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1953-1965: AN EMPIRICAL STUDY.

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CANADIAN INTERNATIONAL IMMIGRATION,

1953-1965: AN EMPIRICAL STUDY

Louis Parai

1969

A Dissertation Presented to the Faculty of

the Graduate School of Yale University

in Candidacy for the Degree of

Doctor of Philosophy

SUMMARY

Recent developments in the theory of migration are brought together into a simple single equation model of migration which is fitted to Canadian post-war quarterly (and in one instance annual) gross immigration data. Unlike in previously published studies, both government immigration policy in the form of a proxy variable and a competing country of immigration are explicitly introduced into the (arithmetic and log) linear regression equations which are estimated by ordinary least squares for the immigration of workers by major (ethnic) sources; British immigration is also disaggregated by major skill and occupation groups.

The theoretical analysis yields testable hypotheses of the expected signs of the estimated coefficients for the exogenous variables. In the analysis of the immigration of all workers, the hypotheses are generally accepted. For example, the estimated coefficients for the Canadian unemployment rate and the proxy policy variables are of the postulated sign and statistically significant; the coefficients of the (alternatively defined) real income variables are not always of the hypothesized sign nor statistically significant, and are especially sensitive to the suggested corrections for population changes which are applied to the immigration data. There were no a priori reasons to specify the sign of the coefficient of the rate of unemployment in the country of emigration and the estimated coefficients are usually not statistically different from zero. Various interesting differences were obtained in the regression equations estimated for the British, Italian, Common Market and United States immigration flows, these differences usually being explained by events unique to the specific migration being analyzed; moreover, problems of identification and multicollinearity are sometimes evident.

In the analysis of the immigration of British workers by major skill and occupation groups, certain differences among the estimated coefficients were hypothesized and these also are found to exist.

Accordingly the single equation model of migration does reasonably well in explaining the migration flows being studied. The results of the analysis also suggest, among other things, that it is desirable to express the dependent (immigration) variable as a rate (corrected for population changes in the sending and receiving countries), to incorporate the concept of a third (competing) country into the analysis, and to use a simultaneous equation model when considering immigration policy as one of the explanatory variables.

PREFACE

This study was done during the three years 1966-68 while I was teaching at the University of Western Ontario. Suggestions, ideas, comments and help were provided by many individuals during this time and I wish to thank all of them.

Among my colleagues, I especially wish to acknowledge the many stimulating discussions which I had with S.B. Gupta and W.E. Vickery who likewise were studying different aspects of migration; R.G. Bodkin, T.M. Brown, K.R. Kadiyala and N. Roy discussed various statistical problems with me; K.H. Burley read much of the original draft and provided numerous suggestions for improving the presentation. B. Celovsky of the Department of Manpower and Immigration provided special tabulations of the immigration data for the years 1962-65; Z.W. Sametz, former Director of Research within the Department of Citizenship and Immigration, during a number of stimulating conversations made helpful suggestions in the early stages of the research. Many other individuals within the Department of Manpower and Immigration, too many to mention by name but whose help was indispensible, provided access to the worksheets from which the detailed immigration data were obtained and discussed numerous aspects of Canadian immigration. My thesis advisors, Professors R. Ruggles, W.N. Parker and M. Leiserson, made a number of suggestions which have considerably improved the final copy of this study in various places.

I also wish to express my gratitude for the financial assistance for travel, data collection, typing and duplicating which was provided

Finally I especially wish to express my appreciation to Jackie and Anne who by their immense patience and encouragement have been a source of inspiration.

These many individuals contributed immeasurably to this study; the shortcomings, many of which I am too well aware, are of course my own responsibility.

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Chapter I

INTRODUCTION

The study of international migration has received renewed atten-
tion in recent years from economists.   This may be explained by two major
developments.   Extensions of the theory of human capital, on the one
hand, have brought about changes in the theoretical analysis of that
portion of migration which is motivated primarily by economic factors.
Detailed immigration statistics, on the other hand, have been provided
for a few countries which, along with other available relevant data,
have made possible new empirical analyses.

This particular study is a continuation in the series of recent
ones which have emanated from this renewed interest in migration.[1]   It
attempts to add to our understanding of international migration,
particularly into Canada during the post-war years, by bringing recent
developments in the theory of migration together into a simple single
equation model of migration, testing it and numerous hypotheses suggest-
ed by it, and by providing some empirical estimates of the relative im-
portance of the various variables of the model.   Quarterly data

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[1]For example, Larry A. Sjaastad, "The Costs and Returns of Human
Migration", Journal of Political Economy, LXX (Supplement: October,1962),
pp. 80-93; Belton M. Fleisher, "Some Economic Aspects of Puerto Rican
Migration to the United States", Review of Economics and Statistics, XLV
(August, 1963), pp. 245-253; Allen C. Kelley, "International Migration
and Economic Growth, Australia: 1865-1935", Journal of Economic History,
XXV (September, 1965), pp. 333-354; W. Robert Needham, "Immigration to
Canada from the British Isles 1951-1964: A Regional Analysis of Sending
Areas", mimeographed (a paper, based on his Ph.D. thesis to be submitted
to Queen's University, which was given at the Canadian Political Science
Association Conference on Statistics, Ottawa, June, 1967).   Jan Kmenta's
unpublished thesis, Australian Postwar Immigration: An Econometric Study
(Stanford University, 1964), came to my attention after this study was
completed.

are used in all but one instance in the empirical analysis and accordingly attention is focused throughout the study upon short-term fluctuations in immigration. Disaggregation by major occupation groups is made in one section of the empirical analysis and, unlike in any previous published studies, both government immigration policy in the form of a proxy variable and a (third) competing country of immigration is explicitly introduced into the regression equations. It has been possible to do these things because detailed unpublished data of Canadian immigration and related activities have been made available by the Canadian Department of Manpower and Immigration.

1.   Economic Studies of Migration[2]

Migration is understood in common usage simply to mean the movement of individuals from one geographical location to another. In this sense migration is as old as the history of mankind; physical evidence and recorded descriptive accounts of population movements have long existed. Analytical studies of migration, especially by economists, are much more recent and generally date from the time when the magnitudes of such population movements have been recorded.[3]

This recording and analysis of population movements have given rise to a more precise terminology of migration. A distinction is made between internal migration (population movements within a nation-state) and international migration (population movements from one nation-state

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[2]The role of international migration in economic analysis and the major economic studies of the determinants of, and fluctuations in, international migration are summarized in some detail in Appendices I and II.

[3]The most frequently cited of these earlier studies are those by E.G. Ravenstein, "The Laws of Migration", Journal of the Royal Statistical Society, XLVIII (June, 1885), pp.167-235 and LII (June, 1889), pp.241-305.

or country to another).[4]   In the study of international population movements, migration is generally defined (and recorded) to consist of the movement of those individuals who have expressed an intention of entering (or leaving) a country for at least a year.[5]   Although the term migration is used to refer to population movements in general, frequently the inward migration is more precisely referred to as immigration whereas the outward movement is properly termed emigration.

Migration has been of considerable magnitudes at certain times. Quite often these population movements have been forced or involuntary, but more frequently -- especially in recent centuries -- migration has been voluntary.[6]   These voluntary movements of people have been motivated

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[4]Although these movements are essentially different in degree rather than in kind, they are most frequently studied independently. The underlying forces motivating migration within and between countries do differ to some extent, but even more significant is the fact that the available statistical information differs for these movements and hence gives rise to somewhat different empirical problems.   Internal migration statistics most often are estimated from census data whereas international migration statistics most frequently are derived from recorded entries into a country.

[5]United Nations, Statistical Office, International Migration Statistics (New York: United Nations, 1953), p. 12.

[6]The major migratory movements have been described and studied in numerous monographs. For example, see W.F. Willcox, ed., International Migration, Vol. II (New York: National Bureau of Economic Research, 1931), for a discussion of the pre-World War II movements. For a description of the more recent migration, see the International Labour Office, International Migration, 1945-1957 (Geneva: International Labour Office, 1959) and A.T. Bouscaren, International Migration Since 1945 (New York: Praeger, 1963). Detailed statistics of international migration are given in I. Ferenzci and W.F. Willcox, International Migrations, Vol. I (New York: National Bureau of Economic Research, 1929), United Nations, Department of Economic and Social Affairs, Economic Characteristics of International Migrants: Statistics for Selected Countries, 1918-1954 (New York: United Nations, 1958), and the International Labour Office, op. cit.
An excellent selected bibliography of studies of migration and of statistics is given by Brinley Thomas, International Migration and Economic Development (Paris: UNESCO, 1961) and United Nations, Department of Social Affairs, Population Division, The Determinants and Consequences of Population Trends (New York: United Nations, 1953).

by numerous factors; geographic, demographic, religious, political, social and economic causes have frequently interacted, although most frequently one of these has tended to predominate.[7] Consequently, because migration is caused by -- and, in turn, frequently affects -- these various factors which are included within the subject matter of different disciplines, the study of migration is not the prerogative of any one discipline; the literature on migration is thus extensive and is to be found in numerous fields of study.

Economists generally have concentrated their attention on those voluntary movements of people which have been motivated predominantly by economic factors; non-economic factors are explicitly (or implicitly) ignored, assumed away, or most frequently reduced to economically relevant ones.

The first classic economic study of international migration was that by Harry Jerome.[8] This detailed empirical study, along with a number of others published during the same period, was concerned mainly with documenting that there existed various empirical relationships between short-run fluctuations in economic activity and changes in the magnitude of migration. Not having had the benefits of the electronic computer, the analysis consisted of a relatively few correlation co-efficients and many descriptive comparisons of fluctuations in various

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[7]Various attempts have been made to classify all types of migration according to numerous criteria; see, for example, W. Petersen, "A General Typology of Migration", <u>American Sociological Review</u>, XXIII (June, 1958), pp. 256-266, also reprinted in his <u>Population</u> (New York: Macmillan, 1961), pp. 606-621.

[8]<u>Migration and Business Cycles</u> (New York: National Bureau of Economic Research, 1926).

statistical series.   Very little attention was given to the question
of why theoretically such relationships might be expected to exist
and only occasional reference was made to the effects which this mi-
gration had on the economies of the sending and receiving countries.
By far the greatest part of the analysis was devoted to migration
between Europe and the United States.

This interest in establishing the existence of relationships
between short-run fluctuations in economic activity and in the volume
of migration is undoubtedly to be explained by the fact that such a
relationship was postulated some decades previously.   As early as
1870 it was noted that "In short, bad times in Europe regularly in-
crease, and bad times in America invariably diminish, immigration
[into America]".[9]   Much effort has subsequently gone into testing
this proposition and ascertaining the relative importance of the "push"
and "pull" forces of the sending and receiving economies respectively.

In more recent years, two published studies have again focused
upon short-term fluctuations in annual immigration.   Belton M. Fleisher
has analyzed post-war (net) immigration into the United States from
Puerto Rico[10], while Allen C. Kelley has studied (net) total immigra-
tion into Australia during the period 1865-1935.[11]   Both of these authors,
in their theoretical analysis, have considered immigration as an investment

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[9]Friederich Kapp, <u>Immigration and the Commissioners of Emigration
of the State of New York</u> (1870), p. 15, as quoted by Stanley Lebergott,
<u>Manpower in Economic Growth</u> (New York: McGraw Hill, 1964), p. 40.

[10]<u>loc. cit.</u>

[11]<u>loc. cit.</u>

in human capital and, in their empirical analysis, have utilized multiple regressions to test their hypotheses.

Brinley Thomas, in contrast, has analyzed the long-term cyclical fluctuations in international migration and economic growth. In his classic study he has linked nineteenth century economic development in North America and Great Britain through the international movements of labour and capital.[12]

Not surprisingly, such detailed empirical studies as these have almost always been confined by economists to migration which occurred during the pre-1930 period when international population movements were unrestricted by national immigration policies. Migration was then essentially a response of labour to the free market mechanism and hence changes in its magnitude could be studied in terms of responses to economic determinants. In the subsequent period the magnitude and composition of migration has been greatly affected by the Great Depression, the World War and by changing national immigration policies. Generally speaking the studies of the more recent international migration can be described as being basically descriptive.[13] Where the magnitude of migration is wholly (or very largely) determined by national policies, such descriptive analysis is sufficient. But very frequently policy is only one of a number of factors affecting the flow of migration; in

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[12] *Migration and Economic Growth: A Study of Great Britain and the Atlantic Community* (Cambridge: Cambridge University Press, 1954).

[13] See, for example, International Economic Association, *Economics of International Migration*, Brinley Thomas, ed., (London: Macmillan and Company, 1958) and J. Isaac, *British Post-War Migration* (Cambridge: Cambridge University Press, 1954).

these instances it has usually not been possible to incorporate policy
into the regression analysis.

The theoretical analysis of migration has been more recent and
has largely consisted of specifying in detail why and especially how
migration is a function of various economic (and non-economic) variables.
Originally migration was analyzed essentially as a response to existing
real income differentials and employment opportunities, whereas more
recently both the benefits and costs of migration have each been
emphasized and considered in terms of human capital theory.[14] Al-
though both methods have yielded basically the same general results,
the later approach is preferable; it not only explicitly sets out
and analyzes the many variables which affects migration, but it also
implies certain hypotheses, especially for a study of migration dis-
aggregated by occupations and skills.

2.   Purpose and Scope of this Study

Very few analytical studies of the economic aspects of migration
to and from Canada have been published even though throughout most of
the nation's history such migration has been large both in absolute
numbers and especially relative to the net population growth of the
country.   Over the post-war years 1946-65, for example, 2.50 million
immigrants came to Canada and 1.12 million people are estimated to have
emigrated from the country.   This estimated net immigration of 1.38
million, being considerably larger than any other net inflow over a

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[14]See, for example, J. Isaac, Economics of Migration (New York:
Oxford University Press, 1947) and Larry Sjaastad, op. cit.

comparable period of time in the past, accounted for 19.1 per cent of the growth of the country's population during this period; however, because of the smaller past population in Canada, net immigration contributed relatively even more (27.7 per cent) to population growth during the first two decades of this century.[15]

The post-war immigration to Canada, compared to migration to other countries, has been exceeded only by the total inflow of 5.02 million people to the United States. Immigration to Australia over this same period totalled 2.40 million, with the annual flows into that country since 1959 being somewhat greater than the flows into Canada. The other major recipient countries of immigrants -- Israel, Argentina, Brazil and Venezuela -- each received upwards to a million migrants during this post-war period.[16] Consequently Canada has been a major recipient of international migrants.

The movements of people into and out of Canada have not occurred at a steady rate, but have fluctuated considerably. Annual (gross) immigration has generally been largest during years of economic expansion as, for example, in 1957 when just over 282,000 immigrants arrived, and smallest during recessions, as in 1961 when slightly less than 72,000 people entered the country; emigration from Canada -- recorded

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[15] For a brief outline of migration into and out of Canada during the past century, see my _Immigration and Emigration of Professional and Skilled Manpower During the Post-War Period_, Special Study No. 1 prepared for the Economic Council of Canada, (Ottawa. Queen's Printer, 1965), pp. 12-18, and the sources cited therein. The figures quoted above are obtained from an up-dated revision of Table A-2, p. 133.

[16] These figures are given and discussed in greater detail in Chapter III.

data being available only for the (gross) movements to the United States and those travelling by sea to the United Kingdom -- has also fluctuated in much the same way. Quarterly immigration has similarly varied from period to period as well as seasonally from quarter to quarter.

Because of the size and importance of this migration into and out of Canada, many published studies -- mostly descriptive in nature, however, -- have been made of the various aspects of these movements of people.[17] The relatively few studies which have been mainly economic in content have done comparatively little in analyzing the short-term fluctuations in immigration; this undoubtedly is to be explained by the paucity of necessary statistical information, especially for the period prior to World War II. However, unpublished detailed monthly and quarterly immigration data -- cross-classifying immigrants by occupation groups and ethnic origin -- now are available for the past two decades.[18] It is, therefore, the purpose of this dissertation to utilize the unpublished data to study the short-term fluctuations in immigration to Canada since 1953 and to relate these fluctuations to changes in economic activity and government policies. The study covers the years following the Korean War, this being a period which may be

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[17]An extensive bibliography of these studies is given in the three publications by the Canadian Department of Citizenship and Immigration, Economic and Social Research Division, Citizenship, Immigration and Ethnic Groups in Canada, A Bibliography of Research, 1920-1958, for 1959-1961 and for 1962-1964, (Ottawa: Queen's Printer, 1960, 1962 and 1964, respectively).

[18]Continuous series of quarterly immigration statistics which are comparable are available only for the period since 1953. This and other problems involved in utilizing the existing data are discussed in Appendix IV.

regarded as being free from the adjustments that followed World War II.

This study should serve a number of purposes. It is hoped that the theoretical formulation of the problem will add a few new insights into the analysis which has evolved from the previous work done by numerous individuals. The empirical analysis, besides filling a gap in the existing collection of studies of Canadian migration, should also be of interest to those who are concerned with more general results and are not especially interested in particular country studies. In particular, this analysis differs from most previous ones in that quarterly statistics are used, immigration is disaggregated by major occupation groups and each is briefly analyzed, a proxy variable for Canadian immigration policy is employed, and a third (competing) country is taken into account; the empirical results -- most of which are statistically significant -- suggest that further work along these lines might be worthwhile undertaking.

3. Outline of this Study

The following chapter contains the theoretical analysis of migration. The economic determinants of migration are discussed, with the emphasis being given particularly to short-term factors which likely affect the timing of migrants' departures. A single equation model of migration is developed from which various hypotheses are postulated.

Chapter III is a brief introduction to the various major political, social and economic factors which are relevant to a full understanding of the post-war immigration to Canada. The economic situation in Canada and the country's general immigration policies are discussed

and the major trends and changes in immigration to Canada are described. These relevant factors are similarly described for the countries from which the larger portion of immigrants come to Canada and for the countries which are Canada's major competitors for migrants. Those readers who are not particularly interested in the institutional and historical aspects of migration may skip this chapter without interrupting the essential continuity of the analysis.

The empirical study is summarized in Chapters IV, V and VI. The results of regression analyses are presented and discussed, and the hypotheses postulated in Chapter II are tested.

The summary and conclusions of this dissertation, along with a comparison with the results obtained in other studies, are given in Chapter VII. Policy implications of the empirical results are also briefly discussed.

Detailed discussions and presentations of related material which are not essential to the core of the exposition of this analysis have been placed into appendices. A survey of the role of migration in economic analysis is given in Appendix I and a lengthy summary of the previous major studies of short-term fluctuations in migration is to be found in Appendix II. Canadian immigration policy is discussed in Appendix III. In Appendix IV, the available relevant statistics are described and their shortcomings indicated. The various necessary assumptions, adjustments and estimates required in deriving the various series used in the empirical analysis are given, along with the detailed statistical tables, in Appendix V. Tables giving the detailed regression results are to be found in Appendix VI.

Chapter II

ECONOMIC FACTORS AFFECTING THE INTERNATIONAL FLOW OF MIGRANTS

International migration may take place primarily for any one or combination of reasons. As already noted in the preceding chapter, geographic, demographic, religious, political, social and economic factors motivate such migration; yet very likely it is often the case that either one cause is predominant or other causes, although important, essentially exert their effects through some particular cause. Thus, for example, significant differentials in real income accruing to the indigenous workers in two countries may be considered to be the primary reason or cause underlying a particular migratory flow. Although population growth in the sending country may be much greater than that in the receiving country, this demographic factor may be considered as being but one of the numerous underlying factors accounting for the persistent real income differentials; similarly differing scarcities of material resources and different social and political organizations of economic activity may also account in part for the existing real income differential. Consequently, because economic factors are frequently very important reasons motivating voluntary international migration and because other important factors may often be considered to exert their effects through influence on economic factors, the study of migration has frequently been formulated in terms of economic forces. Such an analytical approach is thus a convenient and fruitful way of organizing the various forces affecting migration and is far from being synonymous with the much questioned assumption

that each individual is simply and only an "economic man" who responds wholly to pecuniary incentives.

In this chapter that part of the economics of migration is discussed which deals with the theoretical analysis of those economic forces which influence the direction and magnitude of, and short-term fluctuations in, the voluntary international migration of people. The economic literature dealing with this subject is summarized very briefly in the first part, a single equation model of migration is developed in the second and third parts, and various hypotheses especially relevant to short-term fluctuations are derived from this model in the fourth and final part of the chapter.

1.   Economic Analysis of International Migration Flows

Not only has the economic motivation for migrating been long recognized, but very frequently economic forces have been considered to be the primary determinant of migration, especially of the voluntary migration of the past century and more.   Perhaps the best known and most widely cited of the earlier studies in this respect is that by E.G. Ravenstein, a statistician, in which he analyzed the then most recently available census data and concluded that

> ...I do not question for a moment that the principal,
> though not the only cause of migration, has to be
> sought for in over-population in one part of the
> country, whilst there exist elsewhere underdeveloped
> resources which hold out greater promise for re-
> munerative labour.   It is obvious that this is not
> the only cause.   Bad or oppressive laws, heavy
> taxation, an unattractive climate, uncongenial social
> surroundings, and even compulsion (slave trade, trans-
> portation), all have produced and are still producing

currents of migration, but none of these currents can
compare in volume with that which arises from the
desire in most men to "better" themselves in material
respects.[1]

In more recent years studies based on questionnaires and/or
interviews have also indicated the relative importance of economic
factors in a migrant's decision to move. For example, R.T. Apple-
yard found that a majority in a sample of British families emigrat-
ing to Australia under the Australian Assisted Passage Scheme stated
that economic factors (defined as poor job opportunities in the United
Kingdom and better opportunities in Australia) motivated them to
migrate.[2] In a comparable study Anthony H. Richmond found that
just over a half of his sample of post-war migrants in Canada cited
economic motives for migrating.[3] Other studies have similarly

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[1] "The Laws of Migration", _Journal of the Royal Statistical Society_,
LII (June, 1889), p. 286. This article analyzed international migration;
it might be noted that an earlier article of the identical title appeared
in the same journal, Vol. XLVIII (June, 1885), pp. 167-235, which
analyzed internal migration in the United Kingdom.

[2] _British Emigration to Australia_ (Canberra: The Australian
National University, 1964), pp. 162-172, especially Table 6.5, p. 165.
There were 961 family units interviewed. Appleyard found, for example,
that of 608 heads of families and single males who gave a first reason
for migrating, 322 cited "better opportunities for self" and another
182 cited "better opportunities for children".

[3] _Post-War Immigrants in Canada_ (Toronto: University of
Toronto Press, 1967), especially Chapter 11, pp. 31-34. It is
interesting to note that whereas 53.2 per cent of the British cited
economic motives for migrating, there were 80.0 per cent of those
from the Mediterranean areas who cited this as their primary
motive.

indicated the importance of economic factors in the decision to migrate.[4]

It is therefore not surprising that many of the analyses of voluntary migration have taken economic motivation and the importance of economic factors as basic assumptions from which various models have been constructed to explain the volume and direction of, and short-term fluctuations in, migration. The essential components of such models have been aptly summarized as follows:

> The potential migrant tends to move when he estimates the margin of advantage of a prospective foreign socio-economic situation over that of his present situation to be sufficiently great to warrant movement. The magnitude of this margin, as of his estimate of it, is affected by fluctuations, in both his own country and the prospective country of immigration, in economic conditions, prospects, and opportunities for employment. These fluctuations may also affect his assessment of the probable costs of migrating and of his capacity to meet these costs. Such fluctuations, as has been noted, are somewhat influenced by migration. For example, migration may accelerate or decelerate economic movements already underway; or it may give rise to subsequent movements....Non-recurring and irregularly recurring events also temporarily affect the prospects of potential migrants (e.g., the Suez fiasco in the United Kingdom; the present incidence of British social security costs).[5]

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[4]See, for example, the study of the motivation of Dutch emigrants in G. Beijer, ed., <u>Characteristics of Overseas Migrants</u> (The Hague: Government Printing and Publishing Office, 1961), especially Parts I to III inclusive. Another earlier study of the motivation of Anglo-Saxon emigrants is that by L.B. Brown, "English Migrants to New Zealand: the Decision to Move", <u>Human Relations</u>, XIII (May, 1960), pp. 107-114. The authors of the former study, it may be noted, tend to play down the importance of economic factors in the decision to migrate, yet it is evident from the evidence given that such factors are quite important.

[5]J.J. Spengler, "The Economic Effects of Migration" in Milbank Memorial Fund, <u>Selected Studies of Migration since World War II</u> (New York: Milbank Memorial Fund, 1958), pp. 188-189.

The various models of international migration that are to
be found in the economic literature differ in emphasis and detail
according to the various authors,[6] but are similar in a great many
respects. Almost all of these models can be described as being
basically static partial equilibrium models stressing either -- or
both -- the supply of or the demand for immigrant labour.

The potential supply of migrants is emphasized in those
analyses in which the concept of human capital is utilized.[7] In
such studies migration is considered as an investment which increases
the productivity of human resources. Accordingly migration may take
place whenever there is a (positive) return from migration. That
is, a worker will wish to migrate from one country to another when
the present (discounted) value of the future stream of the expected
net real personal income in the country of destination exceeds that

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[6]The main developments and applications have been by H. Makower,
J. Marschak and H.W. Robinson, "Studies in Mobility of Labour: A
Tentative Statistical Measure", Oxford Economic Papers, No. 1 (Oct.,
1938), pp. 83-123, and "Studies in Mobility of Labour: Analysis for
Great Britain", loc. cit., No. 2 (May, 1939), pp. 70-97 and No. 4
(Sept., 1940), pp. 39-62 (the results of these studies are summarized
by H.W. Robinson in "The Response of Labour to Economic Incentives",
Chapter VII in T. Wilson and P.W.S. Andrews, Oxford Studies in the
Price Mechanism (Oxford: Oxford University Press, 1951), pp. 204-272);
J. Isaac, The Economics of Migration; The International Labour Office,
International Migration, 1945-1957, Ch. 8; Larry A. Sjaastad, "The
Costs and Returns of Human Migration", loc. cit.; Belton M. Fleisher,
"Some Economic Aspects of Puerto Rican Migration to the United States",
loc. cit.; Allen C. Kelley, "International Migration and Economic
Growth, Australia: 1865-1935", loc. cit.; and S.B. Gupta, "The
Economics of International Migration: A Theoretical Analysis" (un-
published manuscript, University of Western Ontario, 1966).

[7]For example, see L. Sjaastad, op. cit., pp. 83ff and Allen
Kelley, op. cit., pp. 339ff.

in the present country of residence by at least the total real

costs of migrating.   These income and cost calculations include

both pecuniary and non-pecuniary items.

The parameters entering the decision to migrate once-and-for-all are the expected real income in the country of origin (Y_o) and the country of destination (Y_d) over the expected number of years of life in the respective countries (N_o, N_d); the psychic income in both places (P_o, P_d), which may be negative; the rates of discount applied to the future stream of real income (r_o, r_d) and of psychic income (p_o, p_d); and the cost of moving (C), including earnings foregone during the move and while job-hunting.

