnings differentials that are used are somewhat lower than if differences among regions in the income of farm proprietors had been taken into account.

rather than current regional differentials would be employed. The gain from migration is not just what the migrant obtains in the current year but the permanent improvement in his earnings over the remainder of his working life. There is little alternative to assuming that current regional differentials are not just transitory but are representative of differentials that will continue over long periods. Given that, and assuming further that individuals from the several regions would apply the same rate of discount, current earnings differentials will be highly correlated with differences in the discounted values of lifetime earnings streams and consequently acceptable proxies.

The migration streams show both a flow and a counter flow; in the direction of increased earnings and in the reverse direction. Thus it would seem that the economic model of labor mobility would predict a direction of migration that is right precisely half the time and wrong precisely half the time. The answer to this apparent anomaly, at least in part, must be that it is a consequence of aggregation. There are some individuals from regions of high average income who are able personally to increase their earnings by migrating to regions with low average income. The evidence at hand relates to aggregate flows of migrants and to average regional earnings, so that there is no way in a quantitative analysis that we can account for behaviour on an individual basis. The logical consequence

may be that aggregate migration analysis should be concerned with net movements only - at least where the analysis is in the context of an economic model.[9] Nevertheless, the analysis reported on here relates to the gross movements of population between each pair of regions, in both directions. In relating movements to income gain or loss, however, the latter is introduced with a negative sign. The effect is as though the estimates related to net migration, the movements in the direction of negative income differences partly offsetting the movements in the direction of positive income differences.

A more serious problem with the use of 1961 earnings data is that the earnings differentials themselves may be partly a consequence of the flows of migration over the prece ding five years. If migration among regions is successful in reallocating labor we would indeed expect it to have the effect of reducing regional differentials in earnings. In such a system, with causation running in both directions, single equation, ordinary least squares estimates of the model will have biassed coefficients.

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9. An alternative would be to suppose that motives for migration are a mixture of economic and non-economic and that where the movement runs counter to what average earnings statistics would point to as an economic gain, that the non-economic influences have tended to dominate. There is no reason to expect non-economic influences on migration always to be inversely related to economic influences. Even more certainly, non-economic influences would hardly offset the economic exactly one-half of the time. The problem must be largely one of aggregation.

The work reported here is certainly open to that charge. Lack of information for the year 1956, which is the reference year for the five-year migration question that was asked on the census, greatly diminishes the usefulness of the census migration data. While in the present case the problem is potentially severe, inspection of the earnings differentials among provinces and their trend over the period 1951 to 1961 suggests that in fact migration may have had little effect in reducing regional differentials. While interregional migration was operating to reduce regional income differentials, other influences were evidently at work to widen them with the net result of no convergence. This is the case at least for average earnings of all workers and for some of the broader categories. Problems may arise with some of the specific education and occupations classes.[10]

In addition to regional differences in earnings, the migration model that is estimated here relates migration to distance. Highway mileage between the main centres of population of the origin and destination regions is a rough proxy for the cost of movement, conceived in the broadest sense. What is not clear is the extent to which it represents direct or indirect costs of movement and the

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10. For a fuller discussion of this point see McInnis (1969). The assessment of changes in regional differentials in earnings is complicated by the exclusion of farm income from the census earnings data. Some part of the interregional migration that is being analysed is still a movement from farm to other occupations.

extent to which it indicates the diminishing information about economic opportunities at greater distance, and hence the cost of search for those opportunities. In any event we expect migration to be inversely related to distance between regions.

A third variable, the size of the labor force in the destination region, is added to give scale to the measure of economic opportunity. A specified gain in earnings might attract more migrants if it pertained to a large region rather than a small region. It is not clear, a priori, that migrants would indeed visualize their own act of migration as reducing the gains to be made from migration, especially where the number of opportunities in the region of destination is limited. But it is at least a testable hypothesis.

