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Interprovincial Migration and Economic Adjustment

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I. Introduction

Problems relating to regional economic disparity are becoming more and more the focal point of Canadian economic policy. Not only do these regional disparities evoke policy measures directed specifically toward regions but their presence also impinges on the types of policies that can be prescribed for other economic ills. For example, the current overriding concern with inflation cannot be viewed without reference to regional disparities. With inflation proceeding at a rate of 4 percent in 1968, for example, appropriate monetary and fiscal policy might call for a curtailing of aggregate demand. But with unemployment rates already well over 7 percent in the Atlantic region such a policy would push unemployment rates to an unacceptable level in this region (if indeed they are not already at an unacceptable level). In a recent article McInnis highlighted the seriousness of this regional disparity:

> Over the period 1926-1962 taken as a whole, the level of variability of relative per capita income among regions has been approximately constant. Furthermore, over the long term, there has been little change in the relative positions of the individual regions. On the basis of this evidence the trend of regional income differentials in Canada appears to have been roughly a constant; there has been neither convergence nor divergence. [1968, p. 441].[1]

This raises several important questions: What are the avenues through which regional adjustment proceeds? How adequate are these channels? What is and what ought to be the role of government (provincial and federal) in the

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[1] In our own work we find some tendency toward convergence in the last decade [Courchene, part 5]. But this does not detract appreciably from McInnis' generalization, 1970.

adjustment process? While an analysis of the channels and adequacy of regional adjustment is beyond our scope, it is, nevertheless, the appropriate context within which to investigate interprovincial migration--the purpose of this paper. As interesting as a study of migration of and by itself may be, throughout this paper the analysis of migration will be considered as a means toward achieving a more important goal, namely economic adjustment or the efficient allocation of resources. For this reason we shall, where possible, focus on movements of the labor force rather than the entire population, precisely because the former is more relevant to economic adjustment.

In a country as large and diverse as is Canada it would be surprising indeed if the process of general economic growth did not imply differences in the rates of growth in different regions. Changes in the structure of consumer demand, changes in technology and the discovery or new sources of natural resources are bound to have differential impacts on regional economic growth. In order that economic adjustment proceed, resources will have to be reallocated geographically. Furthermore, the regional rates of population growth may be such as to contribute further to the adjustment problem. Since labor is the most important factor of production (in the sense that it accounts for roughly two-thirds of the cost of producing the flow of final goods and services) it is not unreasonable to expect it to bear the lion's share of the adjustment.[2] Labor-force adjustment takes place at all levels--local, intraprovincial, interprovincial, and international. In this

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[2]Adjustment of course need not imply geographical mobility. Occupational mobility and skill-upgrading of labor are also important facets of the adjustment process.

paper our focus is on interprovincial migration only, even though the intraprovincial movements, for example, are considerably greater in magnitude.[3] In this sense our analysis presents, at best, only a partial picture of the role of migration in economic adjustment.[4]

The paper is divided into five main sections. In Part II we sketch some elements of the basic theoretical apparatus that underly the analysis and then proceed to develop the hypotheses that form the framework for the empirical investigation. Since most of the theory is readily available elsewhere, our treatment of it will be very brief indeed. Part III looks into various issues regarding the data sets and definitions of variables. The empirical thrust of the paper is contained in Sections IV and V. In the former we present a cross-section regression analysis of interprovincial labor-force movements by age and by level of education based on data from the 1961 Census of Canada. Section V presents both cross-section and time-series results based on data from sixteen years of interprovincial migration of family allowance recipients. Part VI draws some implications from the analysis relating to economic adjustment and suggests areas for future research.

II. Labor Force Migration: Some Theoretical Issues

Basic to the theory relating to interprovincial labor-force migration is the idea that labor is a factor of production. Efficient allocation of

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[3] For an excellent study of intraprovincial mobility of the Canadian population which focusses on cultural and demographic, as well as economic motives, see Stone [1969].

[4] Even at the level of interprovincial mobility we are neglecting emigration and immigration. For some aspects of immigration and adjustment the reader can consult Parai [1965].

resources requires factors seeking out those opportunities where their return (appropriately defined) is greatest. If there is no cost to relocating, then focussing on the differential returns of various jobs is sufficient to determine the direction of factor mobility. But there are costs to mobility and especially to interprovincial mobility since this involves geographical dislocation. Therefore factors will tend to move where their net return (benefits minus costs) is greatest. Alternatively we can, following Sjaastad [1962], treat migration as an investment in human capital where the costs of this investment are the present value of foregone earnings plus any money and non-money costs directly associated with migration and the return to the investment is simply the discounted present value of future earnings arising from migration. Naturally, investment in human capital in the form of migration should proceed if the present value of returns exceeds this cost.

As stated, both these approaches to migration amount to not much more than economic truisms. Most of this section will be devoted to isolating variables that can be expected to impinge on either the costs associated with, or returns derived from, migration, thus converting the underlying theory into a series of testable hypotheses. Except for the age-related hypotheses which fit more naturally into the human-capital framework, the hypotheses that follow are consistent with either approach. Some of these hypotheses will not be very novel. For example, the hypotheses that interprovincial mobility is positively related to differential provincial incomes and negatively related to distance have already received impressive empirical support [Vanderkamp, 1969]. Indeed, Vanderkamp's theoretical analysis is cast in a benefit-cost framework and the present paper can be viewed as an extension of his work.

Since wages are the return to labor, the prime determinant of labor-force migration on the benefit side should be relative wage rates in the various provinces. However, we do not attempt to construct a representative wage rate at a provincial level. Rather, we utilize income data to approximate the average yearly earnings per worker. In a study for the Economic Council, Denton [1966] develops what we consider to be an appropriate proxy for wage income, namely earned income per employed person. Earned income is defined as those portions of provincial personal income associated with employment, i.e., labor income, military pay and allowances, and the net income of unincorporated business proprietors, including farmers. This total is divided by the labor force less the yearly average number of unemployed persons. In other words, if the average unemployment rate in province i is 4 percent, the denominator, i.e., employed persons, equals 96 percent of the labor force. Notationally, we shall refer to this as Y/E where Y is earned income and E is the average number of employed persons. Letting i represent the sending province and j represent the receiving province, we have:

> Hypothesis I: Migration from province i to j will be positively
> related to $(Y_j/E_j \big/ (Y_i/E_i)$, i.e., to relative
> labor incomes.

Based on the work of Vanderkamp (1969) there is considerable evidence to suggest that the earned-income-per-employed-person variables ought to be included separately in a regression equation. Specifically, Vanderkamp argues that, given Y_j/E_j, a lower level of Y_i/E_i might not increase migration from i to j.[5] On the one hand a decrease in Y_i/E_i will increase the

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[5]Indeed, Vanderkamp's empirical results suggest that a decrease in Y_i/E_i will decrease migration from i to j [1969, Table 1].

relative wage differential and on this count stimulate migration, but on the other hand it will also lower the general level of income in region i and tend to make people less able to bear the cost of job relocation. We view this argument as a capital-market-distortion argument. One could argue that if capital markets were perfect the potential migrant would be able to borrow to finance this investment, and there would be no reason to act differently toward an increase in Y_j/E_j than a decrease in Y_i/E_i. But the markets for human capital are far from perfect. Accordingly we formulate

> **Hypothesis II:** An increase in Y_j/E_j will increase the rate of migration from i to j. A decrease in Y_i/E_i will also lead to movements from i to j. In absolute value, however, the coefficient for Y_j/E_j will be larger than that for Y_i/E_i.

Some of the empirical work in this paper will relate to hypothesis I and some to hypothesis II.

By themselves, relative wages (represented by $(Y_j/E_j)\big/(Y_i/E_i)$) do not capture adequately the economic attraction of the various provinces. For example, British Columbia has the highest level of earned income per employed worker in Canada. However, it also has one of the highest rates of unemployment in Canada. It is important that this latter variable be allowed to influence interprovincial migration. Ceteris paribus, the greater the unemployment rate in the receiving province, U_j, the smaller will be the migration flow to j. Accordingly

> **Hypothesis III:** The unemployment rate in the receiving province, U_j, will be negatively related to migration from i to j.

Analogously, for any given level of Y_i/E_i the greater the unemployment rate in the sending region, U_i, the greater will be the outmigration rate from

that region. It may be true that an increase in unemployment also serves to inhibit migration because the potential migrant (if unemployed) may be deprived of a source of income to finance the direct costs of moving. However, the indirect cost of moving (i.e., the foregone earnings) is zero so that the net return to investment is all the higher. Since the latter effect will, in our opinion, prevail we formulate

Hypothesis IV: Migration from i to j will be positively related to U_i.

Focussing still on the benefit side we want to incorporate into the analysis the level of <u>unearned</u> income per member of the labor force. We are not interested in this paper in non-labor incomes such as dividend income, even though these will obviously affect the decision to migrate. Rather we are interested in the government-transfer type of unearned income. Within this framework we specify three different types of variables. The first focusses on location-oriented subsidies or transfers only. As a proxy for this we utilize, for each province, the sum of statutory subsidies, equalization and stabilization payments, and the Atlantic Provinces Adjustment Grant under the Federal-Provincial tax-sharing arrangements. Notationally we refer to these as TG. Although these transfers do not go directly to persons but, rather, to provincial governments they represent benefits to residents in the sense that their tax burdens are reduced accordingly.[6] We scale these transfers to each province, TG_i, by the provincial labor force, L_i. The greater the level of these transfers per labor force, TG_i/L_i, the smaller will be outmigration from province i.

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[6]A more complete analysis would, of course, include relative tax rates in the various provinces as a determinant of interprovincial migration. This, too, is beyond the scope of this paper.