These parameters enter the individual's calculations in the form shown in the following inequality:

$$\sum_{i=1}^{N_o} \frac{Y_{o,i}}{(1+r_o)_i} + \sum_{i=1}^{N_o} \frac{P_{o,i}}{(1+p_o)_i} \underset{<}{\overset{>}{=}} \sum_{i=1}^{N_d} \frac{Y_{d,i}}{(1+r_d)_i} + \sum_{i=1}^{N_d} \frac{P_{d,i}}{(1+p_d)_i} - C$$

If a decision-maker's calculations indicate that the right side of the inequality is greater than the left he migrates; in the case of equal values he is indifferent as between staying or leaving; in all other cases he does not migrate.[8]

Thus the available supply of migrant workers can be specified as

a function of these variables;[9]   in empirical studies the task

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[8] H.G. Grubel and A.D. Scott, "Determinants of Migration: The Highly Skilled", International Migration, V (No. 2, 1967), p. 128. (A couple of obvious typographical errors have been corrected in the quoted paragraphs).

[9] See, for example, ibid., pp. 128-130, and especially S.B. Gupta, op. cit., Part I.

is to give each of these variables an operational definition. A large part of the economic literature in recent years on migration, it may be noted, is focused upon either specifying the theoretically preferable components to be included in the variables in the above noted formulation or indicating the best ways in which these variables can be estimated.

The existing demand for immigrant workers has been stressed by a small number of studies.[10] A demand for migrant workers within a country is the excess demand for workers within that country. Because the labour market is very frequently an imperfect market characterized by various price (wage) rigidities, labour shortages often do appear which are not readily remedied by appropriate price (wage) changes. Employers can offset such shortages, among other ways, by hiring immigrant workers. The incentive to hire such immigrants would depend on the relative differential between the existing domestic wage and the wage at which immigrant workers could be hired, this latter presumably being approximated by the wages in the country of emigration. Such labour shortages might also be offset, at least in part, by the movement and/or retraining of domestic workers who are unemployed in different regions or sectors of the economy. The resulting demand for immigrant workers would, of course, also depend upon government immigration policy which

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[10]See, for example, the International Labour Organization, International Migration, 1945-1957, pp. 231-249, and the Department of Labour (Canada), Economics and Research Branch, Skilled and Professional Manpower in Canada, 1945-1965. Report prepared for the Royal Commission on Canada's Economic Prospects, (Ottawa: Queen's Printer, 1957), pp. 10-34.

could explicitly by legislation or implicitly by administrative procedures either encourage or discourage the inflow of migrants. Accordingly the level of wages in the country of destination relative to that in the country of origin, the rate of unemployment in the country of destination, and the immigration policy of the receiving country would through their effect on the demand for immigrant workers partly determine the actual number of immigrants arriving in the receiving country.

Thus the direction and volume of migration, as well as fluctuations in its magnitude, may be explained as a function of the numerous variables which affect either the desire of individuals to migrate and/or the extent to which they are readily received in the country of destination. If the model is regarded as being basically a "long-run" one in which variables that change relatively slowly over time are emphasized, then attention is focused on the direction and volume of migration; here, the real incomes and the migration policies in the sending and receiving countries are the major variables included in the model.[11] When variables such as unemployment rates and immigration policy which may often change according to the seasons and in response to short-term economic fluctuations are emphasized, the model focuses upon fluctuations

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[11] Other variables -- such as population size and the relative scarcity of resources, especially land -- which also tend to change over the long run are at times discussed separately, but most frequently are taken to be reflected in the real income variable. See, for example, J. Isaac, op. cit., pp. 34-41 and the United Nations, Department of Social Affairs, Population Division, The Determinants and Consequences of Population Trends, pp. 112-115.

in -- or the "timing" of -- migration. Admittedly this distinction between "long-run" and "short-run" variables -- or between the volume and the fluctuations in this volume of migration -- is not always clear. Real incomes may change abruptly, for example, because of the devaluation of a currency and this may cause a noticeable up-swing in migration; pronounced fluctuations in the rate of unemployment within an economy may discourage immigration into such a country. Nevertheless, as imprecise as such a distinction may be, it has been a useful conceptual one to make.

The major shortcoming of the above models -- especially when used to explain net migration -- is that they are static, partial equilibrium models; that is, the models do not take into account either the functional relationship which exists between the economic variables (of which migration is a function) and the (net) volume of migration nor the relationships among immigration, emigration and the domestic labour force.[12] Such an omission may not be too serious in certain empirical applications. If migration is relatively small, it will probably have negligible effects on those economic factors which are being considered as the independent variables in the model.[13] Even if immigration into a country is sizeable, it may be analyzed

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[12]As indicated in Appendix I, the effects of migration on the economies of the countries of immigration and emigration are many and are far from being completely analyzed. Thus it is not surprising that a static, partial equilibrium model is extensively used.

[13]B.M. Fleisher, op. cit., p. 246.

within a framework of a static, partial equilibrium model, provided that emigration is also significant and the relevant economic variables are then in effect a function of net (and not gross) immigration. This latter consideration would seem to apply to the Canadian immigration that is being analyzed in this study.

2.   A Theoretical Model of Internation Migration

A model consisting of the supply of and demand for migrants could be constructed and statistically estimated. However, since the purpose of this dissertation is to analyze and explain fluctuations in a particular (quarterly) flow of immigration -- rather than to provide empirical estimates of all relevant parameters of a more complete migration model -- a single equation model of migration is developed below and utilized in the empirical analysis. A major advantage of this procedure, of course, is that in the empirical analysis certain problems of identification will be avoided since numerous variables -- such as unemployment rates, immigration policy and seasonal variations, for example -- affect both the supply of and demand for immigrants; on the other hand, because a single equation model is used, problems of identification and/or multicollinearity will arise if some relationships exist among the exogenous variables in this equation.

The single equation model to be developed in this analysis is similar to those which were outlined in the preceding section. It differs basically in the way in which it is developed, the primary concern being that the model be general and yet applicable to the empirical study for which it is to be utilized. Specifically the

model is explicitly formulated in terms of three countries -- the country of origin, of destination, and of alternative choice of destination -- rather than the customary two countries of origin and destination; moreover Canadian immigration policy and regulations are explicitly included, and the components of the relevant economic variables in the model are given statistically operational definitions.

Since numerous economic variables will be considered in the theoretical formulation of the model, it would seem to be convenient to list all of them (along with their notations) in one place. They are as follows:

B, C, A	as superscripts, denote the home (or emigration) country, the country of immigration and the alternative (competing) country of immigration, respectively;
ex	is the rate of exchange;
G	net government money transfer payments (transfers received plus government services provided free of charge minus taxes paid);
h	is the average hours of work per week;
L	is the total population of labour force age (15 - 64 years) in a particular country;
L_s, L_p	are index numbers, computed from the populations of labour force age, used to convert the available migration data into (population corrected) rates of migration;
$M^{C:B}$	is the observed number of immigrant workers arriving in country C from country B;
N^C	is the number of people from the country of emigration who have recently arrived in country C;
P	is the price level;

$R^{C:B}$ is the total real cost of migrating to country C from B;

r is the rate of discount;

$T^{C:B}$ is the money cost of transportation (net of government subsidies) to country C from B;

t as a subscript, refers to a particular period of time and may take on values of 0 (the present) to n (the terminal period of life);

U is the rate of unemployment;

V is the proxy variable for government immigration policy;

w is the average (gross) hourly money wage, including fringe benefits and additional pay for overtime;

X_0 denotes a dummy variable for some special period;

$X_{1,2,3,4}$ denote the (seasonal) dummy variables; and

Y is net real (pecuniary) personal income.

Numerous basic assumptions are inherent in this model. It is assumed that individuals and families become potential migrants according to the decision reached by the economically active member -- the worker who may be considered to be synonymous to the head of the household.[13] Workers are assumed to be seeking to maximize their

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[13] Or alternatively the family could be taken as the basic unit. A paternalistic type of welfare function could be postulated for such a unit and the combined income of the family could likewise be taken as the income variable. Such a formulation would not differ in essence from that given above; nevertheless, since only a few of the immigrating wives intend to join the labour force immediately (see, for example, Parai, op. cit., pp. 111 and 139), the above formulation has been specified as it seems to be the most apt specification.

Thus this model is intended to explain only the migration of workers. By making various assumptions about family size and the way in which families migrate (that is, whether the entire family moves together or the head of the household precedes the rest of the family), the model could be extended to explain total migration.

expected lifetime real earnings, these earnings being defined to include both pecuniary and non-pecuniary (or psychic) items. These workers, although responsive to various economic variables, are further assumed to respond in varying degrees to any given variable because each worker has a different utility function and is surrounded by different circumstances. Thus it is assumed that individuals have different tastes, different aversions to risk; they have different amounts saved, varying access to loanable funds and at different rates, varying amounts of knowledge about alternative opportunities and families differing in size and composition. Therefore all individuals will not act in unison, but rather there will be a continuous functional relationship between the number of workers responding and a particular economic variable which takes on different values. And finally it should be explicitly noted that the following model, like those upon which it is based, excludes the interdependence which may exist, to differing degrees, between international migration and the economic variables which in this analysis are considered to be independent variables in the function; similarly internal migration and the mobility of labour within a country are not considered, even though these may affect the magnitude of immigration.

To summarize the discussion which is to follow, the actual (quarterly or annual) flow of migrants can be related to the numerous variables to be discussed by means of a general functional form. Assuming for the time being that the populations in the sending and receiving countries remain unchanged, the flow of migrants from

country B to country C during a given period t[14] may be written as

$$M_t^{B:C} = f(Y^A, Y^B, Y^C; U^A, U^B, U^C; N^A, N^C; T^{B:A}, T^{B:C}; V^A, V^C; X_{0,1,2,3,4})$$

where $f'_{Y^A} < 0, \quad f'_{Y^C} > 0, \quad f'_{Y^B} < 0,$

$f'_{U^A} > 0, \quad f'_{U^C} < 0, \quad f'_{U^B} ? 0,$

$f'_{N^A} < 0, \quad f'_{N^C} > 0,$

$f'_{T^{B:A}} > 0, \quad f'_{T^{B:C}} < 0,$

and $\quad f'_{V^C} > 0.$

It now remains to justify both the inclusion of these variables in the function and the nature of the postulated relationships.

The actual flow of migrants is determined by factors which motivate workers to seek to migrate as well as by factors which determine how many of these potential migrants will find it possible to migrate.

The number of immigrant workers who seek to migrate from one country to another -- that is, the potential flow or supply of migrant workers -- is a function of those variables which workers take into account in their decision to migrate. Consider a worker who is thinking of migrating. As discussed in the preceding section, economic analysis indicates that a worker will migrate from his home

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[14]Even though for ease of notation these are not so shown above, the independent variables are considered to be lagged since in most instances it takes time for individuals to learn of conditions abroad and to act accordingly. The appropriate lags are discussed in the following section.

country (B) to another (C) if the difference in the discounted value of the expected net real personal income in countries C and B exceeds the total real cost of moving from B to C. In terms of algebraic formulation, a worker will wish to migrate if

$$\sum_{t=0}^{n} \frac{\left(Y_t^C - Y_t^B \right)}{(1+r)^t} > R^{C:B}$$

and he will in fact wish to migrate to country C, rather than some other alternate country of destination (A), if

$$\sum_{t=0}^{n} \frac{\left(Y_t^C - Y_t^B \right)}{(1+r)^t} - R^{C:B} > \sum_{t=0}^{n} \frac{\left(Y_t^A - Y_t^B \right)}{(1+r)^t} - R^{A:B}$$

where   Y is the expected (annual) net real personal income in the countries denoted by the superscripts,

t is the (annual) time period in the individual's remaining lifetime (t=0, 1, ... , n),

r is the appropriate rate of discount,[15] and

R is the total real cost of migrating between the countries given in the superscripts.[16]

This conceptual relationship is fairly simple to state; the difficult problems arise in specifying the components which are to make up net real personal income and the total real cost of migrating, and in defining

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[15]These rate of discount may conceivably differ for each of the possible countries of destination according, among other things, to the degree of certainty attached to the expected future stream of real personal income within each country. Similarly the expected lifetime (n) may differ among countries.

[16]If some elements of this cost are incurred over a period of time, then it is of course the discounted value of this stream of costs which is here denoted by R.

the magnitude of the rate of discount.

The expected income and the cost of migration are conceptually defined to include both pecuniary and non-pecuniary components. The major items which are most frequently included in a strictly theoretical specification of net real personal incomes are: 1) the individual's (and family's) money earnings (most often defined to be net of occupational expenses) plus the value of all fringe benefits; 2) the net money transfer received from government (that is, government transfer payments less direct and indirect taxes); 3) the value of public goods and services provided to the worker and his family; 4) the exchange rate or some other corrections for differences in the price levels in the countries being considered; 5) the many non-pecuniary items -- such as climate, family, social, religious and political environment, prestige, culture and an estimate of future opportunities in all these respects -- most of which cannot readily be measured in practice. Similarly the cost of migrating is usually defined to include: 1) those monetary expenses incurred in arranging for migration, including visas, examinations and employment; 2) the money costs of transportation, including the movement (or sale) of all possessions; 3) the opportunity cost incurred while moving from employment in the home country to that in the other country; 4) the non-pecuniary costs associated with leaving familiar surroundings and perhaps one's family for a country which may have very different language, customs and institutions.[17] Such theoretical definitions

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[17]These components of income and costs are discussed at some length by various authors. See, for example, S.B. Gupta, op. cit., Part J, L. Sjaastad, op. cit., pp. 84-88 and H.G. Grubel and A.D. Scott, op.cit., pp. 128-130.

as these are comprehensive but also non-operational since data for
a number of these components are not available.

Moreover in reality it is most unlikely that an individual
has any detailed or accurate knowledge of his (or his family members')
future stream of earnings (however defined), especially in the country
of destination about which he may likely have even less knowledge than
of his home country. It is therefore hypothesized that, because of
both uncertainty and imperfection in knowledge, the rate of discount
is very high,[18] and consequently that the present (or immediately past)
magnitudes of real income tend to determine an individual's assess-
ment of his discounted future stream of (net) income.

Accordingly the discounted future stream of real pecuniary
income can be statistically approximated, the extent to which this
is possible in any instance being determined by the available income
data.[19] In some instances statistics are available (by major occupation

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[18]This is essentially the same point as that made by J. Isaac,
Economics of Migration, pp. 33-34. According to him, "Expectations --
apart from periods of political or social unrest -- are based on present
conditions, and it is usually presumed that the present trend will not
change. On the other hand, a great deal of migration is caused by an
attempt to escape immediate destitution, so that long-term expecta-
tions are only of secondary importance." (Op. cit., p. 34).

In this respect it should also be noted that although R.T. Apple-
yard in his study, British Emigration to Australia, Chapter 6, found
that these emigrants mentioned "better opportunities for children" as
a reason for migrating, these opportunities were basically assessed in
terms of present conditions (see especially pp. 163-170).

[19]Discussions with Professor W.H. Somermeyer have helped me in
formulating these operational definitions and in specifying their
functional relationships.

groups) for the prevailing average hourly money wage rate (w) --
often defined to include overtime but exclude fringe benefits -- and
hours of work (h);[20] assuming some given average family size and
composition, an estimate could conceivably be made of the average
taxes paid as well as of the average magnitudes of certain major
government transfer payments such as family allowances and medical
care (G). These money values could be deflated by a price index
(P) in order to express them in real terms. Rates of expected
change in wage rates, hours of work and prices ($\dot{w} = dw/dt$, $\dot{h} = dh/dt$ and
$\dot{P} = dP/dt$ respectively) may also be approximated by the previous rates
of change. Thus the expected (net) real pecuniary personal income
(Y) in country C of a worker in period t=0 can be expressed as

$$Y_0^C = \sum_{t=0}^{n} \left[\frac{(w_t \cdot h_t) + G_t}{P_t \cdot (1+r)^t} \right]$$

$$= \frac{(w_0 \cdot h_0) + G_0}{P_0} + \sum_{t=1}^{n} \left[\frac{w_0(1+\dot{w})^t \cdot h_0(1+\dot{h})^t + G_0(1+\dot{G})^t}{P_0(1+\dot{P})^t \cdot (1+r)^t} \right]$$

and, assuming that the rate of discount is very high,

$$\lim_{r \to \infty} Y_0^C = \frac{(w_0 \cdot h_0) + G_0}{P_0} \quad .$$

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[20] Conceptually other components of personal income, such as
property income and dividends and interest, should also be included in
the empirical formulation; however, with the likely exception of the
imputed income from home ownership, these other components probably
are quite small and moreover such income (including the rental from
one's home) may continue to accrue to the individual even after he has
migrated to another country. The critical fact, of course, is that the
necessary data are not readily available.

The current real income may thus be taken as the statistical approxima-
tion of the discounted (net) expected real pecuniary personal income
within a country.[21]

Although it is the absolute difference between (pecuniary)
incomes in the home country and a possible destination country which
is often taken as being considered by an individual in making the
comparison between the return from and cost of migrating,[22] it seems
reasonable to assume diminishing marginal utility of income and to
postulate that within this decision process a given absolute
difference will be evaluated to be of varying importance according
to its relative size as compared to the existing domestic real
personal income. Accordingly an appropriate specification of the
real income variables would be the current real income abroad (con-
verted into domestic currency units at the prevailing exchange rate)

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[21]A slight modification could be made in the above expression
-- that of using the hours of work in the home country in the calcula-
tions of expected incomes in all of the countries -- in order to take
into account the fact that fewer (or greater) number of hours of work
is typical in the countries of possible destination. Thus the in-
creased (or decreased) leisure abroad would be included in these ex-
pected real incomes, with the leisure being valued at the wage rates
in the countries of destination. Because the only comparable data
are wages and supplements given in the national accounts statistics,
this modification could not be attempted in the empirical analysis in
Chapters IV-VI below.
    Since only pecuniary income is included in this approximation
of personal income, the real (net) monetary benefits of migrating must
exceed the non-pecuniary costs before an individual will migrate; it
seems reasonable to expect that these non-pecuniary elements will
differ in magnitude among individuals, and this provides another
reason to expect a continuous functional relationship between migra-
tion and the various (exogenous) economic variables in the function.

[22]See pages 17 and 26 above.

relative to that in the home country -- that is $\left(Y^C \cdot ex\right)/Y^B$.[23]
The "third" (or likely alternate) country can readily be incorporated
into the empirical analysis by specifying this income variable as
$\left(Y^C \cdot ex - Y^A \cdot ex\right)/Y^B$.

Given that workers migrate in order to maximize their dis-
counted (net) expected lifetime earnings, it follows from the above
analysis that _ceteris_ _paribus_ if present real income in the country
of immigration C increases, the flow of migrant workers to that country
would increase; conversely if real incomes in either the home country
B or in the competing country of immigration A increases, the flow of
such workers to country C would decrease.

This specification of the real income variable in terms of
presently prevailing magnitudes is consistent with the scant empirical
evidence which presently exists about the motivation of and the know-
ledge possessed by migrants. R.T. Appleyard, for example, has found
from his interviews with British emigrants to Australia that, although
prior to their departure they did not have a detailed knowledge of the
real wage in Australia, they nevertheless did have a good knowledge

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[23]Or alternatively, $\dfrac{Y^C \cdot ex - Y^B}{Y^B}$. But these two are essentially

the same; since $\dfrac{Y^C \cdot ex - Y^B}{Y^B} = \dfrac{Y^C \cdot ex}{Y^B} - 1$, only the intercept (or

constant term) of the relevant arithmetic linear equation differs,
whereas the (slope) parameter associated with this variable is
unaltered.
   It may be noted that in the empirical analysis all incomes
are expressed in United States dollars.

of the relevant components such as wages, costs, taxes, family

allowances and the exchange rate.[24]   A number of studies have in-

dicated that reasonably accurate information of economic conditions

abroad are conveyed to prospective migrants by newspaper accounts and

especially by communications from relatives and friends who had migrat-

ed previously.[25]   Furthermore government immigration authorities also

provide considerable information about the relevant conditions in their

country.[26]

In the empirical analysis of aggregate migration, the current

real wages and supplements (from the national accounts) per employed

worker must suffice as an estimate of current real pecuniary income.

Estimates of net government transfer payments are quite difficult to

make and would likely be subject to sizeable errors of estimate;

it is thus a matter of practical necessity to exclude them. Accord-

ingly, rather than present an illusionary facade of empirical com-

pleteness and accuracy, the estimate of both the non-pecuniary (or

psychic) components of real income and the net government transfer

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[24]_British Emigration to Australia_, Chapter 7.

[25]See, for example, Appleyard, _op. cit._, pp. 153-158;   G.
Beijer, ed., _Characteristics of Overseas Migrants_, pp. 14-17, 60-65,
199-201;   P.M. Roddick, "Canadian Immigration -- Policy and Practice",
Queen's Quarterly, VLXII (Winter, 1956), p. 531;   Canada, _House of Com-
mons Debates, 1960-61_, Vol. II, p. 1908, Vol. VIII pp. 8614-8616; and
Department of Citizenship and Immigration, _Annual Report for Fiscal
Year Ended March 31, 1960_, p. 23, and _ibid._, for _1961_, p. 22.

[26]See, for example, _Working and Living Conditions in Canada_
(Ottawa: Department of Labour, Economics and Research Branch) which
is revised annually and made available by the Canadian immigration
officials to all prospective migrants to Canada.

payments are excluded. The income variable in the empirical study thus consists of (average) gross real wage earnings and is therefore a statistical approximation of the migrant's estimate of his discounted future (net) total real income.

A number of the non-pecuniary factors can nevertheless be incorporated into the analysis. Within a quarterly model, to the extent that it is more convenient to migrate at certain times (or seasons) of the year -- for example, because it is more enjoyable to travel during times of mild weather or it is more convenient to leave one's job during certain periods -- a seasonal variation in the supply of immigrants would occur. Similarly political unrest and fears of war (such as during the Suez crisis) may stimulate the supply of migrants. Such seasonal and periodical effects can be incorporated by means of dummy variables.

Among the components of the costs of migrating, the transportation fare and the foregone earnings are very likely the most important and are the variables which are quite probably the most sensitive to short-term variations.

Foregone earnings while migrating have received by far the most attention in empirical studies. Such earnings are considered to be to a great extent a function of the time taken to find a job in the country of immigration; in turn the time taken to find such employment may be taken to be primarily a function of the rate of

unemployment (U) in the country of destination.[27]   Thus _ceteris_

paribus the higher is the rate of unemployment in a country of

destination, the smaller will the flow of migrants be to that

country.   Similarly the rate of unemployment in the home country

is important, although _a priori_ its net effect cannot be specified.

On the one hand, if domestic unemployment is high, then the

opportunity cost of moving (that is, the foregone earnings) is

lower for a worker already out of work;   on the other hand,

being out of work diminishes the worker's current personal income

and may also entail the use of previous savings, both of these

factors making it less possible for him to migrate.[28]

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[27]It is well to note, as J. Isaac, _op. cit._, pp. 35-36, has
pointed out, that to the extent that an immigrant has a higher
probability than an indigenous worker of being unemployed, unemploy-
ment statistics are inadequate to indicate the opportunity cost
incurred in moving.   An immigrant, as compared to an indigenous
worker, would have a higher probability of unemployment for numerous
reasons;   union regulations, minimum wage laws and the migrant's
likely unfamiliarity with the language and work rules would tend to
favor the indigenous worker in being hired.

For a brief discussion of the concept of unemployment rates
as an indicator of the cost of moving, with special reference to
rural-urban migration, see M. Reder, "The Economic Consequences of
Increasing Immigration", _Review of Economics and Statistics_, XLV
(August, 1963), p. 225.

[28]This point is made by Makower, Marschak and Robinson,
"Studies in Mobility of Labour: A Tentative Statistical Measure",
Oxford Economic Papers, No. 1 (October, 1938), pp. 98-99, and by
Kelley, _op. cit._, p. 341.

Although not used in the empirical analysis because the data
are not available, the magnitude of the actual costs of transporta-
tion (T) -- for moving both individuals and their belongings -- may
also be expected to influence the flow of migrants. Ceteris paribus
the number of migrants from country B to C would increase with a fall
in the cost of transportation from B to C, but it would decrease with
a fall in the cost of transportation from B to A.[29]

Another important variable which affects the total real cost
of migrating is the number of countrymen (N) -- especially relatives
and friends -- who have migrated earlier. Such countrymen provide
not only information about conditions in the country (as already noted
above), but also frequently provide part or all of the necessary money
costs of travel and help the newcomers to find jobs;[30] furthermore
immigration legislation often makes it easier for an individual to
migrate if a relative or friend "sponsors" the immigrant.[31] Moreover
the greater is the number of countrymen who have recently arrived in

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[29] To the extent that these transportation costs can be regarded
as reflecting measures of "economic distance", the above formulation
can be associated conceptually with work done by various sociologists
in which distance is an important variable. See, for example, G.K.
Zipf, "The P_1P_2/D Hypothesis on the Intercity Movement of Persons",
American Sociological Review, XI (December,1946),pp. 677-686, and
C.T. Stewart, Jr., "Migration as a Function of Population and Distance",
American Sociological Review, XXV (June, 1960), pp. 347-355.

[30] It should also be noted that higher rates of unemployment in
countries C and A would very likely also mean that the numbers of actual
sponsors among the potential number N would be smaller. Therefore the
unemployment rate reflects both foregone earnings and this influence
on the number of sponsors.

[31] For details see Appendix III.

a particular county of immigration, then the greater is the attraction of this country for other emigrants of that nationality (or ethnic origin) as it offers greater opportunity for fraternizing with culturally similar people and for getting settled into an otherwise strange place.[32] In essence these services provided by countrymen reduce the migrant's real cost of migrating.

This potential flow of migrants which has thus far been discussed is essentially one that represents a free response of workers to numerous pecuniary and non-pecuniary variables; the actual flow is also determined by government regulations and policies of migration and various other factors which affect the demand for immigrants in the receiving country.

The home country can -- and sometimes does -- actively encourage or discourage emigration by its policies toward the permissible activities of immigration officials within the country and by the

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[32]The importance of countrymen abroad, especially relatives and friends, in an individual's decision to migrate has been stressed by studies (based on questionnaires and interviews) by R.T. Appleyard, British Emigration to Australia, Chapters 6 and 7, especially pp. 153-160 and those published in G. Beijer, ed., Characteristics of Overseas Migrants, pp. 14-17, 60-65, 199-201. This point has also been discussed, among others, by J. Isaac, The Economics of Migration, pp. 42-44; the International Labour Organization, "The Motives of Emigration", International Labour Review, LXXXI (January, 1960), p. 78; B.M. Fleisher, op. cit., p. 251. On the role of information and its dissemination by relatives and publications, also see P. Nelson, "Migration, Real Income and Information", Journal of Regional Science, I (Spring, 1959), pp. 43-74.