The model that is estimated here, as specified in equation [2], is pretty much in line with what is typical of work on the economic analysis of regional labor mobility.

$$\frac{M_{ij}}{P_i} = \alpha_o + \alpha_1 E^* + \alpha_2 L_j - \alpha_3 D_{ij} + u \ . \qquad [2]$$

The main explanatory variables, income differentials between regions and distance, are standard. Authors differ as to whether they include any variable for the scale of the destination region. Also, there is considerable variation in recent work in the selection of the form of the dependent

variable. In general, the model adopted here reflects most closely the work of Gallaway (1967). The one question open to some debate concerns the selection of a simple linear form for the regression equation. Both simple linear and logarithmically linear forms are easy to estimate and have vied with each other for popularity in recent research. The choice of the arithmetically linear form here is made largely on grounds of simplicity, in the absence of any more specific a priori knowledge, and because of my use of negative as well as positive values of the earnings variable. In addition, where the logarithmic form has been used it has been common to introduce the regional earnings variables in relative form (see for example Rogers, 1967). This is thought by some authors to permit the separate evaluation of origin and destination region income levels as influence on migration. On theoretical grounds, the absolute size of the difference in income between regions, rather than the relative levels of regional income, should be the appropriate variable.

As a basis against which the subsequent estimates of the migration model for specific groups can be compared, the results of fitting equation [2] with data for 1956-61 inter-regional flows of all adult males in Canada are shown in equation [3]. What this shows is that migration between any two regions of Canada rose by 29 per hundred thousand eligible persons in region i for every $100 increase in the

$$\frac{M_{ij}}{P_i} = 1047 + \underset{(2.72)}{0.290E^*} + \underset{(1.96)^j}{0.296L_j} - \underset{(4.25)^{ij}}{0.330D_{ij}} + u \; . \qquad [3]$$

$$R^2 = .40 \qquad F = 10.14$$

excess of j's average earnings over i's average earnings. If region j were larger by one thousand workers, migration would increase by .3 of a person per hundred thousand in region i, and this effect is of doubtful significance. An additional 100 miles of distance between the two regions would reduce the flow of migration by 33 per hundred thousand persons in i. The fit of the regression equation is reasonable for a cross-section study and the t-values in parentheses indicate that the important variables, E* and D_{ij} have coefficients with the expected signs that are significantly different from zero. In short, the model seems to give reasonably acceptable results.

I have examined the implications of this relationship more fully elsewhere (McInnis, 1969) and can merely report here that the model is relatively insensitive to modifications in the form of the relationship and to other minor alterations in specification. The main point of introducing this estimate for a highly aggregated group of migrants is that the strategy of the present paper is to apply the same model to a number of flows of migrants of specific characteristics. Most work on the analysis of regional labor mobility has been carried out, similarly

to that reported above, on highly aggregated groups of migrants. A number of writers have noted previously that variations in response through migration to economic stimuli may partly account for the observed variation in rates of migration among specific age, education and occupation groups. Sjaastad (1962) for example points to the rising costs of migration with age and the shorter period over which the gains in earnings are appreciated as one of the main reasons why migration tends to be so heavily concentrated in younger adult age groups.

IV. Estimates of the Migration Model for Specific Age, Education and Occupation Group

The 1961 Census of Canada statistics of migration measure flows of male migrants between pairs of provinces for several age, education and occupation groups. Only the data on migration by age were published. The other data have been obtained from unpublished tabulations. Those for some of the specific migration groups were too shaky to use separately, so groupings of characteristics have been formed to reduce the effects of sampling variation. The following analysis focusses on four age groups, three education classes divided into two age groups, and seven broad occupational classes without age differentiation. It examines only male migrants. The estimated coefficients of the variables of

equation [2] are shown for each of these specific groups of migrants in Table 2. I shall review these results in comparison with the observed differentials in rates of migration for the various age, education and occupation classes.[11]

The regression estimates for specific groups are largely comparable with the result presented for all adult male migrants. The dependent variable in each case is the region-to-region flow, over the five year period, of persons of age, education or occupation specified in 1961, expressed as a rate per hundred thousand such persons in the region of origin in 1956. For education and occupation groups there was no direct evidence on the numbers of persons in 1956. The number of 20-29 year olds and of those 30+ in 1956 of each educational group was estimated by working back from the 1961 number and adjusting for migration over the intervening period. An account was taken of possible changes in educational status but the numbers involved would have been small. The 1956 occupational composition was estimated in a more complicated way. The 1951 and 1961 numbers in each occupation in each region for the cohorts aged 25 years and over in 1961 were averaged and adjusted for the numbers of workers 20-24 in 1961, distributed among occupation groups on the basis of the average of regional occupation-specific participation rates in 1951 and 1961.

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11. See Table I above.