Hypothesis V: Migration from i to j is negatively related to the level of intergovernmental transfer payments per worker of sending region, TG_i/L_i.

Since the level of these transfers is generally inversely related to the level of per-capita income of the provinces, it is quite possible that they will have some effect in decreasing the provincial disparity in Y_i/E_i. If this is the case, then the effect of transfers will be captured indirectly in the relative wage variables (assuming hypothesis I is verified). Hypothesis V seeks a direct test of the impact of TG_i/L_i.

For the time series data set relating to migration of family allowance recipients we employ total federal transfer to province i, notationally TT_i, rather than TG_i.[7] Because of the differing income levels in the various provinces a given dollar transfer of funds per member of the labor force will be "worth" more to a low income province than to a high income province. Accordingly we scaled TT_i not by L_i but by Y_i so that the transfer variable becomes relative transfers, i.e., TT_i/Y_i. For the family allowance data set, then, hypothesis V will read: Migration from i to j is negatively related to the relative transfers to province i, TT_i/Y_i.

Thus far we have been assuming that the opportunity cost of being unemployed is the wage rate. But in reality the opportunity cost is the wage rate minus the benefit rate under the unemployment insurance program. The larger are the rates of unemployment compensation, the lower will be the cost of being out of work and the less the tendency to migrate. This

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[7]Research on the two data sets was separated in time by several months. Data on total transfers were obtained after the Section IV empirical work was completed but prior to the research on the family allowance data. No attempt was made to incorporate TG_i/L_i into the Section V equations.

is <u>Hypothesis VI</u>: The greater the level of unemployment insurance benefits in province i, i.e., UT_i/Y_i, the smaller will be the outmigration from i.[8] In summary then, outmigration from province i is hypothesized to be positively related to the rate of unemployment in province i (hypothesis IV) and negatively related to the rate of unemployment compensation in province i (hypothesis VI).

· Turning now to the <u>cost</u> side of interprovincial migration, distance is the principal variable we employ to represent the direct money costs involved in migration. Nearly all empirical studies find a negative correlation between the rate of migration and the distance moved, other things being held constant. In addition, nearly all the studies indicate that the marginal cost of each additional mile implied by the regression equations far exceeds the actual transportation cost for an additional mile. This implies that distance serves as a proxy for other costs, money and non-money, that are likely to be associated with distance (e.g., the cost of returning home for a visit or in case of an emergency increases with distance; information concerning job opportunities probably declines with distance; the greater the distance, the greater the degree to which family, community and cultural ties will have to be broken). <u>Hypothesis VII</u> then, is: The rate of migration from i to j is negatively related to distance from i to j, D_{ij}.

Migration from province i to j is positively related to the education

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[8]A detailed analysis of the relationship between unemployment insurance payments and interprovincial migration is the subject of a separate paper [Courchene, 1969]. We shall touch on this hypothesis only very briefly in this paper and only in connection with the family allowance data set. Note that we again scale unemployment transfers by income in province i, Y_i, rather than by labor force, L_i. Results of equations embodying UT_i/L_i are available in Courchene [1969].

level in province i. This is <u>Hypothesis VIII</u>. Sufficient evidence already exists on the positive contribution of education to migration[9] so that we need not defend hypothesis VIII. But we can carry the analysis somewhat further. It has become standard procedure in migration studies to focus on the income-distance trade-off, i.e., the ratio of $(Y_j/E_j)/(Y_i/E_i)$ to D_{ij}. Education tends to encourage migration because it increases the benefits as well as decreases the costs of moving. For example, insofar as more education provides the potential migrant with greater knowledge concerning employment opportunities in other provinces, education serves to increase the benefits of migration. Another way of stating this is that geographical size of the labor market increases with increasing education. But insofar as any cultural or provincial ties lessen with greater education, or the risk of becoming unemployed after moving decreases with greater education, it can be considered as reducing migration cost. In other words, the greater information that accompanies greater education provides the potential migrant with more knowledge of Y_j/E_j and also serves to decrease the information and other costs associated with distance. Accordingly, we propose:

> <u>Hypothesis IX</u>: The greater the level of education, the greater
> will be the income-distance trade-off.

A subset of the census data kindly supplied by Dr. Leroy Stone permits us to develop hypotheses relating to age and migration. Viewing migration as an investment in human capital and taking a life-span earnings as the relevant return it is clear that for a given income differential the

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[9]For example, see Schwartz [1968, ch. V.] for the contribution of education to U.S. migration and Stone [1969] for the influence of education on intraprovincial population movements. Note that while we shall measure education in terms of formal schooling, it may well be a proxy for skill level. We make no attempt to distinguish between these two.

benefits from migration will be greater the younger the migrant (assuming, of course, that our relative income variables are decent proxies for relative life-span earnings between i and j). In addition the costs of moving are likely to increase with age. On this point Schwartz notes:

> A few cost elements which vary systematically with age are the following:
> 1. All the cost elements which are associated with the size of family (and size of family is clearly a function of age). ...
> 2. The cost of losing the experience in giving up past "on the job training". ... and the cost of new training.
> 3. The psychic cost which is also probably a function of age. [1968, pp. 56-7].

Assuming that income differentials represent the primary returns to migration and distance reflects the primary cost, this leads us to formulate:

> Hypothesis X: The impact of provincial income differentials on migration is negatively related to the age of the migrant.

> Hypothesis XI: The impact of distance on migration is positively related to the age of the migrant.

We now turn to some determinants of migration not based directly on optimum resource allocation grounds. In a related study, McInnis [1969] suggests that for some provinces the movement of people from rural to urban centers takes the form of interprovincial migration. In particular, he was referring to the prairie provinces and P.E.I. We generalize this observation and assume that the process of urbanization is likely to cross interprovincial boundaries for those provinces which are largely "rural". Specifically, we assume that the percentage of the labor force employed in agriculture is a good proxy for the degree to which a province can be classified as "rural" and formulate

> Hypothesis XII: The rate of migration from i to j is positively related to the percentage of labor force of province i that is employed in agriculture.

The remaining variables that we consider are more on the cultural level. Previous studies, e.g., Stone [1969], have shown that the Quebec labor force is considerably less mobile than that for the rest of Canada. Viewed somewhat differently, the above variables will overpredict outmigration from Quebec. The combination of cultural, language and religious elements are probably at the base of this phenomenon. But even this low outmigration may be consistent with a human capital approach. As Becker [1964, pp. 28-9] suggests "if specific (...that is, to the firms, industries or countries [provinces] in question) training were important, differences in earnings would be a misleading estimate of what migrants could receive." At any rate, we allow for this by including a dummy variable for outmigration from Quebec. Relatedly, the migration from the four Atlantic provinces to Ontario is far greater (based on the regression results that follow) than the simple cost-benefit model we specify would indicate. In large measure, this results again because reasons of a cultural-language nature inhibit their migration to Quebec. This effect too will be allowed for by the use of a dummy variable, i.e., the dummy variable will have 5 observations equal to unity and the remaining 85 will be zero. Four of these values of unity will relate to outmigration from each of the Atlantic provinces to Ontario while the fifth will relate to outmigration from New Brunswick to Quebec, once again capturing a non-economic (language) motive for migration. The third and final dummy variable we employ is to take account of the tremendous outmigration from Saskatchewan to Alberta--over 4 percent of the Saskatchewan labor force moved to Alberta during the 1956-61 period (Table A.1). All of the dummy variables enter the equation as intercept dummies. A more realistic use of these variables would surely have been to allow them to enter the

equations as slope dummies. But the primary purpose of including them was to increase the explanatory power of the various models so more sophisticated specifications were not, in our opinion, warranted. We hasten to add that none of the conclusions reached in this paper is affected by the inclusion of these dummy variables.

The two remaining issues that we wish to address require data for several years so that they relate only to the family allowance data set. Firstly, is the time pattern of migration becoming more responsive to such variables as sending and receiving region income? Casual empiricism suggests that information regarding employment opportunities and incomes in other provinces is increasing over time. In addition, transportation costs are declining, at least relative to incomes. We propose, as Hypothesis XIII that interprovincial migration is proceeding with increasing efficiency over time. The precise method of testing this hypothesis is left to part V of this paper. The remaining area for investigation is the response of migration to the level of overall economic activity, represented by the Canadian unemployment rate. In a previous study Vanderkamp suggests that "unemployment has a significantly negative effect on the volume of mobility between regions" (1968, p. 594) and further that "this relationship is not adequately captured by regional unemployment differentials" (1968, p. 594). This is Hypothesis XIV and, along with the previous hypothesis, will be examined in part V of this paper.

The Form of the Estimating Equation

What is the appropriate dependent variable in an interprovincial migration analysis? Should one focus on gross or net flows? Should the flows be in absolute terms or in rates? From the manner in which the various

hypotheses are phrased, it should be clear to the reader that we intend to focus on the _outflows_ from each province to every other province. Moreover, since we are interested in isolating the determinants of migration it is appropriate to focus on the _gross_ outflow from each province because it is the province of departure that decisions to leave are taken.[10]

Rather than use the absolute gross outflow, we divide this outflow by the relevant parent population in province i (labor force for the census data and family allowance population for the data set on family allowance migration). Again, one can quarrel with this procedure. Vanderkamp, for example divides the gross outflow from i to j by the _sum_ of the parent population in i and j. Implicit in this latter procedure is the assumption that if the population in each province were doubled, gross outflows would quadruple whereas the former implies a doubling of the outflows. In a study of U.S. migration Schwartz [1968, Appendix I] concludes that both these polar cases are deficient but, if one has to choose, standardization by the parent population of the sending province is preferable. The dependent variable, then, is the rate of outflow from each province to every other province. Intuitively, it appears to us to be more satisfactory than the Vanderkamp procedure.[11]

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[10]Vanderkamp [1969] also focusses on gross outflows. However, McInnis [1969], in his analysis of 1961 census data, employs net migration as the dependent variable. By his own admission his results are not very encouraging. In part, we feel that this can be traced to the choice of net migration as the dependent variable. Note that McInnis also uses population movements while we have argued that labor-force data are more appropriate (where available) for a study of migration as an economic variable.