Furthermore, to the extent that these earlier emigrants now residing abroad can be regarded as representing opportunities for migrants, this emphasis upon the importance of relatives and friends perhaps provides some tie with the notion of intervening opportunities developed by S.A. Stouffer in his "Intervening Opportunities: A Theory Relating Mobility and Distance", American Sociological Review, V (December, 1940), pp. 845-867, and in his "Intervening Opportunities and Competing Migrants", Journal of Regional Science, II (Spring, 1960), pp. 1-26.

issuance of passports, by subsidies (or taxes) and by direct controls.[33] Similarly countries of immigration can affect the flow of migrants to their countries by grants and loans,[34] by advertising and by the methods they employ to select and process applications.

Government immigration policy, explicitly by legislation and/or implicitly by administration, can either encourage or discourage the inflow of migrant workers.[35] Government legislation almost always states the minimum requirements (of health, education, skills and perhaps of sponsorship) and at times may set numerical limits to the annual inflows. Less noticeably, government can regulate the annual inflows by the severity with which legislation is enforced and the speed with which applications are processed; likewise

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[33]The migration policies of the various countries being considered in this study are briefly discussed in the following chapter and Appendix III; a detailed discussion of Canadian immigrations laws and regulations is to be found in Appendix III.

Of the countries of interest in this study, only Italy and the Netherlands have had a policy to encourage migraton; other countries, such as the United Kingdom, have attempted to discourage certain types of workers (such as professional people) from emigrating, but only by general advertising and persuasion. France and Italy restrict the advertising activities of immigration authorities. Such policies have not been of any importance nor have they noticeably changed; therefore emigration policies do not receive attention in this study.

[34]To the extent that such subsidies finance the actual transportation costs, the government policy is reflected in part by the variable T (and hence R).

[35]The flow of immigrant workers is similarly affected, of course, by other government regulations, such as those labour regulations specifying minimum wages, licensing requirements and union recognition.

the demand for immigrant workers is affected by the extent to which private companies and provincial (or state) governments are encouraged (or discouraged) actively to advertise for and to seek out immigrant workers. Changes in legislation occur infrequently and are accompanied by political debate and discussion and such changes can therefore almost always be recognized; changes in the continual enforcement of legislation and in the speed with which applications are handled are most difficult to observe directly and consequently reliance must be placed on a proxy variable as an indicator of such changes.

Canadian immigration policy does attempt to regulate the flow of immigrants according to the needs of the country. Thus

> A system of pre-examination abroad has been in operation for many years and serves several purposes. It helps eliminate those who are evidently unable to meet entry requirements.... It makes possible more adequate selection, better regulation of the flow of immigrants in the light of seasonal and other variations in employment conditions and of course facilitates rapid processing of immigrants at Canadian ports.[36]

Since this selection and regulation of the flow of immigrants is guided by government directives which are not published, a proxy variable is required if such policy changes are to be incorporated into the empirical analysis.

There would be no reason of course to include immigration policy as an exogenous variable in the single equation migration model if such policy were a function of only immigration, income and the

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[36]Canada Year Book, 1957-58, p. 173. These aims of immigration policy are likewise stressed in other editions; see, for example, Canada Year Book, 1952-53, pp. 163-164.

unemployment rate in Canada which are already included as exogenous variables. Available evidence suggests however that immigration policy also depends among other things upon emigration, regional variations in the labour market, political considerations and any errors of estimating the immigrant labour needs of the country.[37] The policy variable therefore partly represents exogenous forces and is included as an independent variable. Nevertheless, to the extent that such policy is partly a function of immigration (that is, $\partial V/\partial M < 0$, this negative relationship reflecting for example that ceteris paribus the larger is the volume of immigration, the less emphasis there would be upon policy being required to encourage further immigration), an identification problem exists and the estimated policy parameter is downward biased. Similarly to the extent that the proxy policy variable is to some extent correlated with the unemployment rate and perhaps some of the other exogenous variables, multicollinearity will exist and the variance of the estimated coefficients will be larger. Consequently within a single equation model it may not be possible to obtain unbiased and efficient estimates of all of the coefficients; nevertheless, since much of the analysis involves tests of hypotheses, in the majority of instances where the estimated coefficients are found to be statistically significant, these problems are not critical.

The number of films shown and lectures given in Great Britain by the Canadian immigration authorities is used as the proxy variable for Canadian immigration policy. Although it is true that such

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[37]See, for example, G.A. Rawlyk, "Canada's Immigration Policy, 1945-1962", Dalhousie Review, XLII (Autumn, 1962), pp. 294-297, and Appendix III, pp. 193 ff.

dissemination of information and promotional activities are undertaken to influence the number of (British) workers showing an interest in migrating to Canada,[38] the justification for using this variable (for which data are available) as the proxy variable is that such promotional activities tend to vary positively with the pre-examination procedures which are employed to select and regulate the flow of immigration.   For example, it has been reported that

> Despite increased promotional and recruitment activities overseas, 1959 saw a further decline in the number of immigrants....
> ...Immigration officers visited many centres in the United Kingdom, Ireland and Continental Europe where they gave lectures and held film shows on Canada. At personal interviews following these meetings, thousands of persons received additional information and advice regarding the prospects of their successful establishment in Canada.[39]

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[38] It has been noted recently, for example, that "The continuing expansion of the European economy and the resulting demand for highly skilled workers, has had repercussions for Canada in its efforts to attract immigrants to this country. To meet the competition for workers, especially in those countries which have traditionally provided Canada with its chief supply of immigrants, the Immigration Branch has intensified its promotional efforts to the extent permitted by the host country and the limited financial and staff resources available."
(Annual Report of the Department of Citizenship and Immigration for the Fiscal Year Ended March 31, 1964, p. 14.)

[39] Annual Report of the Department of Citizenship and Immigration for the Fiscal Year Ended March 31, 1960, pp. 23-25. Similar statements, along with more detailed accounts of the promotional work, are to be found in the same report for other years; see, for example, Annual Report...for the Fiscal Year Ended March 31, 1959, p. 26.
This relationship between promotional activities and immigration policy is further elaborated on pages 194-195 below.

Hence it may be concluded that if larger numbers of immigrants are desired, then immigration officials do undertake greater promotional activities, as well as speedier processing of applications and greater encouragement to the applicants to come to Canada. _Ceteris paribus_, if Canadian immigration policy is effective, the inflow of immigrants will vary directly with the proxy policy variable.

The actual flow of immigrant workers is also partly determined by the demand for such workers by employers in Canada. This demand for immigrant workers is the excess demand of employers for workers within that country. It is among other variables a direct function of the relative differential between the existing (or perhaps the expected future) domestic wage and the wage at which immigrant workers could be hired.[40] An estimate of this latter wage is the wage rate in the country of emigration, with appropriate allowances being made for the fact that immigrant workers may involve certain costs that arise from differences in work procedures and language.[41] Furthermore, if the hours of work were similar

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[40] Admittedly, where there exist certain bottlenecks arising from shortages of particular types of labour, the social marginal product of those immigrant workers relieving those shortages would exceed their private marginal product. Yet often only the latter product is realized (and appreciated) by the employer. Nevertheless, to the extent that the government would be aware of the existence of such social marginal product arising from immigrants, it would presumably formulate immigration policy accordingly.

[41] Or stated alternatively, an immigrant worker may initially have a lower productivity than a domestic worker. The immigrant worker may require some training; he may also require special facilities -- such as a supervisor or fellow worker who can explain in the migrant's language the tasks required of him.

in the two countries, the relative real wage $\dfrac{(W^C/P^C) \cdot ex}{(W^B/P^B)}$ could

be approximated by the variable $\dfrac{Y^C \cdot ex}{Y^B}$.

The additional costs incurred by employers in hiring immigrant workers would likely differ largely according to the ethnic (or national) origin of the migrants. Since immigrant workers are not perfect substitutes for domestic labour, ceteris paribus at any given wage those immigrants most similar (especially in language and work habits) to domestic workers would be preferred because the additional costs to an employer of employing such migrant workers would be the lowest. Furthermore it would be expected that the larger is the number of any ethnic group recently hired, the more developed would the facilities be for minimizing the costs of hiring more of such immigrant workers: that is, the greater is the number of workers recently hired from an emigrant country, the task of conveying instructions to new immigrants would be facilitated and likely the easier it would be to assimilate additional similar immigrants into the production process. It is therefore postulated that the demand for immigrant workers of a given ethnic origin would vary positively with the number of recently hired migrant workers of that ethnic group.

Since labour shortages within certain sectors of C presumably could also be offset, at least in part, by moving unemployed domestic workers between regions or sectors of that economy, the demand for migrants in C is also a function of the domestic unemployment

rate.[42]

These shortages of labour could also vary with the seasons of the year, with the demand for certain kinds of migrant workers being greater (or smaller) at one season of the year as compared to other seasons.

The specification of the migration function thus far has assumed that the working populations in the countries of emigration and immigration have remained unchanged. But should these populations grow, it would be expected that for a given change in any of the independent variables the resulting _absolute_ change in the number of workers would be larger. For example, the larger the labour population in the home country, the greater is the number of individuals who may respond to any particular independent variable; the larger is the labour population in the country of destination, the greater are the absolute opportunities represented by certain variables (unemployment and policy, for example) in that country. Accordingly the number of migrants is standardized in order to eliminate this effect of population change.

The usual standardization is to divide the absolute number of migrants by the sum (or product) of the populations of the sending and receiving countries; this then gives a migration rate. Alternatively this sum (or product) may be converted into an index

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[42] It is perhaps here that the relationship between international and internal migration is most evident. To the extent that labour mobility takes place relatively more easily within the country of immigration (say because of government manpower policies aimed at retraining workers and subsidizing their relocation), the demand for migrant workers (at a given level of domestic unemployment) would be smaller.

and used to deflate the absolute numbers.[43]   This latter procedure

which is used in this study has the advantage of permitting more

ready comparisons between the adjusted and unadjusted data.

3.   <u>The Basic Regression Equation Models</u>

The single equation migration model developed in the preced-

ing section can be formulated for statistical estimation in a number

of forms. Most commonly an arithmetic linear relationship is postu-

lated and accordingly the equation may be set out in the following

linear form:[44]

$$\left(\frac{M}{L_p}\right)_t^{B:C} = \beta_1 \left(\frac{Y^C \cdot ex - Y^A \cdot ex}{Y^B}\right)_{t\ lag} + \beta_2 \left(U^C\right)_{t\ lag} + \beta_3 \left(U^B\right)_{t\ lag} + \beta_4 \left(V^C\right)_{t\ lag}$$

$$\alpha_0 X_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4$$

where $\left(\frac{M}{L_p}\right)^{B:C}$ is the number of immigrant workers (corrected for

population changes) arriving in Canada during the period t from a

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[43] For a brief discussion of these two indices, see Belton M.
Fleisher, <u>Some Economic Aspects of Puerto Rican Migration to the United
State</u> (Unpublished Ph.D. Dissertation, Stanford University, 1961), pp.
100-101, 132-133.

[44] With the appropriate modification of the income variable, the
two-country model may likewise be written out. Policy in the home
country is omitted since in this empirical analysis it is unimportant;
similarly transportation and migration policy in the competing country
are excluded since the data are not available and could not therefore
be used in this empirical analysis.

particular country (B), t lag denotes a lagged relationship, E is the error term and β the parameters to be estimated; the X are dummy variables, X_0 taking on assigned values[45] during some atypical period and being equal to zero otherwise, and X_1, X_2, X_3, and X_4 being seasonal dummy variables taking on values of unity during the first, second, third and fourth quarters respectively and being equal to zero otherwise. For the possible positive values of the above exogenous variables, it would be expected from the earlier analysis that

$$\beta_1, \beta_4 > 0$$

$$\beta_2 < 0$$

and β_3 may be positive or negative.

If the relationship between migration and the independent variables is indeed non-linear, one of two modifications may be introduced. Some of the variables -- such as the unemployment rates -- may be specified in the inverse from $\left(\frac{1}{U}\right)$. In fact this has been the usual procedure employed in the recent empirical analysis of international migration; the use of the reciprocal of unemployment is rightly defended on the grounds that the lower unemployment rates represent proportionately greater employment opportunities.[46] Alternatively a multiplicative (rather than

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[45] The assigned values being equal to one if the unusual effect is assumed to be uniform over the period or equal to variable weights if this effect is considered to build up to a peak and to diminish thereafter.

[46] See in particular Allen C. Kelley, op. cit., pp. 344ff.

additive) relationship could be assumed to exist among the independent variables and the linear relationship would be specified among the (natural) log values of the variables. Thus the relationship could be set out as

$$\left(\frac{M}{L_p}\right)^{B:C}_t = X_0^{\alpha_0} X_1^{\alpha_1} X_2^{\alpha_2} X_3^{\alpha_3} X_4^{\alpha_4} \left(\frac{Y^C \cdot ex - Y^A \cdot ex}{Y^B}\right)^{\beta_1}_{t\ lag} \left(U^C\right)^{\beta_2}_{t\ lag} \left(U^B\right)^{\beta_3}_{t\ lag} \left(V^C\right)^{\beta_4}_{t\ lag} e^E$$

which can also be written as

$$\ln\left(\frac{M}{L_p}\right)^{B:C}_t = \alpha_0 \ln X_0 + \alpha_1 \ln X_1 + \alpha_2 \ln X_2 + \alpha_3 \ln X_3 + \alpha_4 \ln X_4 + \beta_1 \ln\left(\frac{Y^C \cdot ex - Y^A \cdot ex}{Y^B}\right)_{t\ lag}$$
$$+ \beta_2 \ln U^C_{t\ lag} + \beta_3 \ln U^B_{t\ lag} + \beta_4 \ln V^C_{t\ lag} + E.$$

In this form the signs of the slope coefficients (β) would again be as specified above. This procedure is quite common in the empirical studies of internal migration.[47] The use of such a log relationship has the advantage as far as economists are concerned of directly providing elasticity coefficients in the estimated parameters.

The lagged relationship used above is required in order to recognize both an institutional and response lag. The institutional lag consists of the time taken by the immigration authorities to process an individual's application and to issue the required immigration visa. Thereafter there is a response lag consisting of the time it actually takes this individual to arrive in the country

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[47]See, for example, Larry D. Sjaastad, _Income and Migration in the United States_ (Unpublished Ph.D. Dissertation, University of Chicago, 1961) and W.H. Somermeyer, "Een analyse van de binnenlandse migratie in Nederland Tot 1947 en van 1948-1957", _Statistische en Econometrische Onderzockingen_ (No. 3, 1961), pp. 115-174.

of immigration.[48]   This lagged relationship might be discrete or

distributed.   In the latter case if the effect of a change in an

exogenous variable is assumed to decrease geometrically over time,

a Koyk-type distributed lag can be used in the regression equation.[49]

These discrete and distributed lags are estimated empirically; infor-

mation provided by immigration authorities would indicate that there

must be an average lag of at least one quarter and very likely the

lag is normally less than four quarters.

Both the arithmetic and log forms of the linear regression

equation are fitted by the method of ordinary least squares in the

empirical analysis in this study.   This will allow not only a com-

parison of the derived results with those of previous studies, but

will also enable a contrast of the results derived from these speci-

fications of the same model.

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[48]Preceding these lags is a comprehension lag which consists
of the time required by an individual initially to realize that
conditions exist which favour migration and thereupon to act accord-
ingly. No published study of the length of this lag exists, nor
does this lag fully comprise a part of the empirically estimated
lag. That is to say, because (according to the model developed
in the previous section) present conditions are considered to provide
an individual with an estimate of the expected returns and costs
of migrating, there is no recognition lag; hence the empirically
estimated lag consists of the period between the decision to migrate
and the time of arrival in Canada.

[49]For a short discussion of this formulation of a distributed
lag, see, for example, Robert Ferber and P.J. Verdoorn, Research
Methods in Economics and Business (New York: The Macmillan Company,
1962), pp. 346-349.

4.   Some Empirically Testable Hypotheses

The above single equation regression models can be fitted not only to the aggregate flow of migrant workers from one country to another, but also to the major occupation groups of such migrants whenever the appropriate data on incomes and unemployment for such groups are available.[50]   Hence the above model, along with some knowledge of the characteristics of the specific occupation groups of workers and of the different ethnic groups, gives rise to certain interesting hypotheses which can be tested empirically.   Presumably the degree to which the above model can explain fluctuations in the post-war immigration to Canada will be evidenced by the extent to which the estimated coefficients are of the proper sign (and statistically significant) and the various hypotheses that are suggested by the model are statistically accepted or rejected.

For individuals having the same innate abilities, each would have the same choice of income streams available to him, these income streams varying positively with the amount of investment in human capital that has been made.   And because returns on such investment in human capital are expected to accrue over a future period of time, it would be expected _ceteris_ _paribus_ that the greater amount of human capital would be embodied in those workers who place a greater

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[50]Such required data are not readily available and consequently this detailed empirical analysis has only partially been done (in Chapter V) on British migration.

emphasis on their future stream of income;[51] that is, it is to be expected that if individuals seek to maximize the present value of their (expected) lifetime earnings, those having a lower rate of discount would undertake the greater investment in human capital. Accordingly it is hypothesized that the greater is the human capital embodied in immigrant workers, the less likely would the emphasis by such persons in deciding to migrate be on present income; consequently the coefficient associated with present income should be smaller for the professional and skilled migrant workers than for the unskilled workers.[52]

The same consideration applies to the unemployment variable, that is, the foregone earnings component of the costs of migrating. Moreover since the hiring (and laying off) of unskilled and wage-earning workers is more responsive to fluctuations in economic activity than is that of salaried clerical and professional workers,[53] the rate of unemployment is more crucial for unskilled and wage-earning workers; it seems reasonable to assume that this is true for migrant workers as well. Hence it is hypothesized that the coefficient associated with unemployment will be larger for unskilled and wage-earning

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[51]On the other hand, of course, to the extent that those with greater innate abilities may increase their future stream of earnings proportionately more by investing in human capital, then in a situation in which all individuals have the same rate of discount those with superior abilities may undertake more investment in human capital. Since there is no a priori reason to expect a higher rate of discount to accompany greater abilities, the above hypothesis is not changed if the assumption of similar abilities is modified.

[52]For a similar type of hypothesis applied to internal migration flows, see J.N. Beshers and E.N. Mishiura, "A Theory of Internal Migration Differentials", Social Forces, XXXIX (March, 1961), pp. 214-218, especially p. 215. Other similar hypotheses are examined by them and by J.D. Tarver, "Occupational Migration Differentials", Social Forces, XLII (December, 1964), pp. 231-241.

[53]S.G. Peitchinis, The Economics of Labour (Toronto: McGraw-Hill, 1965), Chapter 12, especially pp. 216-217, 219-222.

migrant workers than for salaried clerical and professional migrant workers. Likewise seasonal changes affect the unemployment of labourers -- especially those in primary and construction industries -- more than that of professional workers. Therefore it is hypothesized that there is a marked difference between the seasonal pattern of arrivals of migrant workers, this pattern being more pronounced for unskilled labourers than for most immigrant professional workers.

Immigration policy, as already noted, has in part been intended to regulate the flow of immigrants into Canada. But only a proxy variable for immigration policy in general is available. Since the inflow of managers, skilled and professional immigrant workers is probably always welcomed,[54] it may be expected that the observed immigration of such workers would be less responsive to changes in this proxy policy variable. Therefore it is hypothesized that the parameter associated with the proxy variable will be smaller and less significant for the skilled and professional workers than for the unskilled workers.

The importance of relatives and friends in the country of immigration likely affects different ethnic groups differently. Thus, for example, those ethnic groups whose native language is not English or French will desire the fellowship and cultural contact of recently arrived fellow countrymen more than the English and French immigrants

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[54]See, for example, Canada, House of Commons Debates, 1960, Vol. IV, pp. 4710, 4712-13 and Debates, 1955, Vol. II, p. 1254.

who probably find the Canadian social and economic environment not
greatly different from that which they left behind.   And even more
important, some ethnic groups (such as the Italians) very frequently
migrate under sponsorship by somebody in Canada.[55]   Thus for such
reasons as these it is hypothesized that the coefficient associated
with the variable of the number of countrymen recently having
arrived in Canada will be larger for the Italians than for those
from continental Western Europe.

The results of the tests of these hypotheses, along with the
estimates (for major ethnic origins and occupation groups for the
British immigrants) of the coefficients of the single equation model
developed in the preceding section, are summarized and analyzed in
Chapters IV to VI.   To provide some essential historical and instit-
utional insights into this empirical analysis, the major events which
have been especially relevant to the Canadian immigration inflows be-
ing analyzed are summarized in the following chapter;   those inter-
ested basically in the empirical results of this study may skip the
following chapter.

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[55]Similarly unskilled workers are probably more frequently
sponsored than are the skilled and professional workers. Therefore,
within an ethnic group that has experienced sponsored immigration,
the above hypothesis, _mutatis mutandis_, would be expected to apply
to these occupation groups.
   For the distribution of sponsored and unsponsored migrants
among countries of last permanent residence and skill categories,
see Department of Citizenship and Immigration, Economic and Social
Research Division, Re~~rt~~ CI-3, The Skill Content of the 1962 Immi-
gration (Ottawa: Dep :tment of Citizenship and Immigration, 1963).

Chapter III

POST-WORLD WAR II CANADIAN MIGRATION AND RELATED ECONOMIC ACTIVITY

Those significant factors which seem essential for a greater understanding of Canadian (gross) immigration since 1953 are reviewed in this chapter. The major trends in international migration are first summarized and thereafter conditions in the major countries of emigration, in Canada and in those countries which were the major alternatives to Canada as countries of immigration are briefly described. This short chapter hopefully will place into perspective the migration flows which will be analyzed in the remainder of this study.

1.   Pre-World War II International Migration

The "heyday of international migration"[1] took place during the century preceding World War I. Migration, being at that time essentially a right of the individual, was relatively free from governmental restrictions and thus occurred in especially large numbers during certain intervals. It has been estimated that during this "heyday" at least 50 million migrants moved into the continents of North and South America from the rest of the world; the greatest movement occurred during the years 1903 to 1913 when, for example, close to 10 million people went to the United States from Europe. Comparatively small movements have

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[1]Brinley Thomas, International Migration and Economic Development, p. 9. Chapter I of this book outlines the pre-World War II migration flows and has been utilized for the above summary.

occurred since then. International migration was first curtailed by World War I and thereafter by the restrictions on immigration which were imposed by most governments during the depression and following years.

2. Post-World War II International Migration

With the restoration of transportation facilities after the war, intercontinental migration from Europe to the Americas resumed, but in magnitudes which have been somewhat smaller than the volumes experienced during the decade preceding World War I. Refugees and displaced persons, largely from Central and Eastern Europe and Germany, accounted for a sizeable portion of migration during the period 1946-1951; thereafter migrants in response to economic opportunities have accounted for the largest part of the migration flow.[2]

International migration statistics even for the post-war period are far from complete, and the available data are frequently not strictly comparable.[3] Nevertheless the published statistics do indicate the main flows of migration.

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[2] A number of detailed studies of the post-World War II migration have been published. See, for example, Joint Statistical Project on European Migration: I.C.E.M., I. L. O., O.E.E.C., U.N.: A Decade of Post World-War II European Migration, 1946-1955, (Geneva: I.C.E.M., 1959) and the supplement, European Migration in the Years 1956-1957; International Labour Office, International Migration, 1945-1957; A.T. Bouscaren, International Migration Since 1945; and H.L. Geisert, Population Growth and International Migration (Washington, D.C.: The George Washington University, 1962).

[3] See, for example, United Nations, Statistical Office, International Migration Statistics (New York: United Nations, 1953) and United Nations, Department of Economic and Social Affairs, Analytical Bibliography of International Migration Statistics, Selected Countries, 1925-1950 (New York: United Nations, 1955).

Intercontinental (gross) emigration from Europe has largely originated from four countries -- the United Kingdom, Italy, the Netherlands and Germany; as shown in Table 3.1, these countries have accounted for over two-thirds of this emigration. This population outflow has declined since 1957 largely because of a shift toward intracontinental migration, especially within the Common Market countries.[4]

The overseas destination of these emigrants from the United Kingdom, Italy, the Netherlands and Germany are summarized in Table 3.2. Note, however, that at present the data are only available for the period prior to 1954. Not surprisingly the greater number from the United Kingdom were destined to Commonwealth countries -- principally Canada and Australia -- and the United States. Those from Italy went primarily to South America -- especially Argentina, Brazil and Venezuela -- and to the United States, Canada and Australia. Emigrants from the Netherlands and Germany went primarily to Canada, the United States and Australia.

Turning to the (gross) flows of international immigration, it may be seen from the somewhat incomplete data summarized in Table 3.3 that since the end of the war by far the largest number of emigrants -- over 5 million -- have gone to the United States. Australia and Canada, each receiving very close to one half the inflow to the United States, are the next most popular countries of destination. Israel is the fourth largest recipient, having received over a million migrants, a large part

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[4] "Overseas and Internal European Migration", _Migration Facts and Figures_, No. 44 (November-December, 1965), pp. 3-4.

Table 3.1

GROSS OVERSEAS EMIGRATION FROM EUROPE, 1946-1963

Country	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	Total	%
Austria	-	3,970	18,464	39,140	20,827	21,176	11,028	5,505	6,338	11,436	44,826	56,567	9,687	7,743	5,296	4,838	2,784	3,595	273,220	3.20
Belgium	-	-	6,758	8,727	8,941	16,935	12,881	12,080	9,818	8,721	11,978	10,383	9,593	8,561	6,722	9,112	9,845	5,517	156,572	1.84
Denmark	2,344	3,419	4,965	4,283	4,512	7,424	5,399	4,339	4,117	4,715	7,842	11,962	6,276	5,444	5,283	4,769	4,683	4,850	96,626	1.13
Germany¹	8,000	9,000	12,000	15,000	35,000	61,000	59,000	59,706	73,341	66,375	86,006	77,673	59,841	59,396	61,131	51,361	49,305	56,312	899,947	10.54
Greece	1,558	4,901	4,819	4,263	4,635	15,845	8,282	10,048	21,375	29,787	35,349	30,428	24,521	23,684	47,768	17,769	22,190	24,518	331,740	3.89
Ireland	1,293	3,243	6,460	8,458	5,089	3,418	4,472	5,481	6,313	5,426	6,262	5,588	3,253	2,470	1,958	1,674	1,503	1,333	73,694	0.86
Italy	7,074	60,093	108,999	144,122	126,692	117,462	103,386	110,209	140,198	145,614	135,372	106,141	94,682	74,093	72,631	57,526	49,516	42,508	1,696,618	19.87
Malta²	1,278	2,446	3,150	5,368	8,503	7,692	5,342	4,532	11,447	9,007	4,492	3,285	3,152	3,265	3,841	3,580	3,641	6,579	90,600	1.06
Netherlands	66,828	65,897	66,454	58,185	50,697	67,449	81,347	67,080	61,368	57,267	62,737	62,644	55,861	54,076	58,194	48,670	49,082	46,628	1,080,464	12.65
Norway	973	1,477	2,398	2,669	2,295	2,871	2,958	2,515	2,767	2,618	2,635	2,800	2,095	2,104	1,729	1,450	1,284	1,326	38,964	0.46
Portugal	8,275	12,838	12,343	17,296	21,892	33,664	47,018	39,686	41,011	29,796	27,017	35,356	34,030	33,458	32,318	33,526	33,539	39,517	532,580	6.24
Spain	5,575	13,532	19,156	41,910	55,314	56,907	56,648	44,572	52,418	62,237	53,082	57,900	47,179	34,550	33,242	36,495	31,852	26,162	728,731	8.53
Sweden	1,786	2,501	4,948	7,208	5,406	8,713	4,405	4,656	3,548	2,942	3,778	4,397	3,384	3,582	3,139	2,595	2,529	2,500	72,017	0.84
Switzerland	1,839	2,599	3,622	2,930	2,672	3,430	3,636	2,687	2,291	2,075	2,335	1,934	1,402	1,173	999	1,036	806	720	38,186	0.45
United Kingdom³	171,600	126,500	168,100	152,600	136,400	169,500	181,809	155,200	148,400	128,100	140,900	162,900	113,000	95,600	88,700	91,000	91,200	107,200	2,428,700	28.44
Grand Total	278,423	312,416	442,636	512,159	488,875	593,486	587,602	528,296	584,750	566,116	624,611	629,958	467,956	409,199	422,951	365,401	354,559	369,265	8,538,659	100%

Dash denotes data not available.
¹Years 1946-1952 have been estimated by Wirtschaft und Statistik, No. 6 (June, 1954).
²Also included figures of emigration to the United Kingdom.
³Commonwealth citizens only.