TABLE 2

Estimated Coefficients[a] of Migration Model, Specified Age, Education and Occupation Groups of Male Migrants

Population Group	Constant Term	Earnings Difference E*	Labor Force L_j	Distance D_{ij}	R^2	F
Age Groups:						
20-24	1538	1.206	(0.321)	-0.470	.35	8.32
25-34	2049	(0.452)	0.651	-0.636	.32	7.57
35-44	1190	0.299	0.487	-0.379	.40	10.02
45-64	674	0.169	(0.040)	-0.195	.32	7.32
Education Groups:						
25-34 years						
Elementary	844	(0.245)	(0.165)	-0.264	.32	7.43
Secondary	1057	0.653	(0.170)	-0.304	.43	11.36
University	2019	1.475	1.022	-0.511	.39	9.81
35+						
Elementary	227	0.077	(0.032)	-0.070	.29	6.66
Secondary	571	0.306	(-0.012)	-0.152	.41	10.62
University	1211	0.371	0.438	-0.372	.50	14.54
Occupation Groups:						
Managerial	2220	(0.328)	(0.158)	-0.670	.41	10.37
Professional	2733	0.838	1.539	-0.960	.44	11.88
Clerical & Sales	2848	2.180	(-0.043)	-0.836	.44	11.76
Service	1477	2.103	2.133	-0.425	.38	9.52
Transport	1302	0.375	(0.279)	-0.449	.32	7.47
Craftsmen	1978	0.923	(0.099)	-0.609	.32	7.32
Primary Laborers	282	(0.056)	0.144	-0.101	.34	8.08

a. Parentheses enclose coefficients that are not significantly different from zero at the .95 level.

The L_j and D_{ij} variables are the same as in the regression for male migrants of all ages. Earnings differentials are in all cases those for the specific age, education or occupation group under study.

Age: The results for the four age classes show substantial differences by age in the response of migration to economic variables, but the differences do not unequivocally suggest that differential migration by age is largely a consequence of differential response to the economic gains for migrating. All age categories reveal increased migration with larger gains in earnings and diminished migration with greater distance and the over-all multi-variate relationship accounts for a satisfactory, if not high, proportion of the variability of migration. Rather surprisingly, though, the deterrent effect of distance is stronger for the young, most mobile age class (25-34) and less severe for the oldest age group (45-64). This might reflect a greater tendancy for younger persons to be moving from rural and small town areas to larger urban centres, while older migrants may be more likely to be inter-urban movers. In addition, it might be the consequence of the greater average wealth of older migrants that makes it easier for them to incur the costs of long-distance moves.

The youngest group of migrants (20-24) is highly responsive to regional differences in earnings. The

coefficient on E* for that age group is much higher than for any other group. But it is only for this young age class that earnings differences between regions exert a strong influence on interregional migration. The coefficient of E* falls with age but the main drop is from the 20-24 year group to that immediately older. Indeed for the most highly mobile group between regions (25-34) the coefficient falls short of statistical significance at the usual .95 level. For older age groups the coefficient of E* is significantly above zero in a statistical sense but is low compared to that for the 20-24 year group. Moreover, for middle-aged groups the L_j variable representing the scale of opportunities in the destination region has a significant influence whereas it does not either for the 20-24 or 45-64 year groups. Taken together, what all of this seems to indicate is that there are important influences upon migration other than economic gains, that will be conceded by all, but that these other influences operate most strongly in the middle-age categories. The age pattern of differential migration corresponds to the responsiveness of the several age groups to the likely economic gains for migrating, but not in such a strong way as to imply that the latter is the primary factor in accounting for the former. Indeed, there is a suggestion that age group 25-34 may have the highest rates of migration because

movement for non-economic reasons are more highly concentrated among persons of those ages.

Education: The results for education classes are more clear-cut. In general, the model performs more ably for older than for peak-mobility migrants, but the pattern of coefficients is more in line with what would be expected if differential migration were a reflection of differing strength of response to economic opportunity. For younger migrants with only Elementary School education, the model explains nothing. Their migration between provinces is significantly but not very strongly deterred by distance but is not really responsive to earnings differentials nor to the size of destination regions. The coefficient of the earnings variable consistently rises with the level of education, and is greatest for younger migrants with University education. On the other hand, the deterrent effect of distance is positively related to levels of education also - contrary to what I initially would have expected. The general lack of significance of the variable representing size of destination region also raises interesting questions in relation to the widespread use of such a variable in models of the gravity type.