[11]Consider two provinces i and j where j has a labor force ten times as large as that for i. Assume also that 9 percent of province i's labor force migrates to j and 1 percent of j's labor force migrates to i. Under our procedure, the rates of migration for i and j would simply be 9 percent and 1 percent respectively. Under the Vanderkamp formulation the migration

For most of the empirical section we employ the simplest types of models--all variables enter in a linear or log-linear fashion. Because the census data, when classified by age, involve cells with zero gross outflows for certain provinces the linear version is used almost exclusively for this data set. The log-linear specification of the model is employed for the family allowance transfer data set. For both data sets, however, we include results obtained from other specifications including that employed by Vanderkamp.

III. Data

We employ two basic data sets. The first consists of the interprovincial labor-force migration between all pairs of provinces. Data are directly from Table J.4 of the 1961 Census of Canada monograph 4-1-10. This set is classified by age.[12] For both total labor-force migration and the age subclassifications, then, we have 90 observations. To investigate the interrelationship among education, age, and migration, we obtained a subset of the Census data from Dr. Leroy Stone of the Dominion Bureau of Statistics. (Note that these data were developed by Dr. Stone and not by D.B.S.). This data set is for male migration in each of two age groups (25-34 and 35 and over) classified by two levels of education--elementary and less, and greater than elementary. In this subset the four Atlantic provinces are lumped together into one "region" so that the data contain 42 rather than 90 observations.

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from i to j would be .8 percent while that from j to i would be .9 percent. (Both these numbers are rounded). In other words, despite Vanderkamp's attempt to avoid the use of net migration, his procedure would show a greater percent flow from j to i than from i to j precisely because the net flow from j to i is positive.

[12] It is also classified by other categories such as sex and unemployment status in 1961. Except for the age classification, we ignored the other classifications.

The second basic data set consists of monthly observations of interprovincial migration family allowance recipients over the sixteen years from 1952 to 1967. These monthly data were summed to obtain annual observations. For each year, then, there are 90 observations and for the pooled data set we have 1,440 observations.

The dependent variable for the Census data is the gross flow of labor-force migrants from province (or region) i to province (or region) j, M_{ij}, divided by the labor force of province i, L_i, i.e., M_{ij}/L_i. For the family allowance data set the dependent variable is family allowance migration from province i to j, FM_{ij}, divided by the family allowance population in province i, FP_i, i.e., FM_{ij}/FP_i. The definition of the explanatory variables is as follows:

$\dfrac{Y_i}{E_i}$ = earned income per employed person in province i (adapted from the Denton [1966] definition). For the family allowance data set, yearly figures on Y_i were obtained from the National Accounts. For the Census data set we used the average over the 1957-1960 period. Figures are expressed in thousands of dollars per employed worker. For the family allowance data, these incomes are deflated by the consumer price index.

$\dfrac{Y_j}{E_j}$ = earned income per employed person in province j. Derived similarly to Y_i/E_i.

$\dfrac{Y_j/E_j}{Y_i/E_i}$ = relative earned income per employed person in provinces j and i (a proxy for relative wage earnings).

$\dfrac{TG_i}{L_i}$ = intergovernmental transfers (Federal to province i) divided by the labor force of province i. These transfers consist of statutory subsidies, equalization and stabilization payments under the tax-sharing agreements, and the Atlantic Provinces Adjustment Grant which was also part of the tax sharing package. Data are averages for 1958-60 (dollars per labor force).

$\dfrac{TT_i}{Y_i}$ = total federal transfers to province i divided by earned income in province i. Annual data for total transfers to province i were obtained from D.B.S.

U_i, U_j = unemployment rates in provinces i and j. For the Census data set provincial unemployment statistics are averages for the 1957-60 period. Annual figures are employed for the family allowance data set. For some provinces figures were obtained from the Labour Division of D.B.S.

$\dfrac{UT_i}{Y_i}$ = unemployment transfers to province i divided by earned income of province i. Unemployment transfers are the sum of both seasonal and regular payments to residents of province i. Source: <u>Annual Reports on the Benefit Periods Established and Terminated under the Unemployment Insurance Act</u>, D.B.S. 73-201.

Ed_i = level of education in province i (defined as the percent of the labor force having an education beyond grade 10). Source: <u>Census of Canada</u>.

A_i = percent of the labor force employed in agriculture in province i. Source: <u>Census of Canada</u> (D.B.S. 99-S22, Table 5).

D_{ij} = distance from province i to province j (defined as distance between major cities in thousands of miles).

S_1, S_2, S_3 = shift variables. S_1 is unity for outmigration from the Atlantic provinces to Ontario and also for outmigration from New Brunswick to Quebec. S_2 is unity wherever the dependent variable is outmigration from Quebec. S_3 is unity for outmigration from Saskatchewan to Alberta. For all other observations, the shift or dummy variables contain zeros.

TIME = a dummy variable having a value of unity for all observations during years 1952-1959 and a value of zero from 1960-1967.

UDUM = a dummy variable having a value of unity for all years where the Canadian unemployment rate is <u>above</u> the average Canadian rate for 1952-1967. Zeros elsewhere.

Prior to turning to the empirical results we encourage the reader to devote some time to the two tables in the Appendix of this paper. Data in both these tables are from the Census data set. Table A.1 contains the total (i.e., summed over all age categories) outmigration rates for the

provinces. The last column of the table presents the overall outmigration rate for each province. These outmigration ratios are the dependent variables in the empirical work in part IV. Table A.2 is included for information purposes only. It presents interprovincial flows, the total net outflow for each province and the net outflow as a percent of the labor force. Note that only Ontario, Alberta, and British Columbia were net gainers over the 1956-61 period. For a valuable description of the time pattern interprovincial flows covering most of this century, the reader is referred to McInnis [1969].

Airing Some Deficiencies

It seems appropriate, at this juncture, to point out some of the many deficiencies that beset both our data sets and our methodology. The Census data compare residence in 1961 with that in 1956. To the extent that long distance migration proceeds via a series of short moves, the Census data will overestimate long moves. Furthermore, migration away from province i after 1956 and back to province i before 1961 will be missed completely. The family allowance data set excludes single people and married couples without children--the more mobile groups of the population.

Many of our variables, such as the various transfer variables, appear only for province i and not for province j. This is partly justified since we are focussing on the determinants of outmigration and the decision to migrate is made in province i. A more complete analysis, however, would also include these variables for province j, the receiving province. Undoubtedly, there is a considerable degree of interdependence among some of our explanatory variables, e.g., income, education, and unemployment. And so on. Cavalierly, we simply ignore these problems.

We now turn to the empirical results. Hypotheses I to XII will be addressed in section IV which deals with the Census data. The regressions from the family allowance data set appear in section V while the results relate primarily to Hypotheses XIII and XIV they will also provide further evidence on the first twelve hypotheses.

IV. Empirical Results: Census Data

Table 1 contains various regression equations all employing $\underline{total}$ M_{ij}/L_i as the dependent variable. Tables 2 and 3 present results for two different equations for each of the age categories as well as total migration. Table 4 equations relate to the data set classified by age and education. Bracketed figures beneath the regression coefficients are t-values. Unless otherwise indicated, all variables enter the equation in linear form. We ask the reader's indulgence as we work our way through the results and the manner in which they impinge on our various hypotheses. Our initial focus will be on Table 1.

Equation 1 clearly substantiates, for this data set, the familiar result that migration is positively related to relative wage or income differences and negatively related to distance, i.e., clearly confirms Hypotheses I and VII. Equation 2 indicates that the higher the level of education in province i the greater is the outmigration for that province (Hypothesis VIII). The non-economic factors, represented by the shift variables S_1, S_2, and S_3 are highly significant, so much so that the explained variance in equation 3 is double that for equation 1. When education is added to this equation, the R^2 increases to a very respectable 0.82 (see equation 4). Note that with education in the equation the Quebec dummy variable, S_2, is no longer significant. For virtually all

CENSUS DATA EQUATIONS RELATING TO TOTAL MIGRATION

DEPENDENT VARIABLE IS M_{ij}/L_i OR LOG M_{ij}/L_i*

Eqn. No.	Intercept	D_{ij}	$\frac{Y_j}{E_j}\frac{Y_i}{E_i}$	$\frac{Y_j}{E_j}$	$\frac{Y_i}{E_i}$	U_j	U_i	Ed_i	S_1	S_2	S_3	A_i	$\frac{T_i}{L_i}$	R^2
1	-.00228 (-0.61)	-.00367 (-4.93)	.01546 (4.69)											.34
2	-.03996 (-3.79)	-.00436 (-6.06)	.02313 (6.29)					.00053 (3.78)						.43
3	.001665 (0.69)	-.00268 (-5.49)	.00867 (3.96)						.02444 (9.56)	-.00475 (-2.56)	.03059 (5.79)			.75
4	-.03433 (-5.13)	-.00318 (-7.46)	.01574 (6.99)					.00049 (5.65)	.02487 (11.38)	-.00097 (-0.56)	.03118 (6.90)			.82
5	-.0159 (2.10)	-.0042 (6.00)		.01035 (6.36)	-.00062 (0.40)									.44
6	-.02745 (-2.71)	-.00442 (-6.19)		.01021 (6.36)	-.00583 (-2.23)	-.00021 (-1.08)	.00014 (0.65)	.00049 (2.44)						.49
7	-.02174 (-3.66)	-.00324 (-8.03)		.00734 (8.10)	-.00278 (-1.76)	-.00011 (-1.06)	-.00008 (-0.65)	.00034 (2.66)	.02451 (12.08)	-.00256 (-1.532)	.02850 (6.77)			.85
8	-28.28 (-5.22)	-1.087* (-11.04)	5.494* (12.70)			-.1174* (-1.24)	.7796* (1.35)	7.554* (6.86)	1.262 (3.43)	-1.466 (-2.98)	1.740 (2.27)	-.08151* (0.25)	-.4895* (-1.76)	.82