Source: Migration Facts a.d Figures, No. 44 (November-December, 1965), Fig. 3, pp. 2-3.

Table 3.2

MAJOR OVERSEAS DESTINATIONS OF (GROSS)
EUROPEAN EMIGRANTS FROM SELECTED COUNTRIES
1946-57
(Thousands)

Country of Emigration (and periods)	Canada	United States	Australia	New Zealand	Union of South Africa	Argen- tina	Brazil	Venezuela	Uruguay	All Others	Total
United Kingdom[1] 1946-52	228.0	175.9	274.7	63.5	104.8	-	-	-	-	259.2	1106.5
1953-57	216.9	112.3	169.3	56.9	28.1	-	-	-	-	152.1	735.4
Italy[2] 1946-52	55.7	83.8	70.7	-	-	363.5	51.6	77.0	11.2	52.7	766.5
1952-57	117.8	124.4	100.2	-	-	99.1	48.0	117.7	9.4	29.0	645.7
Netherlands[3] 1946-52	62.2	20.8	39.2	8.7	11.5	-	-	-	-	174.1[4]	316.3
1953-57	65.3	35.1	52.3	7.6	15.2	-	-	-	-	73.2	248.6
Germany[5] 1945-52	59.3	105.0	13.8	-	6.6	-	-	-	-	17.3	202.0
1953-57	117.7	114.1	39.5	-	4.4	-	-	-	-	7.6	283.3

Dash denotes data not available; total is the sum of the available data.

[1] British nationals and aliens, solely by sea.

[2] Italian nationals only, by sea and air.

[3] Netherlands nationals and aliens.

[4] Of which 118.1 thousand were to Indonesia.

[5] 1945-52 are estimates (of German nationals only); 1953-63 are actual figures of German nationals and aliens.

Sources: 1946-57, International Labour Office, International Migration, 1945-1957, pp. 170-171, 174-175, 179, 182.

Table 3.3

GROSS IMMIGRATION INTO MAJOR
IMMIGRANT RECEIVING COUNTRIES, 1946-65

(Thousands)

Years	United States	Canada	Australia	New Zealand[1]	Argentina	Brazil	Venezuela	Israel
1946	151.2	71.7	18.2	4.6	4.4			
1947	172.3	64.1	31.8	8.1	40.5			
1948	173.9	125.4	65.7	9.6	119.1	35.3		119.0
1949	252.5	95.2	157.7	11.4	151.9	50.4		239.4
1950	207.2	73.9	174.5	17.7	128.6	53.7	43.8	169.7
1951	241.1	194.4	132.5	18.2	98.1	83.9	37.7	174.0
1952	224.8	164.5	127.8	24.9	64.0		41.4	23.4
1953	189.1	168.9	74.9	29.0	34.6		58.5	10.4
1954	230.1	154.2	104.0	24.9	43.9		66.4	17.5
1955	280.7	109.9	130.8	19.5	29.9		84.2	36.3
1956	351.8	164.9	123.8	20.9	17.6	44.8	76.9	55.0
1957	269.5	282.2	118.7	23.0	27.2	53.6	78.8	71.1
1958	249.2	124.9	109.9	26.3	20.1	49.8	67.7	26.1
1959	270.6	106.9	124.0	24.9	15.9	44.5	65.6	23.0
1960	272.2	104.1	139.4	20.3	8.8	40.5	53.5	23.6
1961	274.6	71.7	127.6	21.4	9.1	43.6	47.9	
1962	299.6	74.6	125.0	32.8			43.3	
1963	301.8	93.2	144.2	32.6			40.8	
1964	291.6	112.6	173.1	34.2				
1965	311.7	146.8	191.3	35.4				
Total 1946-1965[2]	5,015.5	2,504.0	2,404.9	439.9	813.7	500.1	816.5	988.5

[1] Year ending March 31.

[2] Excluding years for which data not available.

Sources:

United States: Department of Justice, Annual Report of the Immigration and Nationalization Service, various years.

Data include aliens admitted for the first time for permanent residence (on arrival or subsequently) and alien residents returning after one year or more abroad.

Canada: Department of Citizenship and Immigration, Statistics
                           Section, Immigration Statistics, various years.

Data include aliens admitted for the first time for permanent residence
(that is, having an immigrant's visa).

Australia: Commonwealth Bureau of Census and Statistics, Year Book
                           of the Commonwealth of Australia, various years.

Data include aliens arriving for the first time who intend to reside in the
country for one year or more and also residents who have been abroad for more
than one year.

New Zealand: Department of Statistics, New Zealand Official Yearbook,
                           various years.

Data include aliens arriving for the first time who intend to reside in the
country for at least one year.

Argentina: United Nations, Demographic Yearbook, various years.
                           (Somewhat different figures -- yet differing only
                           slightly in total -- for the post-war years is given
                           in Migration Facts and Figures No. 38 (November -
                           December, 1964), p. 4.

Data include aliens only declaring for the first time their intention to
establish themselves in the country; also included are clandestine arrivals
later authorized to stay permanently.

Brazil: United Nations, Demographic Yearbook, various years.

Data include long-term immigrants only.

Venezuela: Migration Facts and Figures No. 45, (January-February,
                           1966).

Data include only European migration movements to Venezuela and include aliens
classified either as immigrants, residents or transient residents. (Also
available in the above publication are figures for such aliens from all sources;
these figures are approximately 80 percent greater than those given in the
above table.)

Israel: United Nations, Demographic Yearbook, various years.

Data include long-term immigrants only.

of which has been religiously motivated. The other major countries of immigration are in South America, each of which has probably received close to a million immigrants during the post-war years.

To summarize the pattern of international migration which has very hastily been sketched out in the above tables, it is quite obvious that among European countries the United Kingdom, Italy, the Netherlands and Germany have been the major countries of (gross) emigration during the post-war period. The greater proportion of the emigrants from these four countries have gone to the United States, Canada and Australia (in the case of emigrants from the United Kingdom, the Netherlands and Germany) and to South America, the United States, Canada and Australia (in the case of emigrants from Italy). Among countries of destination, the United States, Canada, Australia, Israel, Argentina, Brazil and Venezuela respectively have received the largest number of migrants.

3.   Post-World War II International Migration to Canada[5]

Canada ranks second only to the United States -- but just slightly ahead of Australia -- in terms of the number of immigrants it has received during the post-war years. This post-war immigration, as shown in Figure 3.1, is somewhat smaller than that which occurred early in this century, but slightly greater than that of the 1920's. Moreover this

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[5]Numerous detailed studies -- of aggregate movements and of particular components -- have been published. For the former type studies, see Canada, Department of Citizenship and Immigration, Canadian Immigration, An Outline of Developments in the Post-War Period, Reference Paper No. 1 (Ottawa: Queen's Printer, 1957), and Dominion Bureau of Statistics, The Canada Year Book (various years, but especially 1957-58), in which one chapter is always devoted to "Immigration and Citizenship". For

immigration has fluctuated considerably from year to year.

Figure 3.1

IMMIGRATION TO CANADA, 1867-1965.
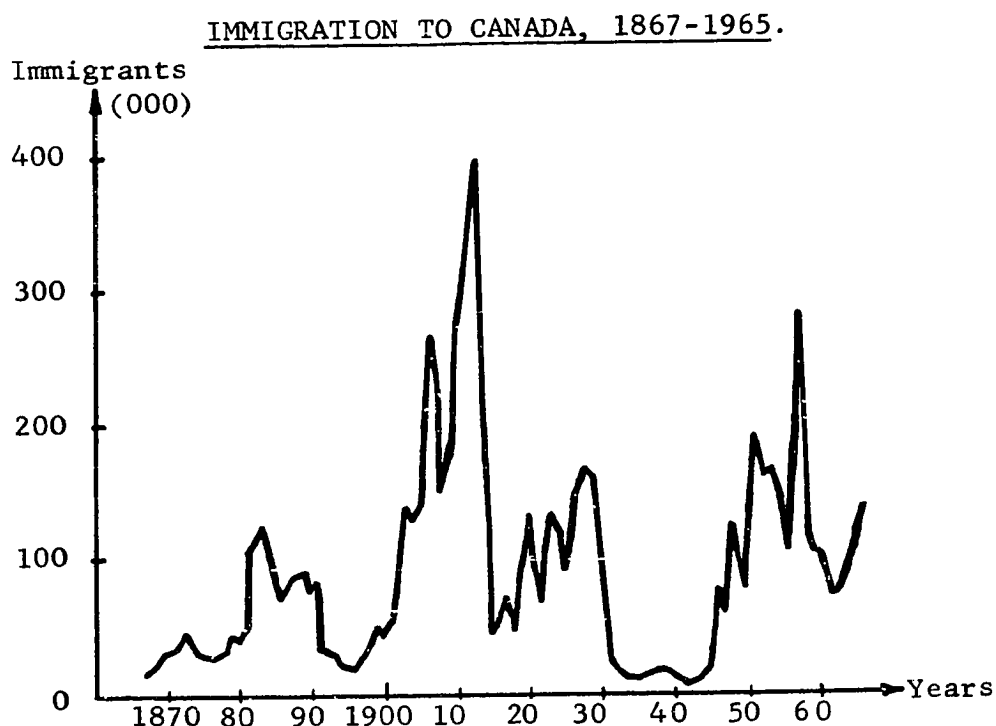
Source: Immigration Branch, Department of Citizenship
          and Immigration, 1965 Immigration Statistics,
          Table 1A, p. 7.

The majority of the immigrants to Canada came from a compara-

tively small number of countries.   As one would expect from the data

presented in the previous section, migrants from the United Kingdom,

Italy and Germany would account for a sizeable portion of all immigrants

to Canada.   This is, in fact, shown by the data given in Table 3.4.[6]

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the latter type studies, see Canada, Department of Labour, Economic
and Research Branch, The Migration of Professional Workers Into and Out
of Canada, 1946-1960, Professional Manpower Bulletin No. 11, (Ottawa:
Queen's Printer, 1961); and L. Parai, op. cit.

[6]Note, however, that the data analyzed in the following chapters
are classified by ethnic origin rather than by country of last permanent
residence.   The difference in aggregate flows is generally slight as can
be seen from Table A.1 of Appendix V;   nevertheless, as is discussed in
Appendix IV, there are undoubtedly notable differences among occupation
groups.

Table 3.4

GROSS IMMIGRATION TO CANADA BY COUNTRY OF LAST PERMANENT RESIDENCE, 1953-65

(Thousands)

Years	United Kingdom	Italy	"Common Market"					United States	Other	Total to Canada
			Germany	France	Belgium	Netherlands	Total			
1953	46.8	23.7	34.2	4.0	2.3	20.3	60.9	9.4	28.1	168.9
1954	43.3	23.8	28.5	3.7	2.2	16.2	50.5	10.1	26.4	154.2
1955	29.4	19.1	17.6	2.9	1.8	6.8	29.0	10.4	22.0	109.9
1956	50.4	27.9	26.1	3.8	3.1	7.8	40.7	9.8	36.0	164.9
1957	109.0	27.7	28.4	5.9	3.9	11.9	50.1	11.0	84.3	282.2
1958	24.8	27.0	13.9	2.7	1.8	7.4	25.8	10.8	36.4	124.9
1959	18.2	25.7	10.4	2.2	1.5	5.2	19.3	11.3	32.4	106.9
1960	19.6	20.7	10.8	2.9	1.3	5.4	20.4	11.2	32.8	104.1
1961	11.9	14.2	6.2	2.3	1.0	1.8	11.4	11.5	22.8	71.7
1962	15.6	13.6	5.5	2.7	0.7	1.6	10.5	11.6	23.2	74.6
1963	24.6	14.4	6.7	3.6	0.9	1.7	13.0	11.7	29.4	93.2
1964	19.3	19.3	6.0	4.5	1.0	2.0	13.6	12.6	37.9	112.6
1965	39.9	26.4	8.9	5.2	1.0	2.6	17.7	15.1	47.6	146.8
Total	462.7	283.6	203.3	46.4	22.4	90.8	362.9	146.7	458.8	1,714.7
% of Grand Total	27.0	16.5	11.9	2.7	1.3	5.3	21.2	8.6	26.8	100.0

Source: Canada, Department of Citizenship and Immigration, Statistics Section, Immigration Statistics, various years.

Thus 55.4 per cent of all immigrants to Canada during the period 1953-65 came from the above three countries, and another 17.9 per cent came from the remaining Common Market countries and the United States. Consequently during the period under study almost three-quarters of all immigrants to Canada came from just eight countries.

Total immigration -- as well as the immigration from the major source countries -- to Canada during the past two decades has undergone noticeable fluctuations. As may be seen from Figure 3.1 and Table 3.4, this migration was relatively low immediately after the war and early in this decade, but was quite high both in the mid-1950's and during the past few years.

The volume and composition of immigration to Canada during 1946 and 1947 was largely influenced by the aftermath of the war. With Europe devastated and transportation facilities being very limited for other than soldiers, immigration was very small as compared to that of later years and consisted largely of the families of returning Canadian servicemen. In December of 1947, the nationals of various countries, including Italy (but not Germany), were removed from the enemy alien category and thereby they could migrate to Canada; this, along with increased transportation facilities, brought about a substantial increase in immigration in 1948, with a sizeable portion of these migrants being refugees and displaced persons. By 1949 the recovery of Europe was well underway and in addition the high level of the immediate post-war economic activity in Canada had levelled off; furthermore the devalua-tion of the British pound in 1949 substantially increased the real cost of transportation and meant capital losses (in dollars) on transferable wealth for those from the United Kingdom who had intended to migrate to

America.   Immigration consequently decreased during both 1949 and
1950.   But in mid-1950 Canadian immigration regulations were liberal-
ized;   German nationals were removed from the enemy alien category and
all Europeans were admissible in Canada so long as they were deemed
suitable and desirable in light of the social, labour and other con-
ditions or requirements of Canada.[7]   Moreover the outbreak of the
Korean War precipitated an economic boom in Canada in the following
year and as a result labour shortages developed in the country.   Con-
sequently immigrants were actively sought in Europe and they in turn
were very likely motivated in part by fears of a general war to find
a more secure residence in the Western Hemisphere.   As a result of
these factors, immigration increased from 74,000 in 1950 to over 194,000
in 1951;   it remained above 150,000 during each of the following three
years.   With a slackening of economic activity in Canada, immigration
declined during 1955, but rose sharply again during the next two years,
reaching the post-war high in 1957;   this increase was largely the re-
sult, on the one hand, of the exodus from Europe caused by the Hungarian
Revolution and the Suez Crisis of 1956 and, on the other hand, the in-
vestment boom in Canada which especially intensified during the period
1955-56.   From 1958 until the early 1960's, economic growth in Canada
lagged considerably behind that in Europe where marked labour shortages

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[7]Certain British subjects, the citizens of France and the citizens
of the United States were admissible into Canada if they were of good
character, in good health, and had sufficient means to maintain them-
selves until they had secured employment;   however the admissibility of
those from the other countries of Europe was also dependent upon economic,
labour and social conditions in Canada.   Greater detail on these aspects
are given in Appendix III.

had developed.   Immigration to Canada consequently decreased each year until 1961;   thereafter annual increases in immigration have occurred which have thus far persisted.

4.   Post-War Conditions in the Major Countries of Emigration

As indicated in the preceding section, the major source countries from which migrants recently have come to Canada are the United Kingdom, Italy and the four countries of (West) Germany, France, Belgium and the Netherlands which hereafter will generally be considered collectively and will be referred to as the "Common Market".[8]

These European countries, having suffered extensive damage during the war, emerged after the cessation of hostilities with economies that were largely devastated.   Major political changes also occurred.   On the continent some countries were partitioned whereas in others new political regimes ruled.   As a result large numbers of people became refugees and displaced persons -- or political migrants.   Consequently the immediate post-war years 1946-50 were basically ones of recovery and adjustment.   With large amounts of aid having been provided primarily by the United States, the economies of these countries were being rebuilt.   With the help of international organizations such as the United Nations Relief and Rehabilitation Administration (UNRRA), the Intergovernmental Committee for Refugees (ICR) and the International

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[8]The annual number of immigrants to Canada from Luxemburg has been relatively very small, being less than 50 per year during most of the period 1953-65;   therefore no account is made of these migrants in the empirical analysis in the following chapter.

The United States, it may be noted, is discussed as an immigrant competing country.

Refugee Organization (IRO), the majority of such political migrants were being repatriated or relocated. In contrast to these efforts, immigration laws prevented some -- especially former enemy aliens -- from entering various countries; foreign exchange regulations and currency devaluations greatly discouraged or actually prevented others from emigrating; the scarcity of transportation facilities initially hampered intercontinental migration. As a result the free movement of migrants responding to economic incentives was drastically curtailed during this period. Nevertheless by the early 1950's the greater part of the post-war adjustments had been made; many of the refugees and displaced persons had been placed and most of the economic controls had been eased or removed. Therefore the period which is studied may be described as one which was essentially "normal", being relatively free from the effects of the war.[9]

With real incomes in Europe being less than that in America and Australia, economic migration has taken place and in relatively substantial numbers during the 1950's; nevertheless toward the close of the decade economic growth in Europe exceeded that in America, with the result that this intercontinental European emigration diminished somewhat.[10] European migration was undoubtedly further stimulated during periods of crises when fears of war arose; thus increased

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[9]For more detailed discussion of this period, see, for example, the International Labour Organization, International Migration, 1945-1957, and Bouscaren, International Migrations Since 1945.

[10]For general surveys of these European countries, see, for example, United Nations, Economic Survey of Europe (various years), and the Organization for Economic Co-operation and Development, Economic Surveys (for various years, published for individual countries).

migration took place in 1950-51 when the Korean War was fought and again in 1956-57 when the Suez Crisis occurred.

In addition to such general conditions as these which have just been described, emigration from each country was also conditioned by certain characteristics which were more or less unique to these various countries. In the case of the United Kingdom, political and economic ties have been maintained with Commonwealth countries; partly as a result of this continuing affinity among these countries, emigration from the United Kingdom -- especially to Canada and Australia -- has been substantial even though demographic conditions in Britain have not favoured such large-scale emigration. This emigration has also been encouraged, of course, by such economic and political factors as relatively lower levels of income, high taxes, increasing socialization and the continuation of a class structure; on the other hand, the rate of unemployment has on the whole been quite small, reflecting the relative scarcity of labour. No attempt has been made in Britain to discourage emigration, although increasing concern has been expressed within the country especially in more recent years about the "brain drain", that is, the continuing large volume of professional workers leaving the country. In fact, the government of the United Kingdom may be said to be encouraging emigration to the extent that it has continued to renew and to support the Assisted Passage Agreement with Australia; according to this agreement, the government of the United Kingdom contributes toward the payment of

passage of emigrants from the United Kingdom to Australia.[11]

In Italy demographic conditions have favoured emigration. Population increases, especially in the agricultural south, have been substantial. The industrial north has not been able to absorb the existing labour surplus, with the result that domestic unemployment rates have been high and Italian emigration both to continental Europe and overseas to North and South America have been substantial. Such emigration has been supervised by the government; in order to obtain the required passports, individuals must have either a letter showing sponsorship to, or a contract of employment in, the country of immigration. Moreover the Italian Government also helps to recruit emigrants and to pay their transportation costs.[12]

Among the "Common Market" countries, only the Netherlands has experienced a potential population problem; consequently the government of the Netherlands has encouraged emigration by organizing emigration and financing emigrants' transportation.[13] Of the remaining countries, Germany has experienced the largest volume of emigration; in part this emigration has originated in East Germany and other countries under Communist control. In more recent years, however, increasing

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[11] The maximum total amount of the annual contribution, however, has been reduced over the years. For further details about this and other aspects of British emigration, see R.T. Appleyard, British Emigration to Australia.

[12] For additional information, see the International Labour Organization, op.cit., pp. 213, 270-274 and D. Cochrane, "Australian Post-War Immigration", Banca Nazionale Del Lavora Quarterly Review, XXXII (March, 1955), pp. 51-52.

[13] Idem.

shortages of labour have developed in Germany and as a result emigration from the country has diminished.[14]

5.   Post-War Conditions in Canada

Post-war Canada, being sparsely populated, having escaped any devastations of war and providing a relatively high standard of living for its residents, has (along with the United States) been a strong "magnet" for immigrants.[15]   On the basis of both the migration model developed in the last chapter and the description of conditions in the countries of emigration given in the preceding section, one would have expected that the largest number of immigrants to Canada would not be from Great Britain, but rather from the poorer countries such as Italy.[16] Such might well be true in an age of unrestricted and unregulated migration.   But since the era of unrestricted international migration no longer exists, the actual movements of people between countries must be viewed in terms of potential streams of migration which have been controlled and diverted to varying degrees by national migration policies. Thus the actual immigration into Canada is, to a large degree, a result of Canadian immigration policy as well as the conditions in (and migration policies of) other nations.

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[14]Bouscaren, op. cit., pp. 62-66.

[15]H.F. Eckerson, "United States and Canada: Magnets for Immigration," Annals of the American Academy of Political and Social Science, V. 316 (March, 1958), pp. 34-42.

[16]Or from the southern European, near-Eastern and so-called underdeveloped countries where standards of living are even much lower.

Canadian post-war immigration policy may be described in general terms as being essentially one of selective immigration intended to encourage immigration so as to foster the orderly growth of Canadian population without altering the fundamental character of the nation.[17] This has meant, on the one hand, regulating the numbers and the labour composition of immigrants to coincide as closely as possible to the "absorptive capacity" of the country (which has not been specified formally at any time) and, on the other hand, admitting such migrants as could readily be assimilated without fundamentally altering the country's cultural and social milieu. Accordingly preferences for immigrants from different areas were expressed in the differing conditions which were required (by law) for admission from these areas. Certain immigrants -- such as the citizens of the United Kingdom, France and the United States -- have encountered a minimal amount of control and regulation whereas others -- notably from Asia -- have been virtually excluded from entering Canada. Such discrimination in favour of English and French speaking whites has in effect determined the relative volumes of immigration from various sources. The Canadian

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[17]The post-war immigration policy of Canada has been described and examined by numerous authors. The most extensive study is that of D.C. Corbett, Canada's Immigration Policy: A Critique (Toronto: University of Toronto Press, 1957), especially chapters 1-3 and his article "Canada's Immigration Policy, 1957-1962", International Journal, XVIII (Spring, 1963), pp. 166-188. Excellent summaries are given in The Canada Year Book, 1957-58, pp. 170-174, the International Labour Office, International Migration, 1945-1957, pp. 220-222, by A. Rawlyk, "Canada's Immigration Policy, 1945-1962", Dalhousie Review, XLII (Autumn, 1962), pp. 287-300 and by Anthony H. Richmond, Post-War Immigrants in Canada, Chapter I.

Those aspects of Canadian immigration policy which are relevant to an understanding of the specification of the proxy variable in the empirical analysis are discussed in detail in Appendix III.

immigration laws further allow the immigration authorities to regulate the inflow from these various areas according to the labour needs of this country. This may be done, in some areas, by attempting to persuade potential immigrants to come (or not to come) to Canada or, in other areas, by not allowing the immigration of certain workers for certain periods.

These policy controls and regulations can be considered to manifest themselves in the observed numbers of migration in predominately two ways. The discriminatory elements determine the overall flow of migrants from the various countries; in terms of empirical analysis these elements help determine the intercept of the function. The regulation of the changes in the flow -- or in the timing -- of migration from individual countries presumably would be one of the independent variables in the function explaining this migration. Since generally no formal announcement is given by the government whenever there is a change in the efforts to encourage or discourage the inflow of migrants, it has been necessary, as stated in the last chapter, to define a proxy variable for this component of migration policy.

Post-war economic conditions in Canada, except for occasional cyclical recessions, have favoured immigration. Apart from the recessionary contractions in the mid-1950's and the early 1960's, economic growth has been such that the increase in the domestic labour force was insufficient to meet the demands of this expansion.

6. Post-War Conditions in the Major Alternatives to Canada as Countries of Immigration

The major alternatives to Canada as countries of immigration (in

the context of this study) are those indicated earlier in this chapter, predominantly the United States and Australia and in particular instances the South American countries of Argentina, Brazil and Venezuela.[18]

The United States, offering the highest standard of living in the world, is the major magnet for immigrants. Yet in recent decades it has not required immigration to increase its population and as a result its immigration policy has been restrictive, utilizing annual quotas to limit immigration from countries other than those in the Western Hemisphere.[19]

The Immigration and Nationality Act of 1952 embodied the legislative regulations which governed immigration into the United States during the period being studied. This act clearly set out those excluded from immigrating to the country, these being largely those with certain physical and mental illnesses, those with criminal records and those advocating the overthrow of the government. It also set out the quota system which was initially introduced in 1924 in a somewhat different form. Except those in the Western Hemisphere, every country and administered territory was assigned a quota which bore the same proportion to 150,000 as did the number of inhabitants born in that country or territory and residing in the United States in 1920 bore to the total population in the United States in that year.

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[18]But because of limitations of data, only the United States has been used in the empirical analysis as an alternative country.

[19]For a detailed discussion of American immigration policies, see, for example, M.T. Bennett, _American Immigration Policies, A History_ (Washington, D.C.: Public Affairs Press, 1963).