Occupation: The highest rates of migration in Table I were observed to be in Service occupations, with Professional

and Technical occupations second but considerably lower. Laborers, Farmers and other Primary Workers had the lowest rates of interprovincial migration. To an unknown degree the very high rate for Service and Recreational occupations is inflated by the rapid growth generally of that occupational group and by the inclusion of some military personnel.[12]

The responsiveness of migration to earnings differentials is greatest in Service and Clerical occupations. The earnings coefficients for those two groups are markedly above those for other occupations. Next in line come Professional and Technical workers. The model fits rather poorly for Laborers, Farmers and Other Primary Workers and the income coefficient is low. Not surprisingly, perhaps, the earnings coefficient for Managers and Proprietors is not significant. That group would likely include a higher proportion of persons who were transferred in the jobs which they hold.

Again, rather surprisingly, but consistent with the findings for educational groups, the deterrent effect of distance appears to be positively related to the skill levels of the occupational groups. Even more curious is the prominent, high and statistically significant coefficient of destination region size for Professional and Service

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12. The migration rates by occupation include the consequences of both spatial and occupational mobility. Persons who changed occupation along with their province of residence are more likely to show up in the more rapidly growing occupations.

occupations, in contrast to the lack of significance of that variable for other occupation groups. This seems to point to a more complex process of migration than the models employed in this paper would suggest. Attractive economic opportunities for Service and Professional workers may be highly concentrated in the larger urban centres, which in turn are in the more heavily populated regions. For other, perhaps less distinctly urbanized occupations, attractive opportunities may more frequently lie in smaller regions.

So far the discussion has been entirely in terms of the patterns of the coefficients of the regression models in relation to observed migration differentials. Given weaknesses in the data and some doubts as to the specification of the model this is perhaps as far as the analysis should be pushed. I am inclined to go on to ask, however, whether the magnitudes of the coefficients of the model are really such as to warrant the interpretation I have given them. These models explain only a modest fraction of the variation in regional migration. Moreover, the estimated response of migration to differences in earnings is not so very strong. For persons of Secondary School education for example, the estimated equation would predict that an increased earnings differential of $100 would raise migration, per hundred thousand 'eligibles' in the region of origin by seven. The earnings differential

for that group between the Atlantic provinces and Ontario is just a little over $1000. Migration was at the rate of about 150 per hundred thousand. This would appear to be a rather mild influence. We should recall, though, that the coefficient was estimated from data that included both movements from the Atlantic provinces to Ontario to take advantage of the $1000 per year higher income, but also movements in the opposite direction. The net movement in this instance is only about one-quarter the gross movement. In this sense, then, the measured influence of regional earnings differentials is not small.

V. Conclusions

The variations in the response of migration to regional differences in earnings between age, education and occupational groups follows a pattern that is generally similar to the overall differences between those groups in rates of migration. This evidence indicates that it may be reasonable to conclude that migration differentials are to a considerable extent, if not entirely, a reflection of variations in responsiveness to economic opportunity. A simple economic model of migration gets best results when applied to specific groups that are highly mobile and performs least well for poorly educated and low-skilled occupation groups. A noteworthy exception to this conclusion is the weak performance of the model for the highly

mobile 25-34 year age group. Economic motivation alone has not told the whole story.

The results relating to the variables other than income are just as interesting as the confirmation of the expected pattern of income coefficients. The size of the destination region, measured by its labor force, is a positive attraction for some groups (25-44 year olds, Professional and Service workers) but not for others (notably 45-64 year olds, persons with Elementary school education, and persons in Managerial, Clerical and Sales, and Farmers, Laborers and Other Primary Workers). Even more interesting is the positive association between migration rates and the strength of the deterrent effect of distance. Is this because distance as a cost is more carefully considered by the higher education and higher skilled groups that are evidently more economically motivated? Or is it because persons with little education or skill must range more widely in their search for jobs? Evidence from other bodies of data relating to other circumstances would be helpful in sorting this out.

Finally, what are we to make of the closer association of educational and occupational migration differentials than of age differentials with the strength of response to geographical differences in earnings? Is this because the heavy concentration of migration in the young adult ages makes those age groups more heterogeneous educationally or

occupationally? Or is it simply that education and occupation have a closer bearing on economic status than does age? Education and occupation do indeed have closer and more distinct links with economic status than does age. My results may suggest that migration differentials by education and occupation groups are of a rather different sort than those for age classes. The former may be an outcome of the functioning of the economic system and consequently may differ in the pattern of differentials that emerges from one set of circumstances to another, a point that has been emphasized by Donald Bogue (1959). Age differentials in migration, more nearly universal, may be a rather different matter, and one that is less susceptible to understanding from the viewpoint of economic man.

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