Miscellaneous Equations:

9.
$$\frac{M_{ij}}{L_i} = -.0106 + .001935 \frac{1}{D_{ij}} + .0149 \left(\frac{Y_j/E_j}{Y_i/E_i}\right)$$
$$\quad (-2.70) \quad (2.53) \qquad\quad (4.15)$$
$R^2 = .21$

10.
$$\frac{M_{ij}}{L_i} = +.0022 - .01698 \frac{1}{D_{ij}} + .0065 \frac{Y_j E_j}{D_{ij}} + .0006 \frac{Y_i/E_i}{D_{ij}}$$
$$\qquad (1.68) \quad (-3.80) \qquad\quad (5.76) \qquad\quad (0.54)$$
$R^2 = .32$

11.
$$\frac{M_{ij}}{L_i} = .7049 - .9326 \; D_{ij}^* + 3.585 \left(\frac{Y_j/E_j}{Y_i/E_i}\right)^*$$
$$\quad (0.66) \quad (-6.42) \qquad\quad (7.47)$$
$R^2 = .53$

*Equations No. 8 and No. 11 are estimated with log $\frac{M_{ij}}{L_i}$ as the dependent variable. An asterisk attached to a variable indicates that the variable enters the equation in log form.

Census data equations which include education as well as the shift variable S_2 this same result occurs (see the Table 3 equations, for example). It appears then that the very low outmigration rates for Quebec (see Table A.1) that we attempted to capture via a dummy variable can be accounted for in part by the low education level in that province.

Turning to equation 5 where Y_j/E_j and Y_i/E_i appear separately, the results confirm Vanderkamp's contention that income of the sending and receiving regions affect migration differently (Hypothesis II). Specifically, an increase in earned income per person in province j exerts a strong positive influence on migration from i to j. Earned income in the sending region does not acquire a significant coefficient in this equation. However, in other equations (e.g., equation 6, Table 1 and the total migration equation in Table 2) the coefficient for Y_i/E_i is negative and significant. Furthermore, it is smaller in absolute value than the coefficient for Y_j/E_j. The correct specification of the migration equation does indeed seem to call for Y_i/E_i and Y_j/E_j entering separately--at least for the formulations of the migration model employed in this paper. We might also point out that with education included in the equation, Y_i/E_i tends to acquire a more significant coefficient.

Hypotheses III and IV imply that the coefficients for U_j and U_i should be negative and positive, respectively. The coefficient of U_j does not enter the Census data equations with a significant coefficient. But, as the reader can readily verify, in every equation in which U_j does occur it acquires the appropriate (negative) coefficient (see Tables 1 and 3). We interpret this sign consistency as lending considerable support for Hypothesis III. Even though the evidence relating to U_i is ambiguous in

Table 1, the results from Table 3 for the various age groups as well as for total migration clearly confirm Hypothesis IV: outmigration from province i is positively related to the unemployment rate in province i. Based on both coefficient size and t-values it appears that migration from i to j is affected more by U_i than by U_j--just the opposite of what holds for Y_j/E_j and Y_i/E_i.

Migration and Age

We now turn to an analysis of the impact of age on migration. The column labelled "means" in Table 2 presents the average rate of outmigration for each age group. Migration rates peak in the 20-25 and 25-29 age groups and decline thereafter. The 45-64 and over 65 age categories have migration rates considerably below the 15-19 age group. The specification in Table 2 has income of the sending and receiving provinces entering separately rather than in ratio form because this, as we shall see, permits a fuller analysis of the relationship between age and income. All age groups respond strongly (in terms of t-values) to income per worker in the receiving region, Y_j/E_j. In fact, the behavior of this coefficient across age groups corresponds closely to the age pattern of the mean of M_{ij}/L_i--peaking at 20-24, remaining at this level for 25-29 and then falling continually over the rest of the age groups with the 15-19 coefficient substantially greater than that for 45-65 and 65 and over. But the intriguing pattern is that exhibited by sender-region income, Y_i/E_i. For the three youngest age groups, Y_i/E_i acquires a significant negative coefficient. Except for the 35-44 category the remaining coefficients are not statistically significant and for the last two age groups the coefficients fall drastically. In fact, for the 65 and over category Y_i/E_i acquires a positive coefficient. Even more

Table 2

THE INTERACTION AMONG INCOME, AGE, AND MIGRATION

Age Category	Intercept	D_{ij}	Y_i/L_i	Y_j/L_j	Fd_i	R^2	Mean of $\frac{L_{ij}}{L_i}$	Income* Elasticities	Distance Elasticities	Distance** Elasticities
15-19	-.01957 (-1.794)	-.00434 (-4.808)	.00097 (4.889)	-.00710 (-2.274)	.00043 (1.915)	.367	.00626	5.583	1.230	.9558
20-24	-.03344 (-1.524)	-.00804 (-4.511)	.01885 (4.642)	-.01808 (-2.842)	.00093 (2.204)	.361	.01296	8.074	1.145	.8122
25-29	-.04960 (-3.037)	-.00820 (-6.182)	.01870 (6.187)	-.00093 (-2.097)	.00085 (2.511)	.458	.01276	7.066	1.187	1.013
30-34	-.03641 (-3.395)	-.00615 (-7.066)	.01308 (6.501)	-.00474 (-1.525)	.00052 (2.357)	.495	.00924	6.074	1.229	1.137
35-44	-.02678 (-3.951)	-.00406 (-7.379)	.00956 (7.625)	-.00600 (-2.038)	.000398 (2.826)	.546	.00647	6.600	1.158	1.113
45-64	-.01520 (-4.464)	-.00197 (-7.141)	.00490 (7.032)	-.00098 (-.0889)	.00015 (2.181)	.537	.00285	6.597	1.276	1.237
65+	-.00866 (-4.923)	-.00084 (-5.905)	.00231 (7.103)	.00012 (.2427)	.00056 (1.727)	.464	.00115	5.007	1.340	1.573
TOTAL (all ages)	-.02633 (-3.074)	-.00443 (-6.362)	-.01042 (6.577)	-.00518 (-2.088)	.00042 (2.359)	.470	.00638	7.141	1.189	1.033

*This is the sum of two elasticities—a 1% increase in $\frac{Y_i}{E_i}$ and a 1% decrease in $\frac{Y_i}{E_i}$.

**These elasticity estimates are for the Table 3 results.

interesting is the fact that for the first two age groups the coefficient for Y_i/E_i is roughly of equal magnitude (although oppositely signed) as that for Y_j/E_j. For the remainder of the age groups (again excepting 35-44), the ratio of Y_j/E_j to Y_i/E_i increases with age. The 20-24 age group, then, is quite indifferent whether the cause of the relative income differential is a rise in Y_j/E_j or a fall in Y_i/E_i: the coefficients for these variables are equal in absolute value. This behavior is entirely consistent with Hypothesis X. Since the young have the most to gain from higher wages elsewhere they should be the most responsive to changes in relative wage levels, regardless of the source.

We attempt to measure this responsiveness of migration to income by calculating an elasticity which takes account of both receiving and sending region incomes. Specifically, we present in column 9 of Table 2 the sum of the elasticities of migration with respect to a 1 percent increase in Y_j/E_j and to a 1 percent decrease in Y_i/E_i. These elasticities are calculated at sample means. The three largest elasticities are for the three youngest age groups and the lowest is for the oldest age group. On balance, then, our empirical results lend considerable support to Hypothesis X. Further investigation of the age-income-migration relationship should look into the impact of such things as family formation, housing, and company transfers and their inter-relationship with age and migration. Treatment of these factors is beyond the scope of this paper.

The rationale behind Hypothesis XI is that the costs (both money and non-money) of migration will increase with age. Perhaps the tendency for sending province income to affect migration less over the age spectrum is a reflection of the greater cost of moving (with reasoning akin to that leading up to Hypothesis II.) But the variable with which we elect to test

Hypothesis XI is distance, D_{ij}. Elasticities of migration with respect to distance appear in the second-last column of Table 2. Except for the fact that the elasticity is greatest for the oldest age group, no obvious pattern emerges. The last column of Table 2 presents elasticities derived from the D_{ij} coefficients of the full model (i.e., Table 3). Here a more consistent pattern emerges--the elasticities tend to increase with age-- thus providing some confirmation for Hypothesis XI.