Since in no case was the quota for any country or territory to be less than 100, the total admission possible from the non-Western Hemisphere countries was 154,657.[20] These quotas, it might be noted, were imposed on individuals according to their country of birth and not their country of citizenship or of last permanent residence; consequently an individual precluded from entering the United States because he was born in a country with a relatively small and over-subscribed quota could not avoid waiting for a place on this quota and enter the United States simply by moving to either a country with a larger quota or a country in the Western Hemisphere. Moreover since some countries -- notably the United Kingdom -- did not fully utilize their annual quota, the actual number of immigrants from outside the Western Hemisphere has been considerably less than the above noted maximum number admissible.[21]

Preferences were also established within each quota. At least a half of each quota was available to workers -- along with their wives and dependent children accompanying them -- who, because of their education, training, experience or ability were urgently needed in the American economy. Another 30 per cent of each quota was available to

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[20]S. Enke and V. Salera, _International Economics_, Third Edition (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1957), p. 325. A good summary of the Act is given on pp. 325-329.

[21]In order to facilitate the settlement of refugees, legislation has been passed occasionally in order to admit others in addition to those admissible by these quotas. For a summary of such special legislation, see, for example, Enke and Salera, _op. cit._, and the United States Department of Justice, _Annual Report of the Immigration and Naturalization Service_, various annual editions.

parents of citizens and the remaining 20 per cent to the wives and children of legal residents of the United States.

Australia, in terms of population, economic conditions, and immigration, is similar in many respects to Canada. The country is sparsely populated and therefore the government of Australia has actively encouraged immigration;[22] like Canada, Australia has favoured immigration from the United Kingdom and Western Europe. But unlike Canada, Australia has specifically barred non-white immigration; the country has likewise directly encouraged European immigration by means of grants made through numerous Free and Assisted Passage Schemes.[23] In general under these schemes the greater part of the passage for various groups of immigrants to Australia has been paid for by the Australian government; should any of these immigrants wish to leave Australia within two years of their arrival, they are required to repay the amount of the grant.

Immigration into Australia is presently regulated by the Migration Act which came into force in mid-1959; except for some details these regulations do not differ from those which were in force in the preceding years. Provided that British subjects of European stock have sufficient means to support themselves until they can find a job,

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[22]For a discussion of the country's immigration policies, see R.T. Appleyard, British Emigration to Australia, Chapter 2, Commonwealth Bureau of Census and Statistics, Year Book of the Commonwealth of Australia, 1962, pp. 306-315, and K. Rivett, ed., Immigration: Control or Colour Bar? (Melbourne: Melbourne University Press, 1962).
Because quarterly national accounts for Australia are available only for the period since 1958, Australia was not considered as an alternative country of immigration in the empirical analysis in the following chapters.

[23]D. Cochrane, op. cit., pp. 51-55 and Year Book of the Commonwealth of Australia, 1962, pp. 302-308.

they are in fact freely admissible to enter Australia.   Those British

subjects without such means of support and others from Europe are ad-

missible if they are sponsored (or, in Australian terminology, nominated);

the approval of the necessary visas for such immigrants are regulated

according to the economic needs of the country.

And lastly, as in Canada, very few restrictions are placed on

immigrant workers once they are in Australia;   however those wishing

to enter the civil service or some professions must be either citizens

of Australia or British subjects.

Countries of South America -- especially those of concern in

this study -- have in general undergone economic growth during the

post-war years.[24]   They have also desired to augment their labour force

by means of immigration.   Their immigration laws have reflected the

dual aim of ensuring as far as possible that immigration would serve

the needs of the economy and would preserve the national cultural

traits and, accordingly, various schemes have been employed in order

to encourage immigration, especially from the south European countries.[25]

This briefly summarizes the essential background for a better

understanding of the empirical analysis of Canadian immigration which is

given in the following chapters.   The immigration of British workers is

analyzed in Chapters IV and V, and the immigration of workers from the

other major source countries are studied in Chapter VI.   More detailed

discussions of the data are to be found in Appendix IV, while the actual

data (and specific sources) are presented in Appendix V and the detailed

statistical results are given in Appendix VI.

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[24]For a discussion of economic conditions, see the United Nations, Survey of Latin America, published annually.

[25]International Labour Organization, op. cit., pp. 222-225.

Chapter IV

THE IMMIGRATION OF BRITISH WORKERS

As noted earlier, British migrants account for the major proportion of all immigrants to Canada; moreover the relevant economic data for Britain are among the most readily available. For these reasons the empirical analysis of British immigration which is contained in this and the following chapter is more extensive and detailed than the remaining analysis of migration from other areas.

1.   Data and Estimating Procedures

The gross immigration of British workers into Canada and the data of films shown and lectures given in Britain are statistics obtained from the Canadian Department of Manpower and Immigration; the labour force, unemployment, income, price and exchange rate data are those available in the official statistical publications of most of the countries and of international agencies.[1]

Many problems (conceptual and empirical) -- such as those of defining and estimating real income per worker in comparable units of currency or of using unemployment rates as measures of job opportunities and thereby indicators of foregone earnings -- are not unique to this study; these problems have already been summarized in Chapter II and Appendix IV and discussed at varying lengths by others[2] and

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[1]Detailed discussions of the data -- along with the data and their sources -- are given in Appendices IV and V.

[2]See, for example, H.G. Grubel and A.D. Scott, "Determinants of Migration: the Highly Skilled", loc. cit., pp. 128-30; Allen C. Kelley, "International Migration and Economic Growth: Australia,

therefore need not be repeated again. Other problems are unique to
this particular study and accordingly deserve attention.

The (gross) immigration figures are those for migrant workers
arriving in Canada classified by ethnic origin rather than by country
of last permanent residence which is of significance in such an
analysis as this. Thus British subjects -- whether migrating from
Great Britain or from Australia or New Zealand, for example -- are
all grouped together and are considered as coming from Great Britain;
offsetting this, there are those of other ethnic origins who, al-
though migrating directly from Britain, are not included in these
particular statistics. A priori one cannot state the net effect.
The available information suggests that usually the annual number
of British migrants probably exceeded those from Great Britain by
less than five per cent;[3] this difference is relatively small and
can be regarded as an error of measurement which might, however, give
rise to problems of autocorrelation.

The proxy policy variable -- the number of films shown and
lectures given -- is assumed simply to be a monotonic increasing
function of the intensity of effort with which the immigration
authorities seek to admit admissible immigrants; since there is
no reason to expect that this monotonic function is a linear homo-
geneous function, the estimated parameter associated with this proxy

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1865-1935", loc. cit., pp. 336-341; Belton M. Fleisher, "Some
Economic Aspects of Puerto Rican Migration to the United States",
loc. cit., pp. 249-250.

[3]The annual total immigration (of workers and dependents or
non-workers) by ethnic origin and country of last permanent residence
are given in Table A.1 of Appendix V for those migration flows being
analyzed. The less than five per cent range mentioned above is
derived from this table.

variable must be interpreted with care. Furthermore, as discussed in Chapter II, possible problems of identification and multicollinearity may arise when using this policy variable as an exogenous variable in the single equation regression model which would make the estimated co-efficient downward biased and inefficient.

The period analyzed is that from 1953 to 1965 inclusive, although many of the economic data series are available for earlier periods; therefore there are a maximum of 52 quarterly, or 13 annual, observations.

Throughout the analysis equations are estimated by the method of ordinary least squares using the computer programme entitled BØRIS.[4] This programme has a number of advantages. In particular, various transformations -- lags, logs and arithmetical manipulations such as those used in this analysis -- can very easily be made; in any equation in which (positive) autocorrelation is indicated, the programme automatically performs a first-order autoregressive transformation of the data series and re-estimates the equation. Moreover the separate determination coefficients are given as a measure of the importance of the contribution of each of the individual regressors in the multiple regression equations.

2. Empirical Results: Quarterly Data

The empirical results summarized in this and the following sections include the estimated values of the parameters and their

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[4]P.A. Tinsley, "Regression Analysis of Time Series: A Utility Subroutine for Economists" (Princeton: mimeographed notes, n.d.). I wish to express my appreciation to T.J. Courchene for making this programme available and introducing it to me.

levels of statistical significance; the decomposition of the
contribution of the individual exogenous variables, as already
mentioned, is given by the separate determination coefficient.
Summary tables are utilized in the text to present the main results;
detailed tables which also give alternative specifications of the
single equation model that are similar to those used by others in
previous empirical studies of migration are presented in Appendix
VI.

a)   Dummy Variables

A glance at the statistics of post-war British immigrants
arriving in Canada is sufficient to reveal two characteristics of the
data; the marked seasonal fluctuations and the unusually large influx
that occurred in late 1956 and throughout most of 1957.   This ex-
ceptionally large inflow has been attributed to the Suez Crisis in
October of 1956 which by causing fears of war and uncertainty in
Britain stimulated emigration from the country.[5]   Such an atypical
period can, of course, be handled in a regression equation by a dummy
variable.   The usual formulation of such a variable -- of letting it
equal one during the relevant period and equal zero at other times --
assumes that the influence being considered has had a uniform effect
over the relevant period.   This assumption does not seem appropriate
in this instance since it can reasonably be expected that people in
response to a given stimulus to migrate will differ in the speed with
which they can conclude all of the necessary arrangements for migrating.
A closer examination of the data indicates that this is probably true.

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[5]See, for example, Canada Year Book, 1966, p. 225.

Since the economic conditions in 1957 were not much
different from those of the preceding year, a rough estimate of
the increased migration brought about by the Suez Crisis may be
made by taking the difference between the numbers of migrants during
the period of the Suez Crisis and in the preceding comparable period.
The results of doing this are given in Table 4.1. And based on
these estimated adjustments for the Suez Crisis, appropriate values
for the dummy variable can be constructed for the period.[6] Similarly
the seasonal influences can be handled by the seasonal dummy variables
X_1, X_2, X_3 and X_4.

Table 4.1

ESTIMATED ADJUSTMENTS IN THE IMMIGRATION OF
BRITISH WORKERS INTO CANADA,
1956-IV - 1957-IV

Period		Numerical Adjustment	Values[1] of the Dummy Variable (X_0) in Equations which are	
			arithmetic	log
1956	IV	3,000	0.20	0.50
1957	I	10,000	0.65	1.00
	II	15,000	1.00	0.75
	III	3,500	0.25	0.45
	IV	1,500	0.10	0.35

[1]During all other quarters, X_0 is equal to zero.

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[6]These values have been rounded off to the nearest 5.

b) <u>Lags</u>

The theoretical formulation of the migration model, it may be recalled, indicated that a lagged relationship exists between immigration and the exogenous economic variables in the regression equation.

The length of this lag -- consisting of the time taken by an immigrant to recognize and respond to economic circumstances, to obtain an immigrant's visa and thereafter to arrive in Canada -- cannot be stated <u>a priori</u>. The institutional procedures involved in migrating suggest, however, that it probably takes a worker at least from one to three months after his initial contact with the immigration office to obtain the necessary visa and make the appropriate travel arrangements;[7] lengthy delays in travelling to Canada after an immigrant's visa has been issued is discouraged by the immigration authorities.[8] The lag between the time that a worker ascertains that it is advantageous for him to migrate and the time when he approaches the immigration office can conceivably be lengthy,[9] nevertheless since a high discount rate has been

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[7]In the <u>Canada Year Book, 1963-64</u>, p. 199 (as well as the preceding three issues), it is stated that "the immigration process usually takes from six to eighteen months"; thereafter, however, (for example, <u>Canada Year Book, 1965</u>, p. 207), this phrase has been reworded to read "the immigration process usually takes several months".

[8]Appendix III below, pp. 194-197.

[9]See, for example, R.T. Appleyard, <u>British Emigration to Australia</u>, Chapter 6, especially pp. 151-153, 160-172. In the context of this study, it is interesting to note that the largest number (184 out of 862 or just over one-fifth) stated that they had considered migration for one year or less as compared to any other period of time in reaching the decision to migrate.

assumed (that is, present conditions are postulated to be relevant in the decision to migrate) and since these advantageous economic circumstances must continue to exist until the worker actually migrates (or otherwise he will simply choose not to migrate), it can be argued that in terms of this model the observable lag between changes in migration and changes in economic conditions may in fact be fairly short. Such considerations as these would indicate that a lag on average of at least one quarter and normally of probably not more than four quarters would be reasonable. An estimate of the average (quarterly) lag may be obtained empirically by choosing that lag which provides the best regression fit; similarly the existence of a distributed lag could be assumed and estimated.

Accordingly simple regression equations with discrete lags of various lengths were initially estimated.[10] The reciprocal of the Canadian unemployment rate yielded statistically significant parameters for all lags of zero to 5 quarters. Eliminating the equation with a lag of zero as being theoretically unacceptable, the remaining regression equations have slope coefficients which increase in magnitude (with smaller standard deviations so that the t values increase) as the length of the lag is increased up to and including a lag of 3 quarters; thereafter the opposite changes occur. This suggests both that a distributed lag formulation may be preferred and that if an estimate of a discrete average lag is wanted, a lag of 3 quarters is the best estimate of such a single lag. With the proxy variable for immigration policy as the exogenous

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[10]See Table B.1 in Appendix VI.

variable, only one of the estimated parameters -- that with a lag
of 2 quarters -- is statistically significant and with the expected
(positive) sign.   The changes in the sign of the slope coefficient
as the length of lag is varied suggests that the impact of changes
in immigration policy may be confined to a relatively short period
of time.[11]

   With the above results kept in mind, the various conceptually
acceptable combinations of lags for the reciprocal of the Canadian
unemployment rate and the proxy policy variable were introduced into
multiple regression equations.[12]   The best fit -- in terms of a
high multiple coefficient of correlation and slope coefficients
which are of a high statistical significance level -- is that for the
equation (B.2.6) in which the reciprocal of the Canadian unemployment
rate is lagged 3 quarters and the proxy policy variable is lagged
2 quarters; it would seem that this particular combination of lags
is the best estimate of the migration equation specified in terms
of a discrete lag relationship.[13]   Only a slightly poorer fit is
obtained for the equation (B.2.10) having an initial uniform of 2
quarters and a Koyck-type distributed lag.   The magnitude of the

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[11]This is not surprising.   Since, as already noted, a part of
such policy is intended to affect the seasonal flows of immigration,
the impact of changes in this policy must be confined to relatively
short periods of time if immigration policy is in fact to operate as
intended.

[12]Table B.2 in Appendix VI.

[13]A lag of 3 quarters on each of the exogenous variables -- as
given in equation (B.2.5) -- would seem almost as good.   But when

parameter λ is small, implying that the subsequent effects of the exogenous variables diminish very quickly;[14] this form of the equation accordingly seems to be an appropriate specification of a distributed lag relationship.

Accordingly there are two possible lag specifications of the linear migration equation. On empirical grounds the mixed discrete lag of 3 quarters on $(1/U^C)$ and 2 quarters on (V) is preferable since it gives the best regression fit. But on conceptual grounds a uniform lag is preferable; since a migrant can choose not to come until the time of departure, there seems to be no a priori reason to specify a mixed lag. Likewise a distributed lag is conceptually more appealing as it does not imply (as does a discrete lag) that all immigrants are able to -- and do -- respond equally quickly to changes in migrating opportunities. Accordingly the equation with a distributed lag and an initial uniform lag of 2 quarters is emphasized hereafter.[15]

c) <u>Multiple Regression Analysis: Arithmetic Linear Form</u>

The main results obtained from the arithmetic linear multiple

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other exogenous variables are introduced, the uniform lag of 3 quarters -- as compared to a lag of 3 quarters on all but policy which is instead lagged 2 quarters -- did not yield statistical fits which were quite as good; accordingly this particular formulation of the lag structure is ignored hereafter.

[14]The total effect is 1.1796 times that of the initial impact; within the first (second) quarter, 84.8 per cent (97.7 per cent) of this total effect has been realized. Such a small value of λ, it might be noted, is in keeping with the proxy policy variable having a distributed lag.

[15]It is well to note here that the tests of hypotheses for the discrete lag specification do not yield different conclusions; nevertheless , for those who may have a preference for equations having a

regression equations are summarized in Table 4.2. The coefficients

for the Canadian unemployment rate and immigration policy are of

the postulated sign and are always statistically significant at

the 0.5 per cent level (or less).[16] The estimated coefficient

of $(1/U^B)$ is always positive but is not statistically different from

zero; this is not surprising since, as it may be recalled, there

were no a priori theoretical reasons to conclude whether it should

be greater or less than zero. In contrast, the coefficient for

the real income variable always has the wrong sign and is at times

statistically significant between the 1 and 10 per cent levels;

however, when migration is adjusted and expressed as a rate, the

real income coefficient is reduced in absolute magnitude and

becomes statistically less significant.[17]

The real income variable, it may be recalled, has been

defined in terms of a two and a three country model of migration:

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slightly better statistical fit, these discrete lag equations have
been summarized in a number of tables in Appendix VI.

[16]With the exception of the British unemployment rate and the
dummy variables, the parameters were postulated to be either positive
or negative and accordingly in these latter cases a one-tail test is
used.

[17]According to the discussion in Chapter II, the product of
the populations of working ages in the sending and receiving
countries may be used to construct the index of adjustment (denoted
by L_p); alternatively the sum of these populations could be used
to construct the index (L_s). As can be seen from Table A.7 in
which these indices are tabulated, the difference between the
two is that the (positive) trend of index L_p over time is greater
than that of L_s; consequently correcting by L_p and not correcting
at all provide the two extremes, with the correction by L_s falling
in between. This can be seen from the comparison of the results
which are given in the above table, as well as from the explanation
given in footnote 20

Table 4.2

SUMMARY OF ARITHMETIC LINEAR REGRESSION EQUATIONS,
BRITISH QUARTERLY DATA, 1953-III TO 1965-IV

$$(Ex.Var.)_t = \text{Dummy Variables} + \lambda\,(Ex.Var.)_{t-1} + \beta_1\left(\tfrac{1}{U^C}\right)_{t-2} + \beta_2\left(\tfrac{1}{U^B}\right)_{t-2} + \beta_3 V_{t-2} + \beta_4\left(\tfrac{Y^{US} - Y^C}{Y^B}\right)_{t-2} + E_t$$

Equation Number	Ex. Var.	λ	X_0	X_1	X_2	X_3	X_4	Estimated (Short-run) Coefficents for $(1/U^C)$	$(1/U^B)$	V	$\left(\tfrac{Y^{US}-Y^C}{Y^B}\right)$ [1]	$\bar{R}$
B.3.5	$\dfrac{M}{L_P}$	.159 (*****)	15.4 (*****)	-4.4 (*****)	-0.1	-1.4	-2.7 (*)	15.5 (*****)	0.6	17.5 (******)	1.0	.972
B.4.6	$\dfrac{M}{L_S}$	.159 (*****)	15.3 (*****)	-4.6 (*****)	-0.3	-1.8	-3.0 (**)	13.7 (*****)	0.6	15.7 (******)	2.1 (*)	.975
B.5.6	M	.162 (*****)	15.2 (*****)	-4.8 (*****)	-0.5	-2.1	-3.3 (***)	13.1 (*****)	0.6	14.7 (******)	2.8 (**)	.975
Hypothesized signs of the coefficients of the exogenous variables:								+	?	+	-	
Separate Coefficients of Determination												
B.3.6	$\dfrac{M}{L_P}$	.10	.49	.08			.05	.15	.01	.13	-.01	
B.5.6	M	.10	.52	.10	-.02		.07	.13	.01	.12	-.01	

[1] All units are in thousands, except for V which are as shown.
Statistical Significance levels are given below the coefficients:

```
  * denotes significance at the 10 per cent level;
 **    "           "       "   5    "    "    "
***    "           "       "   2½   "    "    "
****   "           "       "   1    "    "    "
*****  "           "       "   ½    "    "    "
```

Source: Tables B.3 – B.5 in Appendix VI.

that is, one can either take real income in Canada relative to that in Britain (Y^C/Y^B) or take the difference in real income in the United States and Canada relative to that in Britain $\left(\dfrac{Y^{US} - Y^C}{Y^B}\right)$. Each of these variables -- respectively referred to as income variables No. 1 and 2 in the following table -- can be calculated for a given quarterly income; alternatively if it is assumed that workers consider income over a period of time in deriving its ("permanent") magnitude, these income variables can be defined and calculated as an average value over a given period

Table 4.3

ESTIMATED (SHORT-RUN) COEFFICIENTS FOR THE REAL INCOME VARIABLES, BRITISH QUARTERLY DATA 1953-III TO 1965-IV

Equation No.	Exogenous Variable	Estimated Coefficients for Income Variable[1]			
		#1	#2	#3	#4
Arithmetic Linear Equations					
B.3.5 - B.3.8	$\dfrac{M}{L_p}$	- 7.7	+ 9.7	-12.3	+14.7
B.4.5 - B.4.8	$\dfrac{M}{L_s}$	-17.1	+21.5 *	-22.4 *	+27.8 **
B.5.5 - B.5.8	M	-22.8 *	+28.1 **	-28.5 ***	+35.2 ***
Log Linear Equations					
B.8.5 - B.8.8	$\dfrac{M}{L_p}$	0.21	- 0.09	0.23	- 0.08
B.9.5 - B.9.8	$\dfrac{M}{L_s}$	- 0.31	+ 0.14	- 0.33	+ 0.18 *
B.9.1 - B.9.4	M	- 0.59 **	+ 0.27 ***	- 0.64 **	+ 0.31 ***
Hypothesized sign of coefficient		+	-	+	-

[1]Income variables are defined in the above text and at the end of Table B.3 of Appendix VI; values of the coefficients in the arithmetic linear regression equations are in hundreds.

One-tail significance levels are those defined in Table 4.2.

Source: Tables B.3 - B.5, B.8, B.9 in Appendix VI.

(say a year or four quarters).[18]

Whichever of these four formulations is used, as summarized in Table in Table 4.3, the resulting estimated slope coefficient derived from the arithmetic linear regression equations is of the wrong sign, and of varying levels of statistical significance. The statistically most significant result is obtained with the three-country ("permanent") formulation of the income variable where British migration to Canada is shown to respond positively to an increase in the income differential between the United States and Canada.[19]

It is perhaps of even greater interest to note that the real income coefficients are always of the wrong sign in the arithmetic linear regression equations, but become statistically not significant when migration adjusted by the index L_p is used as the endogenous variable; in the log linear equations the coefficients

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[18]And when taken as the average value over four quarters, these are respectively variables No. 3 and 4.

[19]One explanation might be the not infrequently cited argument that British immigrants are using Canada as a waystop on their ultimate journey to the United States. However the quotas for British immigrants to the United States were unfulfilled during this period and consequently British migrants could have gone directly to the United States. This explanation seems therefore to require also a plausible reason why Canada is regarded as a waystop. One common explanation -- that Canada, with closer cultural and political ties to Britain, serves as a gradual break with the home country -- may seem somewhat unconvincing as it requires a migrant simultaneously both to be rational in choosing to migrate when income in his (ultimate) destination increases and irrational (or emotional) in requiring a gradual weaning from the home country; however this gradual weaning can be regarded as a lower psychic cost of migrating which, together with the higher income in his final destination, is sufficient to induce him to undertake this two-stage migration.

of the real income take on the hypothesized sign -- but are not statistically different from zero -- when this population adjusted migration is used as the endogenous variable.   It is essentially in this respect that correcting (or not correcting) for population changes assumes critical importance: without such a correction the estimated coefficients for the real income variables are of the wrong sign and the results are statistically significant so that the hypothesis advanced in Chapter II with regard to real income would have to be rejected.

The actual effects on the different slope coefficients brought about by adjusting actual migration for population changes may be readily ascertained by examining Tables 4.2 and 4.3 and explained in terms of the resulting changes in the trend over the period.[20]   The coefficients of $(1/U^C)$, $(1/U^B)$, (V) and of income variables No. 1 and No. 3 numerically increase whereas those of income variables No. 2 and 4 numerically decrease. Except as already noted in the instances of the real income coefficients,

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[20]Upon examining the data, these effects on the slope coefficients are not unexpected.   The result of adjusting actual migration by the population index essentially rotates the time path of the endogenous variable clockwise, that is, it absolutely increases the magnitude of the migration data in the pre-1959 period and reduces it thereafter.   Depending whether or not the values of the exogenous variable tended to be relatively higher (or lower) during the first as compared to the second half of the period, its slope coefficient increases (or decreases) as a result of the population adjustment.
To illustrate, consider the slope coefficient of $(1/U^C)$. Canadian unemployment rates (as shown in Table A.4) were most frequently lower -- and therefore the variable $(1/U^C)$ was higher --

these changes resulting from the way in which the endogenous variable
is defined do not fundamentally alter the previous results of the tests
of hypotheses formulated in Chapter II.

The perverse empirical results obtained for the coefficients
of the real income variable are only partly accounted for by the
adjustment to migration; when the proxy policy variable is omitted
from the regression equations, the coefficients of real income tend
to become of the hypothesized sign.[21]   The identification problem

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during the first (as compared to the second) half of the period under
study.   Generalizating the various seasonal and special intercepts
into one and plotting migration and $(1/U^C)$ on the y and x axis
respectively, the locus of this relationship may crudely be appropriately
indicated by the points 1953, 1957,
1961 and 1965 in Figure 4.1.   As
noted above, correcting migration
by the population index will increase
(decrease) the magnitude in the first
(second) half; accordingly the new
locus (denoted by 1953', 1957', 1961',
and 1965') will have a greater slope.

As already noted, the
population index L_s -- based on
the sum rather than the product of the
population of the countries of
immigration and emigration -- tends
to be less progressive over time than is
the index L_p .   It follows from the
preceding discussion that the magni-
tudes of the estimated slope coefficients
using migration deflated by L_s as the
endogenous variable would be somewhere
between those obtained by using absolute
migration and migration corrected by the
index L_p as the endogenous variable.
The changes in the intercepts

Figure 4.1

resulting from the population correction can similarly be shown and
explained.   However, in the case of the multiple regression equations,
the intercepts are related to the various slope coefficients and accord-
ingly the direction of the anticipated changes cannot as readily be
illustrated.

[21]See, for example, equations 9 of Tables B.3 - B.5 and B.8;
although not shown in these detailed tables, similar changes occur
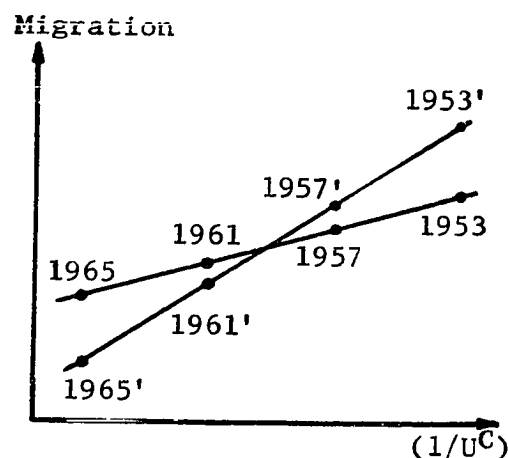
is thus most evident here; however, since the expected sign of the
real income coefficient still is not obtained when migration is
unadjusted, the above emphasis on the importance of adjusting
migration for population changes remains.