The Full Model

Table 3 presents estimates for results for the "full" model for both total migration and the various age categories. One glance at the coefficients for TG_i/L_i and A_i indicates that both Hypothesis V and XII receive solid empirical verification. The greater percentage of the labor force employed in agriculture in province i, the greater the outmigration from province i. Far more important, insofar as the process of economic adjustment is concerned, is the consistently negative coefficient on federal intergovernmental transfers to province i, TG_i/L_i. These equations lend support to the proposition that such transfers inhibit migration flows. Nearly two decades ago A. D. Scott argued this very proposition:

> ...the maximum income for the whole country, and so the
> highest average personal income, are to be achieved only
> by maximizing national production. This in turn can be
> achieved only when resources and labour are combined in
> such a way that the marginal product of similar units of
> labour is the same in all places. An increase will result
> when labour is transferred from places where its marginal
> product is low to places where it is high... . Such a labour
> transfer can come about in two ways. The first is by means of
> controlled labour allocation, either with or without the
> additional bribes of free transport to new places of work.
> The second results from the existence of real wage (amenity)
> differences between the two areas such that the worker can
> better his lot by moving to an area where the bundle of

Table 3

THE DETERMINANTS OF MIGRATION - THE FULL MODEL

Age Category	Intercept	D_{ij}	$\dfrac{Y_j/E_j}{Y_i/E_i}$	U_j	U_i	Fd_i	T_i/L_i	A_i	S_1	S_2	S_3	R^2
15-19	-.06473 (-5.164)	-.00324 (-7.325)	.01887 (6.378)	-.00007 (-.6415)	.00123 (3.045)	.00070 (.554)	-.00013 (-2.094)	.00046 (3.911)	.03410 (15.98)	-.00107 (-.4381)	.02891 (6.382)	.881
20-24	-.1057 (-4.371)	-.00570 (-6.687)	.03496 (6.123)	-.00021 (-.9675)	.00146 (1.872)	.00130 (.714)	-.00011 (-.9312)	.00061 (2.664)	.07018 (17.00)	-.00073 (-.1559)	.05851 (6.604)	.889
25-29	-.1440 (-6.106)	-.00700 (-8.423)	.03973 (7.137)	-.00019 (-.9164)	.00325 (4.265)	.00184 (.812)	-.00035 (-3.130)	.00097 (4.394)	.04550 (11.30)	-.00600 (-1.310)	.04555 (5.345)	.840
30-34	-.1156 (-6.493)	-.00569 (-9.075)	.02976 (7.084)	-.00089 (-.5650)	.00286 (4.085)	.00146 (.204)	-.00029 (-3.443)	.00084 (4.000)	.02295 (7.553)	-.00450 (-1.310)	.03759 (5.844)	.872
35-44	-.08679 (-7.132)	-.00390 (-9.105)	.02313 (8.050)	-.00065 (-.5980)	.00208 (5.294)	.00076 (7.732)	-.00022 (-3.708)	.00062 (5.487)	.01447 (6.064)	-.00262 (-1.198)	.01786 (4.066)	.792
45-64	-.04828 (-7.505)	-.00191 (-8.435)	.01270 (8.366)	-.00049 (-.8495)	.00125 (5.995)	.00059 (1.035)	-.00014 (-4.876)	.00037 (6.255)	.00572 (5.205)	-.00183 (-1.467)	.00972 (4.181)	.766
65+	-.02709 (-6.082)	-.00098 (-6.260)	.00675 (6.420)	-.00047 (-1.179)	.00076 (5.336)	.00033 (.532)	-.00010 (-4.543)	.00023 (5.449)	-.00003 (-.0401)	-.00116 (-1.337)	-.00169 (-1.050)	.513
TOTAL	-.08302 (-7.401)	-.00385 (-9.621)	.02292 (8.562)	-.000096 (-.9506)	.00193 (5.274)	.00104 (1.057)	-.00020 (-3.751)	.00059 (5.577)	.02410 (12.45)	-.00264 (-1.199)	.02436 (5.944)	.870

> amenities received in return for his labour plus those
> received as a right of local citizenship is greater than
> the bundle in his former home. It is contended here that
> transfers of government income from place to place counter-
> act this incentive to labour mobility and thus prevent the
> maximization of national production. [1950, p. 419].

Much more in the way of both analytical and empirical work needs to be done
on this question. Hopefully our results will kindle an interest in this
research.

The consistency of the Table 3 results over the various age groups
is remarkable. We leave the reader the task of satisfying himself on this
score. Note that for total (all ages) outmigration our model succeeds in
explaining nearly 90 percent of the interprovincial migration rates over
the 1956-61 period.

Migration and Education

Table 4 presents regression equations for the education-classified
data set obtained from Dr. Stone. Our prime interest in these results is
to investigate the impact of education on the income-distance trade-off.
We have already established that education is positively related to migra-
tion. For both the 25-35 and 35-and-over age groups the t-value of the
income coefficient increases substantially relative to that for distance
for the higher educated class. More importantly, the income-distance ratios
(presented in the last column of Table 4) are substantially greater for each
of the age categories for the higher-educated group in each class (i.e., 4.39
vs. 2.88, and 4.52 vs. 3.16). This evidence confirms Hypothesis IX. In
addition, note that the trade-off is increased more for the younger age group,
consistent with Hypothesis X relating to the behavior of migration and age.

Table 4

EVIDENCE RELATING TO MIGRATION AND EDUCATION

Age Group	Education Level	Intercept	D_{ij}	$\dfrac{Y_j/L_j}{Y_i/L_i}$	S_2	S_3	R^2	Mean of M_{ij}/L_i	Income*/Distance
25-34	Elementary or less	.00073 (0.59)	-.000916 (4.02)	.00264 (2.19)	-.00164 (2.59)	.0030 (3.30)	.60	.0018	2.88
25-34	High School and above	-.00059 (0.43)	-.001076 (4.29)	.00473 (3.57)	-.00215 (3.08)	.00269 (2.63)	.62	.0023	4.39
35 and over	Elementary or less	.00015 (0.38)	-.000386 (4.27)	.00122 (2.56)	-.000623 (2.48)	.001911 (5.29)	.70	.00081	3.15
35 and over	High School and above	-.00045 (0.76)	-.000605 (5.05)	.00274 (4.33)	-.00102 (3.05)	.00271 (5.67)	.77	.00134	4.52

*Income-distance ratios are expressed in absolute values.

Some Alternative Specifications

All the equations referred to thus far have had the variables entering in a simple linear fashion. But there is good reason to expect that there are important non-linearities involved in the migration decision. For example, it seems unreasonable to expect that it would take the same dollar increase in Y_j/E_j to encourage a migrant to move an extra 100 miles when he has already moved 100 miles than when he has already moved 1000 miles. Vanderkamp attempts to account for this by specifying his variables standardized by distance. Equation 10 of Table 1 shows the results of an equation embodying the explanatory variables in Vanderkamp form. (Note, however, that the dependent variable is M_{ij}/L_i and not the Vanderkamp dependent variable $M_{ij}/(L_i + L_j)$). In terms of R^2, this equation does not fare as well as the comparable linear specification (equation 5 of Table 1). Nor does the equation embodying the reciprocal of distance along with $(Y_j/E_j)/(Y_i/E_i)$ fare as well as a simple linear formulation (compare equations 1 and 9 of Table 1).

However, estimating equation 1 in log-linear form yields an equation which, in terms of t-values and overall goodness of fit is superior to equation 1. (See equation 11). The coefficient (elasticity) of distance is approximately unity implying that a 1 percent increase in distance will decrease migration by 1 percent, other things constant, so that an incremental 100 miles added on to an intended move of 100 miles will be a greater deterrent to migration than will an incremental 100 miles added to an intended move of 1000 miles. Equation 8 of Table 1 is the log-linear counterpart of the total migration equation of Table 3. In terms of t-values the log-linear formula indicates a smaller role for U_i and TG_i/L_i than the linear specification. Income and distance play a more

dominant role in the log-linear equation with income now acquiring the largest t-value. The coefficient of A_j is not correctly signed, let alone significant. Education still remains very significant but the influence of the dummies (except for S_2) declines markedly. Because of the presence of zeros for some cells in the age-classified migration matrix we focussed almost exclusively on the linear specifications for the Census data. No effort was expended in estimating alternative specifications for the log-linear model. Therefore, equation 8 is to be interpreted as a replication in log form of the Table 3 specification and not the result of any search procedure. In the next section, however, most of the equations will be estimated in logarithmic form. We now turn to these results.

V. Empirical Results: Family Allowance Data

Tables 5 and 6 contain regression results for interprovincial migration based on the family allowance data set. Table 5 presents yearly results for a straightforward multiplicative version of our migration model. Table 6 presents equations estimated from the "pooled" data set (all years 1952-1967). The primary purpose of the Table 6 results is to focus on the temporal behavior of migration (Hypothesis XIII), and to investigate the effect of the overall level of unemployment on the tendency to migrate (Hypothesis XIV). However, prior to analyzing the results as they pertain to these two hypotheses, we shall focus on the findings in Tables 5 and 6 insofar as they are able to add new evidence relating to the hypotheses already discussed in the previous section.

First of all, the Table 5 specification performs very well for all years. It is clearly evident that income in the receiving and sending

Table 5

ANNUAL LOG-LINEAR EQUATIONS OF INTERPROVINCIAL MIGRATION

FAMILY ALLOWANCE DATA SET

$$\ln \frac{FM_{ij}}{FP_i} = \beta_1 \ln \frac{Y_i}{E_i} + \beta_2 \ln \frac{Y_i}{E_j} + \beta_3 \ln Ed_i + \beta_4 \ln D_{ij} + \alpha_0 + \alpha_1 S_1 + \alpha_2 S_2 + \alpha_3 S_3 + e_i$$

Year	β_1	β_2	β_3	β_4	α_0	α_1	α_2	α_3	R^2
1952	-0.6142 (-1.31)	3.837 (11.23)	3.913 (3.82)	-1.329 (-12.94)	-16.13 (-4.10)	1.465 (3.94)	-0.8978 (-2.99)	0.5115 (0.63)	.800
1953	-1.342 (-2.82)	4.518 (12.89)	6.303 (5.97)	-1.417 (-13.79)	-25.41 (-6.28)	1.130 (2.73)	0.6298 (2.02)	-0.1358 (-0.23)	.815
1954	-0.9684 (-2.14)	5.675 (18.99)	4.425 (5.61)	-1.3777 (-19.87)	-19.21 (-6.54)	1.036 (4.11)	-0.9479 (-4.41)	0.1384 (0.26)	.908
1955	-0.3545 (-0.91)	5.059 (17.93)	3.485 (4.79)	-1.362 (-19.26)	-15.72 (-5.72)	1.143 (4.45)	-0.9705 (-4.55)	0.5293 (0.97)	.901
1956	-0.5182 (-1.10)	4.726 (13.04)	3.018 (3.42)	-1.311 (-14.14)	-13.99 (-4.18)	1.403 (4.19)	-1.162 (-4.25)	0.9114 (1.26)	.837
1957	-0.6208 (-1.63)	5.249 (20.03)	3.947 (5.63)	-1.349 (-20.68)	-17.90 (-6.84)	1.067 (4.55)	-1.014 (-5.07)	0.4691 (0.95)	.916
1958	-0.5539 (-1.15)	5.218 (16.51)	3.700 (4.58)	-1.346 (-18.77)	-17.29 (-5.86)	1.090 (4.24)	-1.060 (-4.90)	0.4169 (0.77)	.892
1959	-0.4998 (-0.91)	5.829 (16.35)	2.946 (3.62)	-1.334 (-18.46)	-15.22 (-5.21)	1.011 (3.92)	-1.157 (-5.37)	0.5956 (1.09)	.888
1960	-0.2766 (-0.38)	5.879 (12.11)	2.323 (2.46)	-1.309 (-14.87)	-13.39 (-4.00)	1.091 (3.53)	-1.298 (-5.09)	0.9483 (1.45)	.833
1961	0.1278 (0.23)	5.020 (11.92)	2.224 (2.59)	-1.300 (-15.15)	-12.50 (-3.98)	1.010 (3.30)	-1.120 (-4.38)	0.6295 (0.99)	.830
1962	-1.271 (-2.32)	4.116 (9.37)	3.339 (3.76)	-1.186 (-11.88)	-15.23 (-4.54)	1.310 (3.77)	-1.083 (-3.88)	1.129 (1.52)	.777
1963	-0.5226 (-0.81)	5.355 (10.72)	2.476 (2.73)	-1.203 (-12.28)	-14.36 (-4.31)	1.428 (4.06)	-1.071 (-3.78)	1.013 (1.34)	.792
1964	-1.281 (-1.51)	8.248 (15.03)	2.801 (3.03)	-1.234 (-15.25)	-18.37 (-5.96)	1.041 (3.54)	-1.158 (-4.69)	0.6814 (1.12)	.864
1965	-1.156 (-1.46)	7.219 (12.52)	2.207 (2.46)	-1.145 (-12.61)	-15.75 (-5.03)	1.294 (3.97)	-1.296 (-4.94)	0.7173 (1.03)	.823
1966	-1.018 (-1.46)	5.830 (10.66)	2.323 (2.50)	-1.093 (-10.67)	-15.10 (-4.46)	1.490 (4.06)	-1.205 (-4.12)	0.9562 (1.20)	.775
1967	-1.095 (-1.52)	7.502 (14.69)	2.494 (2.97)	-1.097 (-13.54)	-18.40 (-6.41)	1.079 (3.65)	-1.195 (-5.02)	0.8428 (1.34)	.849

Notes: Dollar values are in nominal terms. Estimation in real terms would affect only the intercepts.

regions affect migration differently. Therefore, while Hypotheses I can be substantiated empirically,[13] the ratio form of the income variable conceals important information relating to the response of migration to income. In the previous section, there was some ambiguity concerning the relationship of Y_i/E_i to outmigration from province i. It was clear (and is clear from Table 5) that the coefficient for income of the receiving region exceeds that for the sending region. But is the coefficient of Y_i/E_i positive or negative? In Table 5, Y_i/E_i acquires a negative coefficient for 14 of the 16 years, and for eleven of the years the t-value is unity or greater. For the pooled data, however, sending region income does acquire a very significant negative coefficient--see equation 1, Table 6 . This negative and significant coefficient for Y_i/E_i also obtains for the linear version of the model (equation 2, Table 6) and indeed holds throughout the various Table 6 equations which are estimated from pooled data. All things considered, we are prepared to say that Hypothesis II is confirmed: migration from i to j is negatively related to the level of income in province i, and positively related to the income of province j.

Equation 3, Table 6 is included primarily to lend empirical support to Hypothesis VI: outmigration from province i to j will be negatively related to the level of unemployment insurance transfer payments into province i. The negative coefficient for UT_i/Y_i is evidence in support of this hypothesis.[14]

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[13]Replacing Y_j/E_j and Y_i/E_i in the Table 5 specification by $(Y_j/E_j)/(Y_i/E_i)$ and re-estimating the equations yield coefficients for the income variable that are positive and highly significant for each of the 16 years.

[14]Note that this variable is defined as unemployment transfer payments in province i standardized by the level of income in province i. An alternative definition would be UT_i/L_i--unemployment insurance payments divided by the labor force. While both these variables acquire negative and significant coefficients, the former acquires a larger t-value. For an analysis of the relative explanatory power of UT_i/L_i versus UT_i/Y_i see Courchene [1969].

This equation also lends support to Hypotheses III and IV: migration from i to j is positively related to the unemployment rate in province i and negatively related to the unemployment rate in province j. Equation 3, then, reveals an interesting relationship between unemployment and migration. An increase in unemployment in province i will tend to "push" people out. But as unemployment insurance benefits increase (as a result of greater unemployment) this will tend to inhibit interprovincial migration.

Equation 4 of Table 6 (estimated in linear terms with the income variable in ratio form) extends this relationship somewhat by including a variable relating to total transfer income received by province i. According to hypothesis V this variable should, and does, acquire a negative coefficient. It is interesting to note that the coefficient of TT_i/Y_i is smaller (in absolute value) than that for UT_i/Y_i, even though the latter is included in the former. This suggests that unemployment insurance benefits are more effective in inhibiting migration than are total transfers generally. The total transfers variable also appears in equations 5 and 7 and provides evidence in support of our hypothesis that an increase in unearned as well as in earned income in province i will be negatively related to outmigration.

Temporal Behavior of Migration

Has the response of migrants to variables such as income and distance changed over time? The Table 5 results suggest that there have indeed been changes in responses and that the changes are in the direction of increasing the extent to which migration can be treated as an economic variable. The time pattern of the coefficients of Y_j/E_j, i.e., β_2, appears to be one of increasing elasticity. Likewise the elasticity of Y_i/E_i also appears to be somewhat larger for the last half of the annual equations than for the

Table 6

Interprovincial Migration of Family Allowance Recipients: Pooled Data --1952-1967

(Asterisks indicate that variables are in logarithmic form)

1. $\left(\dfrac{FM_{ij}}{FP_i}\right)^* = -20.73 + 1.373 S_1 - .8070 S_2 + .1224 S_3 - 1.167 D^*_{ij} + 3.983\left(\dfrac{Y_i}{E_i}\right)^* - 2.592\left(\dfrac{Y_i}{E_i}\right)^* + 5.113 Ed^*_i$
$(23.87)\ (15.23)\ \ (11.19)\ \ (6.44)\ \ (47.57)\ \ (42.69)\ \ (24.56)\ \ (23.17)$ $R^2 = .77$

2. $\dfrac{FM_{ij}}{FP_i} = -.00699 +.0075 S_1 - .0012 S_2 +.0096 S_3 - 0.1745 D_{ij} + .00238\dfrac{Y_i}{E_j} - .00178\dfrac{Y_i}{E_i} + .000214 Ed_i$
$(9.07)\ (25.70)\ \ (5.10)\ \ (15.82)\ \ (30.25)\ \ (24.42)\ \ (16.18)\ \ (17.98)$ $R^2 = .69$

3. $\left(\dfrac{FM_{ij}}{FP_i}\right)^* = -19.06 + 1.363 S_1 - .8640 S_2 + .1133 S_3 - 1.173 D^*_{ij} + 3.744\left(\dfrac{Y_i}{E_i}\right)^* - 2.451\left(\dfrac{Y_i}{E_i}\right)^* + .1938 U^*_j - .08898 U^* - .2272\left(\dfrac{UT_i}{Y_i}\right)^*$
$(19.03)\ (15.09)\ \ (11.83)\ \ (5.91)\ \ (48.05)\ \ (34.26)\ \ (22.30)\ \ (2.48)\ \ (2.28)\ \ (3.15)$ $R^2 = .78$

4. $\dfrac{FM_{ij}}{FP_i} = -.00966 +.0075 S_1 - .0016 S_2 +.0094 S_3 - .1772 D_{ij} + .00547\left(-\dfrac{1}{i_j}\cdot\dfrac{Y_i}{E_i}\right) + .0019 Ed^*_i + .00956 U_i - .00591 U_j - .4198\left(\dfrac{UT_i}{Y_i}\right) - .0908\left(\dfrac{TT_i}{Y_i}\right)$
$(9.56)\ (24.47)\ \ (5.086)\ \ (14.86)\ \ (29.43)\ \ (15.97)\ \ (13.63)\ \ (2.56)\ \ (2.95)\ \ (3.45)\ \ (2.08)$ $R^2 = .66$

5. $\left(\dfrac{FM_{ij}}{FP_i}\right)^* = -18.37 - 1.259 D^*_{ij} + 5.347\left(\dfrac{Y_i}{E_i}\right)^* - 1.282\left(\dfrac{Y_i}{E_i}\right)^* - .3439\left(\dfrac{T}{E_i}\right) + 4.170 Ed^*_i - .3618\left(\dfrac{Y_i}{E_j}\cdot Time\right) + 1.219\left(\dfrac{Y_i}{E_i}\cdot Time\right)^* - .0639\left(D_{ij}\cdot Time\right)^*$
$(21.54)\ (38.76)\ \ (32.47)\ \ (5.73)\ \ (12.42)\ \ (18.34)\ \ (1.85)\ \ (6.21)\ \ (1.59)$ $R^2 = .77$