Note may also be made of the magnitudes of the coefficients
of the various dummy variables. The significant t statistic for
the dummy variable for the Suez Crisis indicates that the choice of
weights (given in Table 4.1) has been appropriate. The seasonal
variations are in keeping with previously published results by
Jerome;[22] (gross) immigration is highest in the second quarter,
followed by the third, fourth and first quarters respectively.

The relative importance of the individual exogenous variables
may be indicated by decomposing the total regression sum of squares
into contributions of each of these regressors and accordingly the
separate determination coefficients for the explanatory variables
are also given in Table 4.2.[23] The largest coefficient is for the

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with the other specifications of the real income variables.

Similarly it may be noted that the coefficient of the (reci-
procal of the) British unemployment rate increases in magnitude
when the proxy policy is not used as an exogenous variable; however
the British unemployment variable remains statistically not
significantly different from zero.

[22]Harry Jerome, *Migration and Business Cycles*, Chapter IX;
a summary is given below in Appendix II, pp. 174-175.

[23]The separate determination coefficient of an explanatory
variable (X) is defined as
the estimated slope coefficient of X$\cdot\dfrac{\text{covariance between X and Y}}{\text{variance of the exogenous variable Y}}$
and is comparable to the more popular Beta weight which is defined as

dummy variable X_0 which attempts to capture the atypical period
following the Suez Crisis; accordingly this variable is clearly
the most important explanatory variable in the arithmetic linear
multiple regression equations. Ignoring any biases which may
arise because of the identification problem and which would be
incorporated into the separate determination coefficients, the
seasonal dummy variables, the (reciprocal of the) Canadian em-
ployment rate and the (proxy) Canadian immigration policy variable
are about equally important and together are comparable in im-
portance to the dummy variable for the Suez Crisis as explanatory
variables. Because of the already noted biases which may arise
because of the identification problem, one cannot place any
emphasis on small differences among these separate determination
coefficients; nevertheless the rough order of importance is
evident.[24]

Finally some comment might be made with respect to the use
of the Koyck distributed lag since possibly two criticisms are
relevant about its appropriateness in this particular context. If
the additional inflows during the Suez Crisis were indeed unrelated
to the economic conditions prevailing at the time, the endogenous var-
iable $\left(\frac{M}{L_p}\right)_{t-1}$, for example, would seem to be inappropriate during

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the estimated slope coefficient of X· $\frac{\text{standard deviation of X}}{\text{standard deviation of Y}}$ ·
The separate determination coefficients, it may be noted, are independent
of the units in which the variables are expressed. However since the
separate determination coefficient consists partly of the estimated
slope coefficient, it is affected by the biases which arise because
of the identification problem.

[24]Even when the proxy policy variable is not included as an

the period of the crisis. Moreover, using the Koyck distributed lag implicitly attributes the same lag structure to all exogenous variables; yet as already noted above (pp. 81-82), the impact of changes in immigration policy may be confined to a relatively short period of time.

The first of these criticisms can in principle be overcome by adjusting the immigration data (by the magnitudes suggested in Table 4.1) prior to fitting the regression equations; in these estimated equations the coefficient λ is approximately twice the magnitude that it was previously estimated, whereas the short-run coefficient of $(1/U^C)$ is generally about one-eighth lower (with the long-run coefficient being about 10 per cent larger), the coefficient of $(1/U^B)$ is reduced to almost zero and the short-run coefficient of (V) is almost 10 per cent larger.[25] Accordingly the effect of not using migration data adjusted for the Suez Crisis with the Koyck distributed lag seems essentially to be that the estimated short-run coefficient of $(1/U^C)$ is overstated slightly and that of (V) similarly understated; the differences are not very great and more important is the fact that the values of the t statistics are not altered much so that the conclusions which were previously obtained remain unchanged.

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explanatory variable (in equation 9 of Tables B.3 - B.5), the relative magnitudes of the separate determination coefficients are not altered.

[25]See Table B.6 of Appendix VI. It might be well to emphasize again that this procedure of first adjusting the data has not generally been followed in this analysis for the reasons cited (in a slightly different context) in Appendix IV, pp. 212-215 below.

Even these larger estimates of λ , it may be noted, imply
that the time span during which much of the distributed lag expends
itself is quite short.[26]   This would indicate that the distributed
lag structure of these two exogenous variables may not be too different
and accordingly using a Koyck distributed lag in the multiple re-
gression equations in this analysis is not inappropriate.[27]

d) Multiple Regression Analysis: Log Linear Form

As already noted log linear regression equations are used in
the empirical analysis of migration, especially of internal migration.
Accordingly equations in log linear form similar to those of the
preceding section have been estimated.   With the exception of an

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[26] For example, even in equation (B.6.2) where only $(1/U^C)$ is
the exogenous variable and where $\lambda = 0.4439$, the distributed lag
effects during each of the following three quarters are 0.4439, 0.1970
and 0.0875 respectively; similarly in the comparable equation (4.3.2)
where $\lambda = 0.2265$, the values are 0.2265, 0.0513 and 0.0116.   During
the initial and following two quarters, in these two instances 91.3
and 98.8 per cent of the long-run effect have respectively been realized.

[27] Conclusions not fundamentally different from those arrived at
in the above analysis can also be reached by employing the mixed dis-
crete lag of 2 quarters on (V) and of 3 quarters on the remaining
variables which was discussed briefly in the preceding section.   A
summary of these estimated regression equations is given in Table
B.4 of Appendix VI; since autocorrelation existed in the initial
regressions, it should be noted that these equations were re-estimated
after a first-order autoregressive transformation of the data series
(with the indicated estimated values of ρ) has been performed.

It may also be noted here that multiple regressions with a
uniform discrete lag of three quarters gave almost as good fits as
did the above equations.   However the coefficients of (V), although
positive, were not statistically different from zero;   this result
is not unexpected since in the earlier discussion of the lag
specification it was pointed out that the initial impact of policy
likely occurs earlier than a 3 quarter lag and that the proxy
policy coefficient is especially sensitive to the length of the
lag.

interesting difference in the estimated coefficients of real income (as already summarized in Table 4.3) and the greater relative importance of the seasonal dummy variables, the general results which were previously derived remain valid.   The estimated co-efficients of these log equations are summarized in Table 4.4.

Compared to the arithmetic linear equations, the log equations have slightly better regression fits; the coefficients of correlation are always greater and the t statistics of all coefficients (except λ in some instances) are larger.   The short-run coefficients of the Canadian unemployment rate have the hypothesized (negative) sign and their absolute values in most instances are slightly greater than unity; since the 95 per cent confidence interval limits are on either side of unity, it cannot be said conclusively whether the short-run elasticity coefficient is (absolutely) greater or less than one. This elasticity coefficient is, however, the largest (absolute) value and apart from the seasonal fluctuations the Canadian unemploy-ment rate has the largest separate determination coefficients.   The estimated short-run coefficient for the proxy variable for Canadian immigration policy is likewise of the hypothesized sign and is like-wise statistically significant at the 0.5 per cent (or lower) level; since there is no basis for assuming that the proxy variable is a monotonic linear homogeneous function of the actual immigration policy, this coefficient cannot be interpreted as an elasticity coefficient of the migration rate with respect to Canadian immigration policy.   The British unemployment rate is again not statistically

Table 4.4

SUMMARY OF LOG LINEAR REGRESSION EQUATIONS

BRITISH QUARTERLY DATA, 1953-III TO 1965-IV

Equation Number	Ex. Var.	λ		Estimated (Short-Run) Coefficients for								$\bar{R}$
			$\ln X_0$	$\ln X_1$	$\ln X_2$	$\ln X_3$	$\ln X_4$	$\ln U^C$	$\ln U^B$	$\ln V$	$\ln\left(\dfrac{Y^{US}-Y^C}{Y^B}\right)$	
B.8.6	$\ln\left(\dfrac{M}{L_p}\right)$	.171 ****	.87 *****	7.16 *****	8.28 *****	8.33 *****	7.63 *****	-1.11 *****	-0.01	0.17 *****	-0.09	.985
B.9.6	$\ln\left(\dfrac{M}{L_6}\right)$	.183 ****	.93 *****	7.05 *****	8.14 *****	8.10 *****	7.47 *****	-1.00 *****	-0.00	0.16 *****	-0.14	.984
B.9.2	$\ln(M)$	.195 *****	.95 *****	6.96 *****	8.05 *****	7.96 *****	7.36 *****	-0.95 *****	-0.01	0.16 *****	+0.27 ***	.983

Hypothesized signs of the coefficients of the exogenous variables

								$\ln U^C$	$\ln U^B$	$\ln V$	$\ln\left(\dfrac{Y^{US}-Y^C}{Y^B}\right)$	
								-	?	+	-	

Separate Coefficient of Determination

Equation Number	Ex. Var.	λ	$\ln X_0$	$\ln X_1$	$\ln X_2$	$\ln X_3$	$\ln X_4$	$\ln U^C$		$\ln V$	
B.8.6	$\ln\left(\dfrac{M}{L_p}\right)$	.11	.14	-1.55	2.19	.70	-1.00	.25		.14	
B.9.2	$\ln(M)$	.12	.17	-1.72	2.41	.74	-1.08	.22		.14	

Statistical Significance levels are as shown in Table 4.2.

Source: Tables B.8 and B.9 in Appendix VI.

significant, with the estimated coefficient being very close to zero in all cases.

The short-run real income coefficients, as noted previously, are now of the sign specified by the hypothesis developed in Chapter II when $(\frac{M}{L_p})$ is the endogenous variable, but are not statistically significant. According to these estimates the absolute values of the (relative) income elasticities of migration are less than unity.

The seasonal dummy variables are relatively much more important than they were in the arithmetic linear form of the equation. The greatest proportional seasonal inflows again occur during the second -- but sometimes the third -- quarter and the least seasonal inflow occurs during the first quarter.[28]

3.   Empirical Results: Annual Data

Regression equations comparable to those analyzed above but fitted to annual data may also be studied. Admittedly, with observations being available only for the period 1953-1965, the resulting degrees of freedom will be small; but since the recent published empirical studies have utilized annual observations, a similar analysis seems appropriate as it will provide results that would be both free from seasonal fluctuations and more comparable to these recent studies. In general, as might be expected, the results of the analysis of the

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[28]As shown in Table B.10, using a mixed discrete lag of 2 quarters for (V) and 3 quarters for all other exogenous variables yield regression fits which are not quite as good as those obtained with the previous lag structure; the coefficients of correlation are lower and the standard deviations of all variables (except the seasonal dummy variables) are larger.

annual data are similar to those reached in the study of the quarterly
data.

a) Dummy Variable

The only dummy variable required is that to take account of
the period of the Suez Crisis. The variable X_0 has a value of one
for 1957 and of zero for all other years; the year 1956, as will be
recalled from Table 4.1, was slightly atypical and (for ease of
running the regression programme) the migration of that year was
adjusted down by 3,000.[29]

b) Lags

Given the results which were obtained from the analysis of
quarterly data, the annual endogenous variables were regressed on
the relevant exogenous variables of the same year.[30]

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[29]It should be noted that the estimated value of the effect of
the Suez Crisis is larger in the equations fitted to annual data than
that indicated by the quarterly equations; the estimated value is
approximately 39,000 in the annual equations, as compared to an annual
total of 30,000 implied by the quarterly estimates.

[30]Using a Koyck distributed lag did not yield statistically
significant results for estimated values of λ ; t statistics were
always less than one in value. For example, the following equation
may be compared with equation (B.11.7):

$$\left(\frac{M}{L_p}\right)_t^{B:C} = \begin{array}{c} 6992 \\ (8822) \\ [0.79] \end{array} + \begin{array}{c} 42450X_0 \\ (3032) \\ [14.00] \end{array} + \begin{array}{c} 0.0656 \\ (.0716) \\ [0.92] \end{array}\left(\frac{M}{L_p}\right)_{t-1}^{B:C} + \begin{array}{c} 10900(1/U^C)_t \\ (2599) \\ [4.19] \end{array} - \begin{array}{c} 2.43(V)_t \\ (12.50) \\ [0.19] \end{array}$$

$$- \begin{array}{c} 20513(Y)_t \\ (11620) \\ [1.77] \end{array}$$

$$\bar{R} = .986$$
$$DW = 2.87$$

c) <u>Multiple Regression Analysis: Arithmetic Linear Form</u>

The estimated coefficients obtained from the arithmetic linear regression equations are summarized in Table 4.5.   These coefficients are always of the hypothesized sign and with the exception of the policy proxy variable and the (reciprocal of the) British employment rate they are statistically significant at the 5 per cent level or less.

The estimated coefficients of $(1/U^C)$, being on average about 20 per cent larger than the long-run coefficients estimated with quarterly data, are statistically significant (with a one-tail test) at least at the 0.5 per cent level.   Similarly the estimated coefficients of $(1/U^B)$ are not statistically different from zero. In fact, using $(1/U^B)$ as one of the exogenous variables always increases the standard deviations of the estimated coefficients of the other exogenous variables;   this indicates that multicollinearity is a problem and accordingly equations were estimated without this variable.[31]

The estimated coefficients of (V) are of the hypothesized sign and are statistically significant at the 2.5 to one per cent level only when per capita real incomes are not used as exogenous variables.[32]   Introducing real income into the regression equations reduces the estimated coefficients of (V) by approximately one-half

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[31]Equations using $(1/U^B)$ as an exogenous variable are given in Tables B.11 - B.14 of Appendix VI.

[32]Equations B.11.2 and B.11.3 in Appendix VI.

Table 4.5

SUMMARY OF ARITHMETIC LINEAR REGRESSION EQUATIONS, BRITISH ANNUAL DATA, 1953-1965

Equation Number	Ex. Var.	— Estimated (Short-Run) Coefficients[1] for —						
		X_0	$(1/U^C)$	(V)	(Y^C/Y^B)	$\left(\dfrac{Y^{US} - Y^C}{Y^B}\right)$	$\bar{R}$	d.f.
B.11.4	$\dfrac{M}{L_p}$	39.3 *****	86.4 *****	16.8 *	14.5		.972	7
B.11.6		39.6 *****	94.8 *****	12.8		-21.4 **	.979	7
B.11.8		40.8 *****	99.8 *****		25.3 ***		.968	8
B.11.9		40.9 *****	107.3 *****			-29.9 *****	.977	8
Hypothesized signs of the coefficients of the exogenous variables		+	+	+	-			

Separate Coefficients of Determination

B.11.4	.65	.17	.11	.07	
B.11.6	.65	.19	.08		.08
B.11.8	.68	.20		.12	
B.11.9	.68	.21			.11

[1]All units are in thousands, except for V which are as shown.

Statistical Significance levels are as shown in Table 4.2.

Source: Table B.11 in Appendix VI.

(and slightly increases the standard deviations), thereby reducing the t statistics by about one-half so that the variable is usually statistically significant at only the 15 per cent level.

In contrast to the regressions fitted to quarterly data, utilizing real income as an exogenous variable increases the magnitude of the coefficient of correlation (corrected for degrees of freedom) and the coefficients are of the hypothesized sign and statistically significant. The best fit is that of the equation (B.11.9) in which real income defined as $\left(\dfrac{Y^{US} - Y^{C}}{Y^{B}}\right)$ is used; the alternative two-country definition of the real income variable yields estimated coefficients of a slightly lower statistical significance level.[33]

When the proxy policy variable is not used as an explanatory variable, the coefficient of multiple correlation (corrected for degrees of freedom) is reduced only slightly whereas the estimated coefficients (and the t statistics) of both real income and the (reciprocal of the) Canadian unemployment rate increase. Accordingly it is especially in the single equation regressions fitted to annual data that the problem of identification appears most serious.

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[33] Had the migration data not been adjusted for population changes, the estimated regression equations would have been those given in Table B.12. A comparison of this and the table preceding it yields results which not surprisingly are similar to those obtained when the quarterly data were analyzed; the estimated coefficients of $(1/U^{C})$, (V) and income variable No. 1 increase whereas the coefficient of income variable No. 2 decreases. In contrast the use of unadjusted migration data as the endogenous variable does not in the case of annual data yield estimated coefficients of the real income variables which are the opposite of those hypothesized; however the resulting coefficients are smaller and are not statistically significant.

In terms of the separate coefficients of determination shown in Table 4.5, the Suez Crisis accounts for about two-thirds of the total regression sum of squares of the annual data and the reciprocal of the Canadian employment rate is clearly the next most important exogenous variable.

d) <u>Multiple Regression Analysis: Log Linear Form</u>

Log linear regression equations were also fitted to the annual data and equations are summarized in Table 4.6.   The results derived from these equations are similar to those noted above for the arithmetic linear regressions.   The one expected difference is that in the relative magnitudes of the separate coefficients of determination; with a given absolute increase in immigration representing a smaller logarithmetic change as the magnitude of migration increases, the dummy variable for the Suez Crisis accounts for only about one-third of the total regression sum of squares.

Compared with those estimated with quarterly data, the coefficients of (U^C) are approximately of the same magnitudes as the long-run co-efficients;   since these coefficients do not differ significantly from (values close to or equal to) one, it cannot be said whether this elasticity coefficient is greater or less than unity.   Real income defined in terms of three countries again yields coefficients which have a slightly greater statistical significant level and regression equations having a slighter higher multiple coefficient of correlation; as such, real income thus defined is the preferred specification of the variable.

Table 4.6

SUMMARY OF LOG LINEAR REGRESSION EQUATIONS,

BRITISH ANNUAL DATA, 1953-1965

Equation Number	Ex. Var.	—— Estimated (Short-Run) Coefficients for ——						
		$\ln X_0$	$\ln U^C$	$\ln V$	$\ln\left(\dfrac{Y^C}{Y^B}\right)$	$\ln\left(\dfrac{Y^{US}-Y^C}{Y^B}\right)$	$\bar{R}$	d.f.
B.13.4	$\dfrac{M}{L_p}$	0.938 *****	-0.997 *****	0.001 *	1.581		.944	7
B.13.6		0.938 *****	-1.134 *****	0.001		-0.895 **	.957	7
B.13.8		1.024 *****	-1.211 *****		2.853 ****		.932	8
B.13.9		1.002 *****	-1.336 *****			-1.299 *****	.952	8
Hypothesized signs of the coefficients of the exogenous variables		-	+	+	-			

Separate Coefficients of Determination

B.13.4	.32	.34	.22	.11		
B.13.6	.32	.39	.16		.13	
B.13.8	.36	.43		.21		
B.13.9	.34	.46			.20	

Statistical Significance levels are as shown in Table 4.2.

Source: Table B.13 in Appendix VI.

4.   Concluding Remarks

With the results of the analysis of the quarterly and annual data each now having been discussed, it seems desirable to conclude by briefly comparing the estimates derived from the quarterly and annual data and indicating again the significance of the major results.

Both the arithmetic and log linear regression equations were used; there were no a priori reasons for choosing either one as the preferred specification and accordingly both were estimated in order that the results might be compared. Essentially both regression forms yielded much the same results. The exceptions which have already been noted were that the log regression equations yielded coefficients for the real income variables which with quarterly data were sometimes of the hypothesized sign and with annual data were of greater statistical significance levels; the dummy variable for the Suez Crisis was as expected relatively less important in the log linear equations. With respect to the tests of hypotheses for the other exogenous variables, both forms of the regression equations provided the same conclusions.

Perhaps the greatest conceptual and empirical problems which were encountered were those associated with the (proxy) immigration policy and real income variables.

As noted in Chapter II, in an era in which migration is not unrestricted, it seems necessary that some account be made of immigration policy. The suggested proxy variable appeared to be appropriate and the empirical analysis has shown that this variable

especially with quarterly data is indeed statistically significant.
This use of such a policy variable is most probably the first one
made in the study of international migration; it suggests that
studies of recent migration must not ignore this important considera-
tion as otherwise the specification of the migration equation may be
incomplete. But also as pointed out in Chapter II, an identification
problem arises to some extent in using the proxy policy variable along
with the Canadian employment rate and real income as explanatory
variables in the single equation model; this problem appeared
most obviously with the real income variable where with the quarterly
data the perverse sign of the coefficients of income variables
sometimes changed and with the annual data the coefficients of the
real income variables became statistically more significant when
the proxy policy variable was no longer used in the regression
equations. Nevertheless, with the exception of those fitted to
annual data using the three country specification of the real income
variable, the regression fits were better (in that the multiple
correlation coefficients were higher and the standard deviations
of the estimated coefficients were smaller) when the real income --
rather than the proxy policy -- variable was eliminated from the
equation. This would indicate, as argued in Chapter II, that
immigration policy is based on factors in addition to economic ones
reflected by the other exogenous variables in the single equation;
moreover it suggests that explicit account of policy in the regression
analysis is worthwhile, and that greater study of such policy is

required and that it should perhaps be included in a simultaneous equation model of migration.

The estimated coefficient of the proxy policy variable as already noted is somewhat larger and is especially statistically significant in the equations fitted to quarterly data. Apart from the problem of identification just discussed, this perhaps reflects the fact which has already been pointed out that immigration policy is intended to influence immigration according to short-term (and seasonal) needs of the domestic economy as well as the overall volume of such migration.

In contrast it is interesting to note that the estimated coefficients of real income yield (relative to the other coefficients) higher t statistics with annual than with quarterly data and that these estimated coefficients in the equations fitted to annual data are not as sensitive to the population correction of the migration data. This may be interpreted as a possible indication that changes in real income have comparatively little effect upon the (quarterly) timing of immigrant arrival as compared to the (annual) volume of migration. In the regression equations fitted to quarterly data, the income variables taken as the four quarter average tend to yield income coefficients having levels of significance slightly higher than for the income variables defined in terms of quarterly income; the obvious interpretation is that apart from the statistical problems involved in attaining these data, quarterly income is not a good

indicator of expected income.[34]   In the regressions fitted to
either quarterly cr annual data, the income variable defined in
terms of three countries $\left(\dfrac{Y^{US} - Y^{C}}{Y^{B}}\right)$ -- in contrast to that
in terms of two countries $\left(\dfrac{Y^{C}}{Y^{B}}\right)$ -- generally gives the better empirical
result; this may be interpreted to mean that major alternative
countries of destination are considered by migrants.[35]

It was also noted that when migration is adjusted for popula-
tion changes the estimated coefficients for the income variables tend
to improve (that is, they had higher values of the t statistic and,

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[34]Similarly it was noted that the estimated coefficients of
the (reciprocal of the) Canadian unemployment rate tend to be somewhat
smaller for quarterly than for annual data. Apart from sampling
error and the possibility that the seasonal effects have not been
completely accounted for by the seasonal dummy variables, this could
be interpreted as indicating that perhaps average annual rates of
unemployment -- as compared to quarterly rates which have seasonal
and relatively greater random variations -- are more seriously taken
into account by migrants in their decision-making process.

[35]This is said with the realization that other evidence indi-
cates the contrary. Interviews with emigrants have not indicated that
alternative countries of destination are frequently considered. For
example, Appleyard, British Emigration to Australia, pp. 158-160,
found that the majority of the British emigrants to Australia did not
consider a "third" or alternative country of destination; however, as
he pointed out, this could be simply explained by the fact that the
prepaid passage to Australia in effect selected a special group who
could not otherwise have emigrated from Britain and therefore such
emigrants did not effectively have an alternative country to consider.
Likewise Hofstade in his "An Enquiry into the Reasons for the Decision
to Emigrate", Part I in G. Beijer, ed., Characteristics of Overseas
Migrants, pp. 5-6, found that only about half of a sample of 1,000
emigrating Dutch family-units had considered an alternative country
of destination; this may be explained by the fact that relations
(that is, relatives or close friends) abroad were very important in
these migrants' decision to emigrate.
    Alternatively it may be noted from the data given in the
following footnote that the real income variable defined in terms of
three countries varied relatively more than did the one defined in
terms of two countries.

in the case of the quarterly data analysis, the results become non-significant when the unexpected sign occurred); this indicates the possible importance of adjusting migration for population and expressing it as a rate, this adjustment being generally less critical for the estimated coefficients of the exogenous variables other than income.

In none of the regression equations was the British unemployment rate (or its reciprocal) statistically different from zero. Given the earlier theoretical analysis, this is not surprising. There are, however, two empirical reasons which may also partly account for this. First, unemployment in Britain during the period being analyzed was relatively low and did not vary greatly;[36] second, evidence has already been cited to indicate that with Canadian immigration policy as an exogenous variable, an identification problem exists which introduces a downward bias in the estimated

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[36]The mean value and standard deviation of the reciprocal of the British unemployment rate, along with those of the other variables used in the regression equation in this chapter, are given below for purposes of comparison:

X	$\overline{X}$	$S.D._X$	$S.D._X/\overline{X}$
$1/U^B$	.649	.177	.282
$1/U^C$	.222	.095	.428
V	74.1	55.0	.742
Y^C/Y^B	1.79	.119	.066
$\dfrac{(Y^{US} - Y^C)}{Y^B}$	.653	.114	.175
Y (#3)	1.79	.113	.063
Y (#4)	.646	104	.161

coefficient of the British unemployment rate.[37]

And finally, apart from the noted differences in the estimated coefficients of the income variables, the results obtained from the regressions fitted to quarterly and annual data were similar. In the quarterly regressions in which dummy variables were used to take account of the seasonal variation (rather than use seasonally adjusted data), there is always the possibility that the seasonal effects are complex and are not fully and adequately captured by the postulated dummy variables; but given the similarity of the results with the quarterly and annual data, this does not seem to be the situation. One of the major merits of using seasonally unadjusted data with seasonal dummy variables, of course, is that one can readily see the relative importance of seasonal variations. Thus for example in the arithmetic linear equations, the separate coefficients of determination indicate that these seasonal dummy variables account for about one-eighth of the total regression sum of squares.

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[37]That is _caeteris paribus_ Canadian immigration policy may be somewhat more active when unemployment increases in Britain as it may be felt that more immigrants may be forthcoming under such circumstances.

Chapter V

THE IMMIGRATION OF BRITISH WORKERS BY MAJOR OCCUPATION GROUPS

ʔ

Regression equations similar to those analyzed in the last

chapter could conceivably be estimated for each of the major occupa-

tion groups of immigrant workers; by comparing the estimated co-

efficients, numerous hypotheses suggested in Chapter II may be tested.

Ideally these regression equations would employ exogenous variables

which are relevant to the particular group being analyzed; for ex-

ample, if unskilled workers are being studied, the unemployment rates

and real incomes of this group of workers are relevant. However

such detailed (and comparable) data for the various occupation groups

are not available for the entire period being analyzed. The follow-

ing analysis is accordingly based on the available data and is thereby

incomplete; nevertheless it does serve a useful purpose in that some

hypotheses can be tested.