6. $\left(\dfrac{FM_{ij}}{FP_i}\right)^* = -21.45 - 1.144 D^*_{ij} + 5.453\left(\dfrac{Y_i}{E_j}\right)^* - 3.044\left(\dfrac{Y_i}{E_i}\right)^* + .0804 U^*_i + 4.981 Ed^*_i - .4937\left(\dfrac{Y_i}{E_j}\cdot Time\right)^* + 1.642\left(\dfrac{Y_i}{E_i}\cdot Time\right)^* - .1341\left(D_{ij}\cdot Time\right)^*$
$(24.79)\ (25.59)\ \ (24.21)\ \ (12.47)\ \ (1.78)\ \ (20.95)\ \ (2.108)\ \ (7.01)\ \ (2.80)$

$+ .3050\left(\dfrac{Y_i}{E_j}\cdot UDUM\right)^* + .5057\left(\dfrac{Y_i}{E_i}\cdot UDUM\right)^* - .1484\left(D_{ij}\cdot UDUM\right)^*$
$(1.33)\ \ (2.19)\ \ (3.24)$ $R^2 = .75$

7. $\left(\dfrac{FM_{ij}}{FP_i}\right)^* = -16.31 + 1.256 S_1 - .8555 S_2 + .8593 S_3 - 1.141 D^*_{ij} + 4.855\left(\dfrac{Y_i}{E_j}\right)^* - 2.037\left(\dfrac{Y_i}{E_i}\right)^* + 3.670 Ed^*_i + .0726 U^*_i - .0998\left(\dfrac{TT_i}{Y_i}\right)^*$
$(19.42)\ (15.55)\ \ (9.65)\ \ (4.99)\ \ (28.97)\ \ (25.33)\ \ (8.56)\ \ (16.63)\ \ (1.87)\ \ (2.95)$

$-.2597\left(\dfrac{Y_i}{E_j}\cdot Time\right)^* + 1.498\left(\dfrac{Y_i}{E_i}\cdot Time\right)^* - .1380\left(D_{ij}\cdot Time\right)^* + .5806\left(\dfrac{Y_i}{E_j}\cdot UDUM\right)^* + .9954\left(\dfrac{Y_i}{E_i}\cdot UDUM\right)^*$
$(1.32)\ \ (7.64)\ \ (2.76)\ \ (2.76)\ \ (4.69)$

$-.0925\left(D_{ij}\cdot UDUM\right)^* - 1.314\ UDUM$
$(2.02)\ \ (3.34)$ $R^2 = .82$

8. $\dfrac{FM_{ij}}{FP_i+FP_j} = -.001176 - .000321 S_1 - .00054 S_2 + .00329 S_3 - .00328\dfrac{1}{D_{ij}} + .3746\left(\dfrac{Y_i}{E_i}\right)/\left(D_{ij}\right) + .6514\left(\dfrac{Y_i}{E_i}\right)/\left(D_{ij}\right) + .000019 Ed_i$
$(1.76)\ (1.09)\ \ (2.27)\ \ (5.22)\ \ (3.46)\ \ (7.44)\ \ (6.74)\ \ (1.73)$ $R^2 = .75$

9. $\dfrac{FM_{ij}}{FP_i} = -.03464 + .00587 S_1 - .00134 S_2 + .00724 S_3 - .00513\dfrac{1}{D_{ij}} + 2.126\left(\dfrac{Y_i}{E_j}/D_{ij}\right) + .1235\left(\dfrac{Y_i}{E_i}/D_{ij}\right) + .000083 Ed_i$
$(2.56)\ (7.34)\ \ (2.06)\ \ (4.24)\ \ (4.88)\ \ (8.68)\ \ (0.47)\ \ (2.76)$ $R^2 = .77$

Note: Equations 8 and 9 are cross-section equation results for 1961. Equations 1, 3, 5, 6, and 7 are in log-linear terms.

first half. For distance, the evidence is clearer still. From 1960 to 1967 every distance elasticity is smaller than any that appears in the regressions prior to 1960.[15]

In equations 5, 6, and 7 of Table VI we employ dummy variables to isolate the temporal impact of income and distance in interprovincial migration. Specifically the coefficients of $(Y_i/E_i \cdot Time)$, $(Y_j/E_j \cdot Time)$ and $(D_{ij} \cdot Time)$ represent slope (elasticity) dummy variables for the first half of the data set (i.e., from 1952 to 1959). In other words, Time has a value of unity for all observations prior to 1959 and a value of zero thereafter. The value for the elasticity, say, for D_{ij}, for the first period then is the sum of elasticities D_{ij} and $(D_{ij} \cdot Time)$. Focussing on equation 7, for example, we note that for the period 1952 to 1959 Y_j/E_j has a lower elasticity, Y_i/E_i has a larger (less negative) elasticity, and D_{ij} has a higher (more negative) elasticity than in the last half of the period. These results coincide with the rough impressions we drew from Table 5. The attraction power of the receiving province's income is increasing over time, but not by much.[16] But the effect of sender region income is changing quite dramatically over time. In terms of point estimates, the elasticity of migration with respect to Y_i/E_i from equation 7 is -.539 for 1952-1959 (i.e., -2.037 + 1.498) and -2.037 from 1960-1967. Migration is becoming more responsive to changes in the sender region income. Distance inhibits migration to a smaller degree for 1960-67 than for 1952-59. Phrased in

[15]In Table 5 the education elasticity clearly falls with time. In large part this occurs because we do not allow the education variable to acquire a different value each year. The percent of the labor force having an education of grade 8 or above in 1961 (Census) is used for all years. When we used data from the last three Censuses to attempt to get an annual estimate of the education level in each province, the resulting elasticities exhibited no definite time pattern. We do not show these results primarily because the education variable we constructed is of dubious quality, to say the least.

[16]The coefficient for $(Y_j/E_j \cdot Time)$ is not significantly different from zero in equation 7, although it is significant in equation 6.

another manner, for given values of all variables, the migrant will move
further than previously. One reason for distance becoming less of a deter-
rent over time is simply that transportation costs have declined. But
probably as important is the increase over time of information about job
opportunities in other parts of the country. At any rate the results
support Hypothesis XIII: migration is becoming more efficient over time.

Migration and Aggregate Economic Activity

Concerning the relationship of the overall level of unemployment
(representing the level aggregate economic activity) and migration,
Vanderkamp concludes:

> The trade-off [between Y_j/E_j and D_{ij}] is much more unfavorable
> (about 50%) during depressed labor market conditions...than when
> unemployment is low... . In other words, mobility responds much
> less to existing opportunities when there is general slack in the
> labor market.[17]

Our results, embodied in equations 6 and 7 of Table 6, suggest a more com-
plicated relationship between interprovincial migration and economic activity.
The method we employ for isolating the impact of overall unemployment on
migration is similar to that adopted to investigate the relationship between
time and migration. Specifically UDUM has a value of unity whenever the
overall unemployment rate is above the average 1952-1967 level and a value
of zero for those years when the aggregate unemployment rate is below this
average level. In equation 6, we note that the response of migration to
Y_j/E_j is greater when the Canadian unemployment rate is above the 1952-1967
average. Furthermore, distance is more a deterrent to migration in high
unemployment periods, i.e., the coefficient of $(D_{ij} \cdot UDUM)$ is negative.
Vanderkamp is correct in suggesting that the trade off between Y_j/E_j and D_{ij}

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[17] [1969, pp. 25-26]. Vanderkamp makes these observations on the basis of
annual regression equations of the type represented by equation 8 of Table 6.

(i.e., the ratio between Y_j/E_j and D_{ij}) is worsened in high unemployment years. But the response of migration to Y_j/E_j is in the direction of improving the trade off. The trade off is worsened because, during periods of high unemployment, D_{ij} imposes a proportionally greater restraint on migration than the impetus given by Y_j/E_j. Once again, however, the impact of sender region income on migration during high unemployment periods is more important than that of the receiving region income. In equation 6 the elasticity of outmigration to Y_i/E_i is approximately -3.0 for normal periods and -2.5 for high unemployment periods. In other words, if income falls in province i by 1 percent during "normal" periods, outmigration will increase by 3 percent. Under high-unemployment periods a 1 percent fall in Y_i/E_i will result in an increase of only 2.5 percent in outmigration. This is consistent with the analysis earlier in the paper to the effect that in periods of high unemployment incomes are generally lower and people are less able to afford to move. It is also consistent with the results relating to distance: moves that do take place during high unemployment periods will tend to be over shorter distances.

Equation 7 differs from equation 6 because in 7 we allow the intercept as well as the slopes of Y_j/E_j, Y_i/E_i, and D_{ij} to be affected by the level of aggregate economic activity.[18] While the effect of high unemployment on the slopes of the three variables Y_i/E_i, Y_j/E_j, and D_{ij} is in the same direction as in equation 6, it is no longer true that the trade off between Y_j/E_j and D_{ij} is worsened in periods of high unemployment. The

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[18] There are of course other differences in the equations. In equation 7 we add the three migration dummies S_1, S_2, and S_3 and also introduce TT_i/Y_i.

coefficient of UDUM is negative and significant indicating that in periods of high unemployment the whole migration function shifts downwards: the intercept is more negative, i.e., -17.62 versus -16.31. Even in equation 7, the primary impact (both in terms of coefficient size and t-values) of high unemployment is on sender region income. Outmigration from province i becomes much less responsive to Y_i/E_i during periods of high unemployment. Interesting as these results may be, it seems quite apparent that further research is needed to isolate more fully this relationship between migration and economic activity.

Finally, we turn to some general comments. The impact of the three shift dummies can be assessed in part by comparing equations 5 and 6 of Table 6. Their main impact is on the overall fit of the equation and not on the qualitative implications of the results. Embodying 17 variables (all significant or nearly so), equation 7 provides a convenient summary of many of the principal hypotheses of the paper. The value for R^2 indicates that this model can explain over four-fifths of the variance in migration over the sixteen-year period.

Equations 8 and 9 are included to evaluate the performance of the "gravity" model of migration flows as well as to shed some light on the difference between our results and those of Vanderkamp. Both Y_i/E_i and Y_j/E_j are divided by distance and distance itself enters the equation in reciprocal form. Essentially this is the Vanderkamp specification. We have added the three dummies S_1, S_2, and S_3 as well as education to the equation. The dependent variable in equation 8 is family allowance migration from i to j divided by the _sum_ of the family allowance populations in i and j, i.e., $FM_{ij}/(FP_i + FP_j)$. In equation 9 the dependent variable is the one we have been using through this section, i.e., FM_{ij}/FP_i. The two regressions

were run for family allowance migration in 1961. This year was chosen because Vanderkamp's results [1969, Table 1] for 1961 assign approximately equal positive coefficients to both Y_j/D_{ij} and Y_i/D_{ij}. This is also true for equation 8, i.e., .6746 vs. .6514. Re-estimating this equation with FM_{ij}/FP_i as the dependent variable yields a much increased coefficient for $(Y_j/E_j)/D_{ij}$ and an insignificant coefficient for $(Y_i/E_i)/D_{ij}$. This positive but insignificant impact of sender region income is consistent with the positive and also insignificant coefficient for Y_i/E_i for 1961 in Table 5. It appears then that Vanderkamp's results (especially the conclusion that outmigration from i is positively related to the income level in province i) stem from his definition of the dependent variable, i.e., his use of the gravity model. Note also that the shift intercept for the Maritimes to Ontario (S_1) is <u>negative</u> in equation 8--the gravity model overpredicts the migration flow from the Maritimes to Ontario. Footnote 11 above suggests why this peculiar result is likely to occur within the context of a gravity-type formulation.

VI. Conclusion

In lieu of summarizing the results of the paper the reader is asked to refer to the fourteen hypotheses presented in Part II of the paper. All have received empirical verification although the degree of substantiation varies with the particular hypothesis. Migration is an economic variable, this much is clear. And migration is becoming more efficient over time. Workers do respond to interprovincial earnings differentials and differentials in provincial unemployment rates in a manner that is conducive to efficient resource allocation. In this sense, then, migration tends to alleviate provincial economic inequalities. However, intergovernmental

transfers, total federal transfers, and unemployment insurance payments serve to inhibit migration and within the narrow framework we have adopted they contribute to maintaining inequality among provinces.

Unfortunately our results do not permit definite conclusions concerning the relationship between migration and economic adjustment. For example, unemployment in province i tends to increase the outmigration of the labor force of i. But who moves?--the unemployed? Our data do not shed light on this important question. In recent years, Saskatchewan has had the lowest unemployment rate in Canada. It would appear that the very high mobility rate for the Saskatchewan labor force (Tables A.1 and A.2 and also variable S_3 in our equations indicate the degree of mobility) can in large measure explain this. Can the low outmigration rate for Quebec explain its relatively high unemployment rate? Underlying all our analyses is the assumption that mobility contributes to lessening regional economic inequalities. But even this has been questioned. Myrdal [1957, p. 27], for example, states:

> The localities and regions where economic activity is expanding will attract net immigration from other parts of the country. As migration is always selective, at least with respect to the migrant's age, this movement by itself tends to favour the rapidly growing communities and disfavour the others.

Our results indicate that migration is selective not only with respect to age but as well with respect to education level. The implication of Myrdal's remarks is that because of migration the "have-not" provinces are left with an older and less educated labor force, not at all conducive to lessening regional differentials. To the extent that this is indeed the case there appears to be a role for manpower policies to interfere with incentives to ensure that the "right" people move. In sum, then, there is a great need

for future research in the whole area of economic adjustment and in particular in the relationship between migration and economic adjustment. Hopefully this paper provides a firm basis on which future research can build.

We conclude with a bit of casual empiricism relating to the adequacy of migration. Table 7 below ranks the provinces in order of income (lowest has rank 1 and highest has rank 10). The second row ranks the provinces by overall migration rate (highest has rank 1 and lowest rank 10). A naive[19] view of the "adequacy" of migration would suggest that provinces with relatively low incomes should have relatively high outmigration rates. Row 3 is obtained by subtracting row 2 from row 1. A value of zero in row 3 implies a neutrality of sorts--the province's income rank is equal to its migration rank. A positive value in row 3 indicates that the particular province migrates more than its income rank would require. And conversely for a negative value. Even though it is true that if row 3 consisted entirely of zeros this would not, of itself, be evidence that migration is adequate for economic adjustment one can, nevertheless, get a rough reading of relative provincial migration adequacy from Table 7. The only positive values in the table occur west of Ontario. But these are the higher income provinces. The five provinces in the lower half of the income spectrum have negative or zero values in row 3. In particular, Quebec, Newfoundland and New Brunswick have "inadequate" outmigration rates in terms of our

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[19]It is a naive approach for many reasons, one of which is that we do not include migration into each of the provinces.

Table 7

A NAIVE APPROACH TO THE ADEQUACY OF INTERPROVINCIAL MIGRATION

Row	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
1. Income Rank[*]	3	1	4	2	5	9	6	7	8	10
2. Migration Rank[**]	8	1	4	5	10	9	3	2	6	7
3. Row 1 - Row 2	-5	0	0	-3	-5	0	+3	+5	+2	+3

[*] Lowest value for Y_i/E_i has rank 1.

[**] Highest value for overall outmigration rate has rank 1.

Source: Values for Y_i/E_i and overall outmigration ratios are the 16 year averages from the Family Allowance data set.

simpliste approach.[20] Therefore, even though we have demonstrated in this paper that most of the interprovincial migration that _does_ occur can be explained in terms of resource allocation considerations, we propose, for future research, the tentative hypothesis that these interprovincial flows are not adequate for purposes of regional economic adjustment.

[20] It is of considerable interest that James W. Parker, the newly elected head of the 750-member Newfoundland Board of Trade, recently stated that Newfoundland would be better off if it had 50,000 of its people leave for the mainland in each of the next three years rather than the normal flow of approximately 5,000 persons. Naturally, Mr. Parker indicates that it is the unemployed or underemployed that have "got to move". (Globe and Mail, Feb. 6, 1970, p. B1).

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Table A.1

OUTMIGRATION RATES FOR CANADIAN LABOUR FORCE, 1956-61

To / From	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
Newfoundland	0	.0002800	.007710	.002990	.006250	.02466	.001020	.0009900	.001940	.002010	.0?765
Prince Edward Island	.002980	0	.01457	.01260	.007430	.04478	.001940	.0007800	.005610	.003850	.09?51
Nova Scotia	.002270	.002280	0	.01393	.008900	.04333	.002530	.0008460	.003920	.006220	.05192
New Brunswick	.001590	.001730	.01003	0	.02472	.03652	.001470	.0005300	.002900	.002490	.08198
Quebec	.0001900	.0001000	.0007400	.0009300	0	.01398	.0005800	.0002500	.0009300	.001250	.01895
Ontario	.0003400	.0002100	.001740	.001210	.007450	0	.002890	.001120	.002920	.003440	.02132
Manitoba	.0003200	.0001900	.001510	.001290	.004280	.02632	0	.01093	.01541	.01569	.07882
Saskatchewan	.0001000	.0001700	.0006800	.0003000	.001500	.01326	.01578	0	.04073	.02319	.09571
Alberta	.0001600	.0001100	.0006500	.0004500	.002710	.01220	.004950	.008690	0	.02490	.05486
British Columbia	.0001500	.0000500	.001470	.0005800	.002550	.01316	.003990	.004640	.01710	0	.04369

Source: 1961 Census of Canada, Bulletin 4.1-10, Table J.4 and J.1.

Table A.2

INTERPROVINCIAL MIGRATION FLOWS: 1956-61

	Mfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total Outflow	Net Outflow	Net Outflow/Labor Force (%)
Newfoundland	c	29	80?	714	655	260?	19?	1?5	2?5	21?	50?0	2782	.02?
Prince Edward Island	95	c	46?	40?	237	142?	6?	2?	17?	1?3	30?7	1348	.042
Nova Scotia	500	502	c	3064	1050	9527	557	185	36?	1368	18527	8506	.01?
New Brunswick	268	291	1686	c	4153	613?	248	90	489	41?	13783	4621	.02?
Quebec	324	16?	1?2?	1543	c	2336?	97?	417	1356	2073	3159?	2844	.00?
Ontario	779	487	403?	2795	17?4?	c	6684	259?	6759	795?	46326	-19134	-.00?
Manitoba	104	6?	455	418	1?84	851?	c	3538	498?	507?	2457?	6566	.02?
Saskatchewan	32	52	211	0?	46?	410?	4889	c	12617	718?	2?447	16121	.05?
Alberta	76	53	30?	212	13??	565?	232?	4050	c	1150?	2554?	-11397	-.02?
British Columbia	80	2?	9??	315	1382	715?	215?	252?	9269	c	2?46	-12267	-.00?
Total Inflow	2258	1669	1?921	9162	28743	68460	18012	13526	36055	36013			

Source: 1961 Census of Canada, Bulletin 4.1-10, Table J.4 and J.1.