1.   Data

The data of immigrant workers by major (intended) occupation

groups have been made available by the Canadian Department of Manpower

and Immigration from unpublished worksheets.[1]   The exogenous variables --

the proxy policy variable and the rates of unemployment -- are those

which were used in the preceding chapter.

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[1]The data and detailed definitions of the various occupation
groups are given in Appendix V, Table A.5.

Using the aggregate rate of unemployment rather than the rate
of unemployment of the occupation group being analyzed does not seem
to be a serious compromise.   One would expect that the rates of

<center>Table 5.1</center>

<center>ESTIMATED REGRESSION COEFFICIENTS, CANADIAN UNEMPLOYMENT RATES,
1956-I - 1965-IV</center>

$$U^*_t = \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \beta_1 U^C_t + E_t$$

U* Defined	β_1	$\overline{R}$ DW	ρ
A. By Occupation			
Managerial, Professional, Clerical, Sales, Communications	0.323 (0.032) [9.72]	.968 1.66	.524
Service and recreation	0.597 (0.072) [8.33]	.947 1.84	.296
Craftsmen, production process and related workers	1.011 (0.011) [94.66]	.999 2.05	.258
Laborers (non-primary industry)	2.446 (0.176) [13.93]	.995 2.09	.452
B. By Industry			
Manufacturing	1.052 (0.074 [14.20]	.979 1.64	.350
Construction	3.393 (0.192) [17.67]	.994 2.26	.278
Trade	0.567 (0.054) [10.45]	.984 1.65	.519
Service	0.272 (0.054) [5.02]	.967 1.25	.714

unemployment among the various occupations and the aggregate unemployment rate would most likely all be closely correlated since employment opportunities in any particular occupation group is greatly influenced by aggregate demand in general. Available quarterly data of Canadian unemployment rates by major occupation groups for the period 1960-1965 indicate this.[2] Although there are discernible differences in the absolute magnitudes among the various rates, the rates tend to move together; the coefficients of correlation in all cases are greater than 0.94 as shown in Table 5.1.

Using the one general proxy variable for immigration policy should produce certain anticipated differences in the relevant slope coefficients since presumably immigration policy may not always be the same for all occupation groups. Skilled and professional workers are probably almost continuously in demand whereas unskilled workers, for example, are demanded more in accordance with anticipated general economic conditions; therefore the parameter of the proxy policy can be expected to be greater for the unskilled as compared to the professional workers.

Both the incomes of the various occupation groups and the numbers of workers within these groups have changed somewhat differently over time. The available statistics indicate that in Canada, for example, average weekly wages and salaries in the service industry (including hotels and restaurants, laundering and dry cleaning plants and business service) increased 55.2 per cent during the period

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[2]These statistics, given in every third issue of the monthly Dominion Bureau of Statistics, The Labour Force (catalogue number 71-001), are based on labour force surveys.

1953-62 as compared to 41.0 per cent in manufacturing;[3] during the intercensus decade 1951-1961, the number of professional workers in the Canadian labour force increased by 64.5 per cent, the number of workers in manufacturing increased by 14.2 per cent, and those in the primary industries decreased by 20.9 per cent.[4] Given such divergences within the various groups, the use of the previously employed aggregate real income and population deflator index variables is inappropriate in these regression equations; accordingly no attempt is made either to use real income as an exogenous variable or to convert the absolute migration data into rates.[5]

The values of the dummy variable for the Suez Crisis which were used in the previous chapter are likewise used in these regression equations. There is no a priori reason to expect that the response pattern to the Suez Crisis will be different among the various occupation groups.

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[3]George Saunders, Wage Determination in Canada Occasional Paper No. 3, Economic and Research Branch, Department of Labour, (Ottawa: Queen's Printer, 1965), p. 24. For detailed statistics, see also Dominion Bureau of Statistics, Employment Indexes, Average Weekly Wages and Salaries, Average Weekly Hours and Average Hourly Earnings, Monthly and Annual Statistics, Historical Series, January 1961 - May, 1965 (catalogue number 72-504).

[4]Department of Labour, Research Program on the Training of Skilled Manpower, Occupational Trends in Canada 1931 to 1961 (Report No. 11) (Ottawa: Queen's Printer, 1963), Table 4.

[5]There are probably enough statistical material available from which the appropriate real income and population deflator index series could be constructed for various occupation groups. However this would entail considerable effort and would be sufficient for an entire analysis in itself; consequently such a construction is beyond the scope of this study.

2.   Empirical Results

Both the arithmetic and log forms of the regression equation in which a Koyck distributed lag with an initial uniform lag of two quarters is used have been estimated.   These regression equations are given in detail in Tables 5.2 and 5.3.   In general the results are comparable to those obtained in the previous chapter: with a few exceptions which are often not surprising, the estimated coefficients are of the hypothesized sign and are statistically significant.

a) Arithmetic Linear Form

The coefficient of the reciprocal of the Canadian unemployment rate is positive and statistically significant for all groups except unskilled female workers.   In this latter instance, it should be noted, the Durbin-Watson statistic is quite high (and almost significant) and the majority of the last 18 residuals are negative which suggests that perhaps some significant variable has been omitted; the coefficient of correlation is the second lowest, this also indicating that the regression fit is not as good as those for most of the groups.[6]

Except in two instances, the coefficients of the proxy policy variable are positive and statistically significant.   The coefficient for managers is negative, but not statistically significant, and that

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[6]Although the unemployment coefficient is statistically significant, the service occupation group (which includes the unskilled female workers) likewise has a high Durbin-Watson statistic and a relatively low coefficient of correlation.   As already noted above, the average weekly wages and salaries in the service industry has increased substantially during the past decade and the coefficient of correlation between the rates of unemployment for service workers and all workers was among the lowest;   accordingly the obtained regression fit is not surprising.

Table 5.2 [1]

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, (UNADJUSTED) MIGRATION
BY MAJOR OCCUPATION GROUPS, BRITISH QUARTERLY DATA,
1953-III - 1965-IV

$$M^*_t = \alpha_0 X_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \lambda M^*_{t-1} \quad \beta_1\, 1/U^C_{t-2} + \beta_2\, 1/U^B_{t-2} + \beta_3 V_{t-2} + E_t$$

Equation Number	M^*_t defined	α_0	α_1	α_2	α_3	α_4	λ	$1/U^C_{t-2}$	$1/U^B_{t-2}$	V_{t-2}	$\bar{R}$ DW	ρ
	A. By Skill							$-\beta$ coefficient for				
5.2.1	Managerial	-8	-39	15	-37	-17	0.467	231	-7	-0.020	.867	
		(19)	(16)	(13)	(11)	(12)	(.888)	(57)	20	(.072)	2.01	
		[0.43]	[2.49]	(1.14)	[0.32]	[1.33]	[5.29]	[4.08]	[0.36]	[0.27]		
		.0140	.1241	.0650	-.0019	.0292	.4609	.3619	-.0105	-.0147		
5.2.2	Professional	1294	-154	550	863	-145	0.429	1686	-83	0.435	.934	.117
		(253)	(199)	(164)	(160)	(195)	(.082)	(627)	(258)	(.889)	2.19	
		[5.12]	[0.77]	[3.36]	[5.41]	[0.74]	[5.21]	[2.69]	[0.32]	[0.49]		
		.2322	.0486	.0756	.3542	.0336	.2264	.0032	.0002	.0259		
5.2.3	Skilled	4267	-911	186	-199	-566	0.074	4237	-77	1.733	.963	
		(342)	(256)	(215)	(187)	(211)	(.057)	(796)	(333)	(1.235)	2.01	
		[12.48]	[3.56]	[0.87]	[1.06]	[2.67]	[1.29]	[5.32]	[0.23]	[1.40]		
		.5978	.0412	.0305	.0072	.0467	.0409	.1925	-.0035	.0407		
5.2.4	Semi-Skilled	7542	-1509	737	-252	-593	0.140	6410	246	7.186	.977	
		(528)	(388)	(329)	(291)	(324)	(.047)	(1204)	(504)	(1.904)	2.27	
		[14.28]	[3.87]	[2.24]	[0.86]	[1.83]	[2.95]	[5.32]	[0.49]	[3.77]		
		.5200	.0634	.0644	.0025	.0210	.0789	.1274	.0059	.1164		
5.2.5	Male Unskilled	1019	-212	-52	-112	-163	0.025	614	66	0.999	.964	
		(75)	(57)	(48)	(40)	(47)	(.054)	(172)	(73)	(.274)	2.05	
		[13.58]	[3.74]	[1.09]	[2.81]	[3.49]	[0.47]	[3.58]	[0.90]	[3.64]		
		.6428	.0389	-.0352	.0149	.0582	.0137	.1165	.1344	.0158		
5.2.6	Female Unskilled	122	-42	52	-29	38	0.406	138	-2	0.490	.881	
		(40)	(32)	(28)	(24)	(27)	(.100)	(103)	(42)	(.161)	2.87	
		[3.06]	[1.31]	[1.87]	[1.23]	[1.44]	[4.06]	[1.34]	[0.06]	[3.04]		
		.1870	.0906	.1224	.0194	.0169	.2343	.0658	-.0019	.2657		
	B. By Occupation											
5.2.7	Clerical	2766	-282	728	108	39	0.192	1400	161	2.776	.974	.199
		(218)	(172)	(144)	(137)	(146)	(.051)	(540)	(227)	(.759)	1.90	
		[12.66]	[1.64]	[5.05]	[0.79]	[0.27]	[3.73]	[2.59]	[0.71]	[3.66]		
		.4385	.0642	.2662	.0058	-.0033	.0608	.0412	.0056	.1325		
5.2.8	Commercial and Financial	1216	-261	48	-61	-111	0.096	1003	65	1.147	.974	
		(88)	(64)	(55)	(47)	(53)	(.051)	(200)	(84)	(.317)	2.23	
		[13.81]	[4.05]	[0.88]	[1.29]	[2.07]	[1.87]	[5.01]	[0.78]	[3.62]		
		.5592	.0647	.0256	.0049	.0225	.0567	.1368	.0111	.1186		
5.2.9	Service	708	-214	96	-113	-16	0.343	754	63	1.287	.962	
		(88)	(68)	(59)	(50)	(57)	(.061)	(213)	(89)	(.346)	2.80	
		[8.01]	[3.13]	[1.63]	[2.27]	[0.30]	[5.59]	[3.53]	[0.71]	[3.71]		
		.3320	.0806	.0555	.0133	.0014	.2229	.1121	.0143	.1679		
5.2.10	Agriculture	483	-114	35	-94	-101	0.119	469	-5	1.195	.951	
		(59)	(48)	(41)	(35)	(39)	(.065)	(147)	(61)	(.235)	2.07	
		[8.17]	[2.40]	[0.87]	[2.71]	[2.59]	[1.84]	[3.19]	[0.09]	[5.08]		
		.3666	.0492	.0474	.0193	.0724	.0540	.1123	-.0017	.2804		
5.2.11	Manufacturing	6441	-1455	156	-361	-897	0.075	6546	-131	3.315	.964	
		(518)	(388)	(327)	(282)	(321)	(.057)	(1210)	(504)	(1.870)	2.08	
		[12.43]	[3.75]	[0.48]	[1.28]	[2.80]	[1.32]	[5.41]	[0.26]	[1.77]		
		.5911	.0448	.0163	.0077	.0470	.0424	.1949	-.0040	.0597		

[1] In this and the following table summarizing the regression analysis, the standard error is shown in round brackets on the second line, the "t" value in square brackets on the third line and, in most tables, the separate determination coefficient is given on the fourth line. $\bar{R}$ is the multiple coefficient of correlation corrected for degrees of freedom (denoted by d.f.) and D.W. is the Durbin-Watson statistic. Where the D.W. statistic indicate the existence of serial correlation, the equations are re-estimated, using the Durbin procedure with the indicated value of ρ .

Table 5.3

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, (UNADJUSTED) MIGRATION BY MAJOR
OCCUPATION GROUPS, BRITISH QUARTERLY DATA, 1953 III - 1965 IV

$$\ln M^*_t = \alpha_0 \ln X_0 + \alpha_1 \ln X_1 + \alpha_2 \ln X_2 + \alpha_3 \ln X_3 + \alpha_4 \ln X_4 + \lambda \ln M^*_{t-1} + \beta_1 + \beta_2 + \beta_3 + E_t$$

Equation Number	M^*_t defined	α_0	α_1	α_2	α_3	α_4	λ	$-\beta$ coefficient for $\ln U^C_{t-2} + \ln U^B_{t-2}$		$\ln V_{t-2}$	$\bar{R}$ DW	ρ
	A. By Skill											
5.3.1	Managerial	-0.071	3.23	4.19	4.07	3.64	0.479	-0.937	0.038	-0.0571	.862	
		(.245)	(.75)	(.82)	(1.00)	(.86)	(.122)	(.266)	(.192)	(.0772)	2.29	
		[0.29]	[4.32]	[5.08]	[4.08]	[4.24]	[3.93]	[3.53]	[0.20]	[0.74]		
		-.0086	-.7938	1.1779	.2602	-.3625	.4266	.3542	-.0057	-.0483		
5.3.2	Professional	0.620	5.93	6.68	7.20	6.28	0.179	-0.739	0.173	0.0658	.957	.357
		(.151)	(.72)	(.73)	(.83)	(.81)	(.098)	(.145)	(.119)	(.0383)	2.07	
		[4.11]	[8.21]	[9.19]	[8.67]	[7.74]	[1.83]	[5.11]	[1.45]	[1.72]		
		.0740	-3.8913	1.9978	5.1046	-2.2070	.0480	-.2340	.0213	.0867		
5.3.3	Skilled	0.834	5.94	8.49	8.49	7.46	0.157	-1.967	0.325	0.1072	.953	.266
		(.273)	(.96)	(1.05)	(1.32)	(1.11)	(.117)	(.327)	(.209)	(.0755)	1.94	
		[3.06]	[7.24]	[8.10]	[6.41]	[6.71]	[1.34]	[6.01]	[1.55]	[1.42]		
		.0831	-1.3421	3.3871	-.4642	-1.1260	.0659	.3504	-.0178	.0635		
5.3.4	Semi-Skilled	0.930	6.25	7.48	7.25	6.78	0.191	-1.018	0.015	0.1730	.983	
		(.132)	(.57)	(.57)	(.68)	(.61)	(.073)	(.108)	(.084)	(.0390)	2.11	
		[7.04]	[11.03]	[13.23]	[10.60]	[11.06]	[2.61]	[9.39]	[0.18]	[4.36]		
		.1556	-1.4792	2.3161	.2391	-.7180	.1072	.2395	-.0017	.1415		
5.3.5	Male Unskilled	0.879	3.99	5.41	5.03	4.25	0.280	-1.442	-0.263	0.2297	.958	.304
		(.296)	(.72)	(.82)	(1.07)	(.87)	(.109)	(.307)	(.236)	(.0795)	2.01	
		[2.97]	[5.53]	[6.59]	[4.67]	[4.89]	[2.57]	[4.69]	[1.12]	[2.89]		
		.0748	-.7260	1.9551	-.1970	-.5975	.1279	.2054	.0201	.1374		
5.3.6	Female Unskilled	0.342	0.45	1.50	0.56	1.05	0.739	-0.139	-0.028	0.1261	.937	
		(.186)	(.42)	(.45)	(.53)	(.45)	(.077)	(.143)	(.141)	(.0606)	2.81	
		[1.84]	[1.05]	[3.35]	[1.04]	[2.31]	[9.61]	[0.97]	[0.20]	[2.08]		
		.0562	-.1283	.3915	-.0189	.0647	.4930	.0266	-.0044	.1195		
	B. By Occupation											
5.3.7	Clerical	0.917	5.51	6.75	6.46	6.04	0.175	-0.742	0.021	0.1334	.968	.167
		(.170)	(.69)	(.69)	(.85)	(.75)	(.096)	(.141)	(.114)	(.0445)	1.98	
		[5.38]	[7.94]	[9.77]	[7.65]	[8.01]	[1.81]	[5.24]	[0.19]	[3.00]		
		.1390	-2.4529	3.4776	.0826	-.4993	.0410	.0845	-.0013	.1290		
5.3.8	Commercial and Financial	0.991	4.97	6.19	6.09	5.58	0.149	-1.170	-0.013	0.1976	.970	.108
		(.184)	(.58)	(.59)	(.75)	(.64)	(.094)	(.166)	(.124)	(.0549)	2.00	
		[5.36]	[8.60]	[10.49]	[8.12]	[8.65]	[1.59]	[7.04]	[0.10]	[3.60]		
		.1524	-1.2984	2.1641	-0.1113	-0.3924	.0758	.2489	.0015	.1595		
5.3.9	Service	0.453	2.02	3.06	2.34	2.51	0.613	-0.410	-0.044	0.1032	.970	
		(.136)	(.41)	(.49)	(.44)	(.44)	(.071)	(.101)	(.100)	(.0453)	2.32	
		[3.32]	[4.89]	[7.47]	[4.74]	[5.76]	[8.72]	[4.05]	[0.44]	[2.28]		
		.0861	-.5198	.8754	-.0372	-.0330	.4102	.1095	.0082	.1004		
5.3.10	Agriculture	0.636	2.74	3.86	2.84	2.47	0.428	-0.740	-0.064	0.2086	.952	.116
		(.263)	(.55)	(.63)	(.82)	(.67)	(.110)	(.225)	(.193)	(.0879)	1.95	
		[2.42]	[4.94]	[6.08]	[3.46]	[3.72]	[3.89]	[3.29]	[0.33]	[2.37]		
		.0654	-.3671	1.3686	-.0573	-.4965	.2052	.1300	.0059	.1457		
5.3.11	Manufacturing	0.838	7.41	8.97	9.10	8.03	0.132	-2.100	0.368	0.1451	.960	.199
		(.250)	(.94)	(1.02)	(1.28)	(1.09)	(.109)	(.307)	(.188)	(.0713)	2.06	
		[3.35]	[7.87]	[8.81]	[7.10]	[7.39]	[1.21]	[6.83]	[1.96]	[2.03]		
		.0877	-1.2848	3.0117	-.2997	1.0373	.0666	.3938	-.0231	.0851		

for professional and technical workers is positive but not statistically different from zero.   Other than for skilled workers and those in manufacturing for whom the coefficients of the proxy variable are only statistically significant at the 10 per cent level, the remaining groups have coefficients which are statistically significant at least at the 0.5 per cent level.

The coefficients of the reciprocal of the British rate of unemployment, being either negative or positive in the various equations, are never statistically significant.

With the exception of managers, the dummy variable for the Suez Crisis is statistically significant.   The largest seasonal inflow occurs during the second quarter for all groups except for professional and technical workers;   this latter exception occurs because of the large seasonal inflow of teachers during the third quarter.

b) Log Linear Form

The emprical results with the log linear form are similar to those with the arithmetic linear form and need not be repeated again.

3.   Tests of Hypotheses

The above equations may be examined in light of the hypotheses set out in Chapter II;[7] those hypotheses which can here be tested may be summarized as follows:

i)   the coefficient of the Canadian unemployment rate (and frequently its t statistic) would vary inversely with the amount

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[7]See pp. 48-51 above.

of training embodied in the workers; therefore the coefficients should be lower for professional and technical and skilled workers for example than for semi-skilled and unskilled workers;

ii)   the coefficient of the Canadian unemployment rate would be lower for those workers who are primarily salaried as compared to those who are wage earners; hence the coefficient should be lower for clerical and commercial workers for example than for those who are unskilled or in manufacturing;

iii)   the coefficient of the proxy policy variable should be smaller (and statistically less significant) for managers, professional and technical and skilled workers as compared to other groups;

iv)   the seasonal fluctuations for unskilled and agricultural workers should be greater than for professional and technical workers and managers.

These hypotheses are generally supported by the equations given in this chapter; however there are a few notable exceptions.

Since the scale -- or volume -- of migration differs among the various skill and occupation groups, the log linear form of the equations seems to be the most appropriate to consider in examining these hypotheses. Moreover it should be kept in mind that because the absolute levels of the rate of unemployment vary among these groups and the proxy policy variable is not likely a linear homogeneous monotonic increasing function of Canadian immigration policy, even these comparisons are not altogether valid.

In Table 5.4, the various estimated coefficients have been

ranked and compared with the skill and occupation groups which likewise have been ranked by the embodied average years of schooling and training possessed by workers within each group.[8] It should be noted that these average years of schooling and training are for workers in Canada; accordingly it is being assumed that the immigrant workers within these groups likewise have comparable amounts of human capital embodied in them.

Looking first at the elasticity of immigration with respect to the Canadian unemployment rate by skill groups, it will be seen that as hypothesized the coefficient is smallest among professional workers (-0.739) and managers (-0.937) and higher among semi-skilled (-1.018) and male unskilled (-1.442). The highest coefficient however is for the skilled (-1.967), and that for female unskilled workers (-0.139) is lower than postulated; this high value for skilled workers is not in keeping with the hypothesis of Chapter II, but it may be discounted somewhat since the estimated coefficient is upward biased.[9] Among the occupation groups, the coefficient of

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[8]Data showing the proportion of those in these skill or occupation groups who are wage earners and salaried employees are not available; however a reasonable estimate might be that the proportion of salaried workers varies directly with the embodied human capital within each group.

[9]That is, with the absolute rate of unemployment among skilled workers being slightly lower than that among all workers, the actual percentage change in the rate of unemployment among skilled workers is higher than that calculated above; accordingly the above estimated elasticity coefficient for skilled workers is biased upwards
Similarly with the absolute rate of unemployment among unskilled female workers being higher than among all workers, the above estimmated coefficient is biased downwards.

Table 5.4

RANKING OF MAJOR OCCUPATION GROUPS BY SKILL AND BY OCCUPATION ACCORDING TO SELECTED CHARACTERISTICS

Occupation	Mean Years of Formal Education in Canada, Census 1961	Estimated Mean Years of Vocational Training	Ranking by Schooling Training	by Coefficients of U^C	V	Seasons
BY SKILL						
Professional	13.3	3.5	1	5	5	6
Managerial	10.6	5.0	2	4	6	4
Skilled			3	1	4	1
Semi-Skilled			4	3	2	3
Female Unskil.	7.7	0	5	6	3	5
Male Unskilled	7.2	0	6	2	1	2

Spearman's rank correlation coefficient
a) for all skill groups   -.200   -.886   -.429
b) for all, excluding Female Unskilled   -.700   -.900   -.700

BY OCCUPATION						
Professional	13.3	3.5	1	6	6	7
Managerial	10.6	5.0	2	3	7	5
Clerical	10.8	.6	3	4	4	3
Commercial and Financial	10.1	.6	4	2	2	4
Manufacturing	8.0	1.9	5	1	3	1
Service	8.4	.5	6	7	5	6
Agriculture	7.2	.2	7	5	1	2

Spearman's rank correlation coefficient
a) for all occupation groups   +.071   -.711   -.536
b) for all, excluding Service   -.371   -.886   -.886

Source: Median years of education and vocational training as given by Bruce W. Wilkinson, Studies in the Economics of Education, Occasional Paper No. 4, Canadian Department of Labour, Economics and Research Branch (Ottawa: Queen's Printer, 1966), Table 5, p. 67.
Ranking of coefficients obtained from Tables 5.3 and 5.5.

the Canadian unemployment rate is lowest among the predominantly salaried workers, namely clerical (-0.742) and commercial and financial workers (-1.170) and highest among predominantly wage earners as in manufacturing (-2.100). In terms of Spearman's rank correlation coefficient, that for the skill groups is negative as hypothesized, but not statistically significant; that for the occupation groups is positive, but also not statistically significant. As already noted above, the equations for the female unskilled and for service workers seem to be misspecified and could be excluded as the estimated coefficients may be unreliable. With this done, the resulting rank correlation coefficients are now both negative and for the skill groups is statistically significant at the 12 per cent level.[10]

The ranking of the coefficients of the proxy variable are as hypothesized, being lowest for managers, professional and technical and skilled workers and highest among semi-skilled and unskilled workers. The rank correlation coefficients are high and statistically significant at the 10 per cent level or lower.

Because the volume of migration varies by groups, the seasonal variations must first be standardized before they can be compared; accordingly in Table 5.5 the first and second quarter values of the seasonal dummy variable coefficients are standardized by the mean quarterly flow of the group and the range of these seasonal variations are shown.

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[10]Since the larger proportion of those immigrants in agriculture are shown as being farmers and agriculturists (rather than farm labourers), it may well be that in terms of ranking according to the proportion of salaried or self-employed workers, the agriculture group is ranked too low and this would partly explain the lower rank correlation coefficient for the occupation group.

<div align="center">Table 5.5</div>

STANDARDIZED VALUES OF THE SEASONAL DUMMY COEFFICIENTS α_1 AND α_2

Skill or Occupation Group Equation Number	Mean Average Quarterly Migration (M^*)	$\dfrac{\alpha_1}{\overline{M^*}}$	$\dfrac{\alpha_2}{\overline{M^*}}$	$\left[\dfrac{\alpha_2}{\overline{M^*}} - \dfrac{\alpha_1}{\overline{M^*}}\right]$
5.2.1	65	-0.60	0.23	0.83
5.2.2	1,192	-0.13	0.46	0.59
5.2.3	901	-1.01	0.21	1.22
5.2.4	2,380	-0.63	0.31	0.94
5.2.5	167	-1.27	-0.31	0.96
5.2.6	130	-0.32	0.40	0.72
5.2.7	1,100	-0.26	0.66	0.92
5.2.8	341	-0.77	0.14	0.91
5.2.9	418	-0.51	0.23	0.74
5.2.10	161	-0.71	0.22	0.93
5.2.11	1,360	-1.07	0.12	1.19

Source: Calculated from Table 5.2.

The seasonal variation is, as was hypothesized, slightly less for managers and for professional and technical workers as compared to that of unskilled and agricultural workers. However the seasonal variation for skilled (and manufacturing) workers is the greatest. The rank correlation coefficients are again negative as hypothesized, and are statistically significant when female unskilled and service workers are excluded.

To conclude, even though the number of observations are small, the rank correlation coefficients have been negative (in all but one case) and frequently statistically significant at the 10 per cent level and at times at the 5 per cent level; as such the hypotheses can be accepted.

Chapter VI

THE IMMIGRATION OF ITALIAN, "COMMON MARKET" AND UNITED STATES WORKERS

Regression equations like those estimated in Chapter IV for British immigrant workers may also be fitted for those workers of other major origins -- Italians, those from Western Europe (Belgians, Dutch, French and Germans who collectively are referred to as those from the "Common Market") and immigrants from the United States.[1] After a brief discussion of some of the major problems associated with the available data, the regression equations for these immigrant workers fitted to quarterly data are given in the remainder of this chapter.

These regression results are generally in keeping with those postulated in Chapter II; the exceptions which do occur can often be explained by events unique to the particular migration flow being analyzed. Both the Canadian rate of unemployment and the proxy policy variable are usually statistically significant and the coefficients are (with one exception) of the hypothesized sign; the real income variable is also of the postulated sign, but its coefficient is not always significant. The variable for sponsors is not statistically significant and for the Italian data the coefficient is not of the postulated sign. The seasonal dummy variables, especially in the log linear equations, account for a large part

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[1] As indicated in Table 3.4 of Chapter III, these workers respectively accounted for 16.5, 21.2 and 8.6 per cent of the total labour immigration to Canada during the period 1953-1965.

of the fluctuations in immigration.

1.   Data

As in the case of British data, the Italian and "Common Market" (gross) immigration statistics are those by ethnic origin rather than by country of last permanent residence.   The annual immigration from Italy to Canada has generally varied from 91 to 98 per cent of the Italian migration to Canada whereas that from the "Common Market" countries has exceeded those of the relevant ethnic groups by up to 33 per cent;[2] such discrepancies are explained in part by the fact that some Italians first migrate to Western Europe and then to Canada. Moreover discernible trends are evident in the ratios of the number of those of an ethnic group and the number coming from the corresponding country; in the past few years the number of immigrants from Italy compared to the number of Italian immigrants has decreased whereas the converse has occurred in a similar comparison of the "Common Market".   This may account for some autocorrelation in the regression equations.

The available quarterly data for the exogenous variables are of varying acceptability.   As noted in the detailed tables in Appendix V, there are discrepancies in these available statistics. The individual series are not similarly defined for all countries

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[2]Table A.1 of Appendix V gives these figures.

and for some countries the definitions changed during the period.[3]

The paucity of comparable quarterly national accounts data and

employed civilian labour force statistics made it impossible to

construct an acceptable series of per capita real income for

Italian workers.

The number of potential sponsors has been defined to be equal

to the sum of the number of immigrant workers who arrived during the

preceding twelve quarters.[4]   The Canadian immigration policy toward

migration of each of these ethnic groups is assumed to be similar

and accordingly the films shown and lectures given in Britain are

taken as the proxy policy variable.

Such data problems as these undoubtedly have resulted in what

might conveniently be labelled as errors in measurement in the various

data series; consequently the results of the regression estimates

may have to be qualified in some instances.

The immigration of these immigrant workers has also been

subject to seasonal variations as well as to a marked change during

the period 1956-IV to 1957-IV as a result of the Suez Crisis and the

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[3]The most serious problems occurred with the Italian unemploy-
ment rate and the estimate of the employed civilian labour force in
Germany.   In the former case the rates for the period 1953 - 1962-II
were derived from the registered unemployed and thereafter from labour
force surveys.   In the latter instance the data for the period 1953-
1963 was based on registered employees and thereafter on labour force
surveys.   Whenever such discrepancies occurred the period of overlap
between the old and the new series was used to derive estimates of
comparable data for the end of the period on the basis of the
available information.

[4]This is discussed in greater detail in Appendix III, pp. 203-205
below.

Hungarian Revolution which stimulated migration.[5] As in the analysis

of the British data, these fluctuations are handled by the use of

dummy variables. With the economic conditions of the (politically

atypical) period during 1957 being not much different from those of

the preceding year, a rough estimate of the numerical changes in mi-

gration brought about by the Suez Crisis and the Hungarian Revolu-

tion may again be made by taking the difference between the numbers

of actual migrants during this atypical period and those in the pre-

ceding comparable period. The results of doing this are given in

Table 6.1; and based on these estimated adjustments the appropriate

values for the dummy variable (X_0) can be constructed for this period

which, as will be seen in the following tables, are with but a few

exceptions all statistically significant at least at the one per

cent level. According to these estimates, it is implicitly

<u>Table 6.1</u>

ESTIMATED ADJUSTMENTS IN THE IMMIGRATION OF
ITALIAN AND "COMMON MARKET" WORKERS
INTO CANADA, 1956-IV - 1957-IV

		Italian			"Common Market"	
Period	Numerical Adjustment	Values[1] of the Dummy Variable (X_0) in Equations which are arith.	log	Numerical Adjustment	Values[1] of the Dummy Variable (X_0) in Equations which are arith.	log
1956 IV	600	0.30	0.40	2,000	1.00	1.00
1957 I	600	0.30	0.40	400	0.20	0.30
II	2,000	1.00	1.00	2,000	1.00	0.60
III	-1,000	-0.50	-1.10	800	0.40	0.40
IV	-1,200	-0.60	-1.70	200	0.10	0.15

[1]During all other quarters, X_0 is equal to zero.

[5]Since the immigration data being analyzed are by ethnic origin,

hypothesized that the effect on Italian immigration was largely to group together the flow of migration that would have normally occurred over the year; given that a sizeable proportion of migrants from Italy are sponsored and only some (already with visas) could have hastened their departure, this hypothesis seems to be a reasonable one. Because of fears of war Europe would not be expected to affect the migration from the United States to Canada, no dummy variable (X_0) is hypothesized for this flow of migration; a visual examination of the data does not show any atypical increased immigration during this period.

As in the analysis of the British data, an indication of the appropriate lag period for the migration equations may be obtained from an examination of the simple (arithmetic linear) regressions estimated for different discrete lags. An initial lag of 5 quarters is suggested for the Italian data, of 2 quarters for that of the "Common Market" and of one quarter for the United States.[6]

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the large influx of Hungarian refugees do not, of course, enter into any of the migration flows being studied in this chapter. The increased flows being taken into account consist of those of the particular ethnic group who migrated because of fears of possible war in Europe.

[6]See Tables B.15-B.17 in Appendix VI. Whereas in all other instances the coefficients of correlation and the magnitudes of the parameters (and their t statistics) for the reciprocal of the Canadian unemployment rate tended to increase initially and thereafter to decrease so that the best fits occur for lags of 2 to 4 quarters, with Italian data the best fits occur with a lag of 4 and 5 quarters and also of one quarter; unlike that for the other data, the proxy policy variable always has a slope coefficient which is positive for the Italian data. The best fits for the United States data are for lags slightly shorter than for all the others.

2. Empirical Results: Italian Immigration

Of those included in this study, the analysis of Italian immigration is perhaps the least satisfactory. A number of the data difficulties have already been mentioned in the preceding section, and the longer initial lag of five quarters has been noted. Autocorrelation exists in the fitted regressions, especially in the log linear specification;[7] statistical problems of identification and multicollinearity are also clearly evident, especially when the number of sponsors (N) and the real income variable are included among the exogenous variables. Even though these difficulties preclude any unqualified acceptance of the estimated regression coefficients, the regression results may be interpreted as being generally in keeping with the hypotheses developed in Chapter II.

The major results of the regression equations fitted to (quarterly) Italian immigration data are summarized in Table 6.2. With the exception of that for sponsors, the estimated coefficients are of the hypothesized sign; however the levels of statistical significance generally are low, especially in the equations

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[7]See Table B.19 in Appendix VI.

To keep this chapter relatively short, in this and the following sections only those regression equations in which (M/L_p) is the endogenous variable are given. This choice was indicated by the results of Chapter IV; moreover the regression equations using the other specifications of the endogenous variable were generally comparable to those found in that chapter.

[8]As already noted, the Italian real income variable was not available; assuming Germany -- or the Common Market countries of Western Europe -- as an alternative to Canada as a country of destination, the variable (Y^C/Y^G) was introduced as the real income variable.

Table 6.2
SUMMARY OF REGRESSION EQUATIONS,
ITALIAN QUARTERLY DATA, 1954-II - 1965-IV

Equation Number (form)	λ	X_0	$1/U^C$	$1/U^I$	V	N	(Y^C/Y^G)	$\bar{R}$
		——Estimated (Short-Run) Coefficients for ——						
B.18.4 (arithmetic)	0.324 *****	2654 *****	2832 *	-565	8.04 *****	-0.03		.850
B.18.5 (arithmetic)	0.330 *****	2772 *****	2397 *	1802 **	5.90 ***		1487 **	.860
B.18.6 (arithmetic)	0.168 *	2607 *****	-452	634	4.25 *	-0.13 ****	3599 *****	.867
B.19.5 (log)	0.337 *****	0.452 *****	-0.226	-0.324	0.106 *	-0.901 *	1.811 **	.880

Hypothesized sign of the estimated (arithmetic) coefficients

			$+$	$?$	$+$	$+$	$+$	

Separate Coefficients of Determination

B.18.4	.28	.20	.01	.08	.19	-.05		
B.18.5	.29	.20	.01	-.24	.14		.28	
B.18.6	.29	.08		-.08	.09	-.14	.57	
B.19.5	.19	.19	-.02	-.08	.11	-.07	.32	

One-tail statistical significance levels given below the estimated coefficients are as follows:

```
     *   denotes significant at the  10   per cent level;
    **       "            "       "    "    5   "    "    "
   ***       "            "       "    "    2 ½  "    "    "
  ****       "            "       "    "    1   "    "    "
 *****       "            "       "    "      ½  "    "    "
```

Source: Tables B.18 and B.19 in Appendix VI.

(B.18.6 or B.19.5) in which the complete equation is estimated. Except in one of these complete equations, the reciprocal of the Canadian unemployment rate is always of the postulated (positive) sign, but is at times statistically significant only at the 10 per cent level even with a one-tail test; when the variables for sponsors and for real income in Canada relative to that in Germany are used, the coefficient of the (reciprocal of the) Canadian unemployment rate is reduced and becomes negative but is not statistically signifi- cant; moreover the standard deviations of this and other estimated coefficients are now larger which would indicate that multicollinearity is also a problem.

The proxy variable for Canadian immigration policy is likewise always of the hypothesized (positive) sign and is statistically significant at the one per cent level except when the real income variable is introduced. The sign of the real income variable is positive as would be postulated; as real income in Canada rises relative to real income in Germany which (along with the other Common Market countries) is a country of alternative destination, Italian migration to Canada would increase. The coefficient of the re- ciprocal of the Italian unemployment rate varies considerably and no conclusion can be made regarding its sign.

The one statistically significant exception to the postulated results is that of the coefficient of the variable for sponsors. Whereas it was hypothesized that as the number of potential sponsors increased so too would immigration, the estimated slope coefficient

in fact is always negative rather than positive.   In addition to
the possibilities that the estimated coefficient is biased downward
as a result of the identification problem that the migration
equation is incompletely specified because the Italian real income
is omitted, this adverse result may be explained or interpreted in
any one of three ways.   The specification of the variable for
sponsors might be wrong.   The twelve quarter period over which
migration has been summed may be too long (or short) or the use
of all immigrant workers as a measure of potential sponsors may be
inappropriate;   however, since the similar proxy variable for the
"Common Market" migrants did not do equally as badly, the mis-
specification of the variable may perhaps be rejected as the ex-
planation.   Alternatively the original hypothesis might be
questioned and the negative sign of the estimated slope coefficient
would be taken as an indication -- but not statistically significant
confirmation -- that the hypothesis is wrong.   Again since the
estimated slope coefficient of the variable for sponsors is of the
hypothesized (positive) sign in the case of the "Common Market"
workers migrating to Canada, this explanation likewise may be dis-
counted.   The remaining interpretation is that immigration and the
potential number of sponsors are indeed positively related, but
that immigration policy has been such that it has significantly
curtailed the volume of immigration from what it would otherwise
have been.   This interpretation is supported by statements which
have been made by government officials to the effect that the
migration of certain ethnic groups is curtailed in order that the

structure of the Canadian society not be fundamentally altered.[9]

Indeed upon further consideration of the Italian situation, the longer lag of five quarters, the poor performance of the sponsor variable and the generally poorer regression fits are perhaps not especially surprising. A considerable backlog of (sponsored) Italian applicants has existed, this having been brought about in part by the limited facilities in Italy for processing these applicants. This backlog of applicants and lack of adequate facilities has been noted in Parliament on a number of occasions.[10] Accordingly (and apart from the problems of identification) it could be expected that the (reciprocal of the) Canadian unemployment rate may not be statistically significant and the parameter of the sponsor variable may be affected adversely. The poorer regression fit for the Italian

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[9] See Appendix III below, especially pp. 188-189.

[10] For example, the backlog of sponsored immigrants in Italy was stated to be 63,318 at the end of 1960 and delays of 18 to 24 months in processing applicants were reported. (Debates, 1960, Vol. V, p. 5068; Debates, 1060-61, Vol. II, p. 2132; and Debates, 1963, Vol. VI, pp. 6242-43.)

There was during this period only one immigration office in Rome (Debates, 1964, Vol. V, p. 4608). Moreover this office was comparatively understaffed. In 1961, for example, the following number of employees were located in various immigration offices in countries from which the majority of immigrants came to Canada:

1961 Immigration and Employees in Immigration Offices

Country	Number of Immigrants to Canada	Number of Employees		
		Canadian	Locally Engaged	Total
Italy	20,681	9	23	32
United Kingdom	19,585	49	62	111
Germany	10,774	14	56	70
Netherlands	5,429	5	11	16
France	2,944	10	12	22
Belgium	1,282	5	7	12

Source: Debates, 1960-61, Vol. II, p. 2135.

migration may likewise be explained by this added constraint of facilities in processing applications for immigrant visas.

Lastly, it may be noted (from the more detailed results in Appendix VI) that the seasonal pattern is that which would be expected. Immigration is highest during the second quarter, followed closely by that during the third quarter; it is lowest during the first quarter. In terms of their relative importance as explanatory variables, the separate coefficients of determination of these dummy variables are greater than of the other economic variables. Indeed, as shown in Table 6.2, the separate coefficients of determination of the Canadian unemployment rate and immigration policy are much smaller than those in the equations fitted to British data; this again underscores the point made initially that the regression fitted to Italian data has not been very satisfactory.

3.   Empirical Results: "Common Market" Immigration

In order to approximate as closely as possible the ethnic data with that from a geographic region, the Belgians, Dutch, French and German immigrants are considered collectively as immigrants from the "Common Market". And with almost 60 per cent of the immigrants to Canada from this region actually coming from Germany, the economic variables of Germany are used as the exogenous variables in the regression analysis.[11]

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[11]The 60 per cent is derived from the data given in Table 3.4 in Chapter III above.
        Using the German economic data as the exogenous variables implies that economic conditions in Germany are the immediate alternative for all migrants from this region; this implicit assumption does not seem to be unreasonable given that labour mobility does occur within the Common Market.

An examination of the detailed regression results in Appendix VI again gives evidence that problems of multicollinearity and identification exist. In the regressions fitted to the complete single equation migration model, the standard deviations of the estimated coefficients of the reciprocal of the German unemployment rate, the variable for sponsor and the real income variable are larger than those in equations in which some of the explanatory variables are excluded; similarly the coefficient of the reciprocal of the German unemployment rate appear to be upward biased and that of the variable for sponsors downward biased when all the explanatory variables are included. With these reservations kept in mind, the regression results summarized in Table 6.3 are generally as hypothesized in Chapter II.

Looking initially at the regression equation fitted for the entire period, all the coefficients are of the hypothesized sign, except that those for sponsors and Canadian immigration policy are not statistically significant.

The fact that the proxy policy variable is not statistically significant at first would seem to be disappointing. But on further examination of the data,[12] it is evident that the initial portion of the period under study was atypical; immigration from the Netherlands was 20.3 and 16.2 thousand during 1953 and 1954 respectively (compared to an annual average of 7.8 thousand in each of the following five years), this migration being part of the special migration of Dutch

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[12]See Table 3.4 in Chapter III above.

Table 6.3

SUMMARY RESULTS OF REGRESSION EQUATIONS, "COMMON MARKET" QUARTERLY DATA

| Equation Number (form) | λ | Estimated (Short-Run) Coefficients for —— | | | | | | |
		X_0	$1/U^C$	$1/U^G$	V	N	Y^C/Y^G	$\overline{R}$
Period 1953-III – 1965-IV								
B.20.6	0.332	1916	10000	2901	4.80	0.01	5950	.924
(arithmetic)	*****	**	*****	*****			****	
Period 1955-I – 1965-IV								
B.20.11	0.156	3717	5403	1030	16.12	0.01	2065	.971
(arithmetic)	**	*****	****	****	*****		*	
B.21.11	0.120	0.714	-0.694	0.190	0.086	-0.026	1.019	.972
(log)		*****	*****	**	*			
Hypothesized signs of the estimated (arithmetic) coefficients		+	?	+	+		+	
Separate Coefficients of Determination								
B.20.11		.08	.20	.05	-.21	.31	.07	.19
B.21.11		.06	.08	.04	.19	.07	-.01	.14

Statistical Significance levels are as shown in Table 6.2.

Source: Tables B.20 and B.21 in Appendix VI.

farmers to Canada.[13]   Accordingly this period could be eliminated and the regression equations estimated for the period beginning with 1955-I.   In these re-estimated arithmetic linear equations the multiple correlation coefficient is slightly higher and the coefficient of the proxy policy variable is now statistically significant at least at the 0.5 per cent level; although the remaining coefficients are slightly reduced in magnitude, all except the coefficient of the income variable remain statistically significant at the 5 per cent level.[14]

The largest seasonal inflows again occur during the second and third quarters; the separate coefficients of correlation likewise are largest for the seasonal dummy variables and together they account for about a third of the total regression sum of squares.

4.   Empirical Results: United States Immigration

In contrast to all of the previous migration data analyzed, the data of immigration from the United States is by country of last permanent residence.   As such they are migration statistics of the desired form.

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[13]See page 199 of Appendix III below for further reference and discussion of this Dutch immigration.

[14]In contrast, in the log linear regressions the coefficient for the Koyck distributed lag is not statistically significant; compared to the arithmetic linear regressions the coefficient of the Canadian unemployment rate is significant at a higher level whereas that of the policy variable is significant at a lower level, this indicating that a problem of identification likely exists.

The results of the regression equations using a one quarter
lag are summarized in Table 6.4.   Although the signs of the estimated

Table 6.4

SUMMARY RESULTS OF REGRESSION EQUATIONS,

UNITED STATES QUARTERLY DATA, 1953-II - 1965-IV

| Equation Number | λ | Estimated (Short-run) Coefficients of | | | $\bar{R}$ |
		$1/U^C$	V	Y^C/Y^{US}	
B.22.3 (arithmetic)	0.34 ****	670 ****	0.66 *	51.7	.867
B.23.3 (log)	0.30 ****	-0.10 *	0.06 ****	0.18	.889
Separate Determination Coefficients					
B.22.3	.07	.06	-.04	.00	
B.23.3	.05	.03	-.03	.01	

Statistical significance levels are as shown in Table 6.2.
Source: Tables B.22 and B.23 in Appendix VI.

coefficients are as hypothesized in Chapter II, these coefficients
are not always statistically significant.   A problem cf identifi-
cation exists between the policy and Canadian unemployment rate;
the Canadian unemployment rate is statistically significant at the
one per cent level in the arithmetic lenear equation (B.22.3),
whereas the policy variable is statistically significant at that
level in the log linear equation (B.23.3).   Furthermore the rates
of unemployment in Canada and the United States are, not surprisingly,

not independent and multicollinearity is evident when both variables are used; accordingly the unemployment rate in the United States has not been included as an exogenous variable in the regression equations summarized above.

The exogenous economic variables in the equations each have small separate determination coefficients whereas the seasonal dummy variables (in both forms of the regression equations) have the largest coefficients. As such the economic variables do not contribute much to explaining the regression sum of squares; indeed the regression fits are not especially good in comparison to most of those obtained in this and the earlier chapters. Accordingly these results are in keeping with the view sometimes expressed that the North American migration is often likely in response to considerations of geographic proximity, climatic conditions and corporation policy in training management personnel which are not adequately reflected by the economic variables used in the regression equations.[15]

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[15]L. Parai, _Immigration and Emigration of Professional and Skilled Manpower During the Post-War Period_, pp. 91-93.

Chapter VII

SUMMARY AND CONCLUSIONS

The major components of post-war immigration into Canada have now been analyzed in some detail in the last three chapters. The empirical results have yet to be summarized and compared.

In general the single equation migration model developed in Chapter II has performed adequately in the empirical analysis of the Canadian immigration data, with the coefficients of the exogenous variables being of the hypothesized sign in all but a few cases which could usually be explained. The brief analysis of British migration by major skill and occupation groups likewise usually provided empirical results in keeping with those hypothesized in Chapter II.

Apart from the problems which were encountered in obtaining the desired data, there were two other practical difficulties which should be noted: these were the problems of specifying both the lag structure of the migration equation and the values of the dummy variables for the period of the Suez Crisis.

It was often the case that a number of lag structures yielded much the same statistical fit but with somewhat different values for the various coefficients being estimated. The institutional constraints were examined in order to indicate the likely lags involved and from within this range the best statistical fit was accepted as the lag structure. In so far as hypotheses were being

tested in this analysis and a range of (statistically significant) values of a coefficient were sufficient, this problem of specifying the lag structure was not usually of crucial importance and was not studied at great length; on the other hand, had a major purpose of this study been that of specifying an exact migration equation -- say for purposes of forecasting future migration[1] -- then point estimates for the slope coefficients would have been desired and the lag structure of the equation would have had to be examined at much greater length.

Similarly the values of the dummy variable for the period of the Suez Crisis were quite naively estimated, found to be statistically significant and therefore readily accepted. Different values for these dummy variables would have yielded better (or worse) statistical fits for the regression equations and different point estimates for the coefficients; again had point estimates of these coefficients been required much greater attention would have had to be given to this matter.

1.   Tests of Hypotheses

The main empirical results of this study may very briefly be set out as shown in the following table. With the exception that the seasonal dummy variables are relatively more important as

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[1]But with a marked change having occurred in Canadian immigration legislation after the period under study as well as in the published immigration statistics (from ethnic origin to country of last permanent residence), the estimated coefficients of the migration equation are not especially relevant for the following period.

explanatory variables, the log linear regressions yielded much the
same results.

Although no specific lag structure could be stated a priori,
an initial uniform two quarter lag along with a Koyck distributed
lag yielded the best statistical fit for the British and "Common
Market" migration.   A lag of 5 quarters was obtained for Italian
migrants who over this period encountered a backlog of applications
and inadequate immigration facilities for processing them; a lag
of one quarter was derived for immigration from the United States
which may be explained by shorter travelling time (and perhaps
speedier processing of applications).

And with a few exceptions which likewise may often be explained by
the unique characteristics of the particular migration, the estimated
migration regression equations for these migration flows yielded
(slope) coefficients which were of the signs postulated by the model
developed in Chapter II.   As shown in Table 7.1, with the exception
of Italian immigration which experienced such a backlog of applications
in process, the coefficients of the reciprocal of the Canadian
unemployment rate was always positive and generally statistically
significant at least at the one per cent level.

The coefficients of the reciprocal of the unemployment rates
in the countries of emigration have generally, but not always, been
positive and statistically not significant and have always been much
smaller in magnitude than the coefficients of the reciprocal of the
Canadian unemployment rate.   This positive sign of the coefficient

Table 7.1

SUMMARY OF (ARITHMETIC LINEAR) MULTIPLE REGRESSION EQUATIONS
FITTED TO QUARTERLY DATA, BY MAJOR (ETHNIC) SOURCES OF
IMMIGRANTS

Ethnic Group	Reference Equation	$\bar{R}$	Lag of	λ	$\dfrac{1}{1-\lambda}$	(Short-run) Coefficients of				
						$1/U^C$	$1/U^B$	V	Y^C/Y^B	N
British	B.3.5	.972	2	0.1586 *****	1.1885	+15890 *****	+498	+17.47 *****	−768	
Italian	B.10.5	.860	5	0.3303 *****	1.4932	+2397 *	+1804 **	+5.90 ***	+1487 **	
	B.10.6	.867	5	0.1684 *	1.2025	−452	+654	+4.25 ******	+3599 *	−0.1283 ****
"Common Market"	B.20.10	.972	2	0.1344 *	1.1553	+5501 ****	+993	+16.62 ******	+2885 *****	
	B.20.11	.971	2	0.1546 **	1.1829	+5403 ****	+1030	+16.12 ******	+2065	+0.0137 *
United States	B.22.3	.867	1	0.3439 ****	1.5242	+670 ****		+0.66 *	+52	

Hypothesized signs of the slope coefficients of the exogenous variables: $\quad$ + $\quad$? $\quad$ + $\quad$ + $\quad$ +

One-tail statistical significance levels are given below the coefficients:

   * denotes significant at the 10 per cent level;
   ** " " " " " 5 " " "
   *** " " " " " 2½ " " "
   **** " " " " " 1 " " "
   ***** " " " " " ½ " " "

would indicate that in terms of the theoretical model of Chapter II

the impetus of inadequate domestic job opportunities and lower

opportunity costs of migrating is exceeded by the restraining

effects of lower incomes (and possibly depleted savings) in financ-

ing the monetary costs of migration.   The smaller relative magni-

tudes of the slope coefficient (and the separate determination

coefficient) likewise may be taken to indicate in terms of earlier

terminology that in most instances the "pull" forces are more

important than the "push" forces in determining the magnitude of

migration.

The proxy policy variable -- which by being the same one

throughout the entire empirical analysis implicitly assumes that

the Canadian immigration policy regulating the changing volume of

migration from all sources is much the same -- also yielded

coefficients which were positive as hypothesized and were generally

statistically significant at least at the 10 per cent -- and often

at the 5 per cent -- level.   The 10 per cent statistical levels

were again for Italy and the United States, the latter country being

one from which immigrants have generally been especially welcome but

not actively sought.

The coefficient of the real income variable was positive and

statistically significant in the case of the Italian and "Common

Market" migrants.[2]   The variable for sponsors was negative -- that

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[2]And as noted previously the coefficient of the real income
variable for the British and United States migrants had higher t
statistics for the log linear form; in both instances the sign of
the coefficient was negative and statistically significant when the
(population) unadjusted migration data was used as the endogenous
variable.

is, not as hypothesized -- and statistically significant for the It-
alian migration; on the other hand, this variable was positive but
not significant for the "Common Market" migrants. Accordingly -- and
for reasons already cited for the Italian migration -- only this vari-
able yielded coefficients which did not strongly support the relevant
hypothesis of Chapter II.

As noted previously in the detailed discussion of the empirical
results, problems of identification and multicollinearity are evident
in a number of instances. Yet the results are fairly consistent for
the various ethnic origins and are on the whole in accordance with the
hypotheses derived from the single equation model; as such the empir-
ical analysis has served as a confirmation of the theoretically derived
results.

Looking at possible hypotheses relating to comparisons among
ethnic groups, much less can be wrought from the present analysis.
Given that a given exogenous variable empirically is not strictly the
same--- that is, not always defined or derived identically in all count-
ries -- and that the problems of identification and multicollinearity may
differ among these regression equations, comparisons of the various estim-
ated coefficients for these ethnic groups can be undertaken only with
considerable reservations.

With the immigration facilities being comparatively inadequate
in Italy, it is to be expected that the coefficients of (the reciprocal
of) the Canadian unemployment rate are either not statistically
significant or of low significance in the Italian migration equations.
Conversely the British and "Common Market" migration have elasticities
of migration with respect to the rate of unemployment in Canada which
are around one and are statistically greater than those of the other

migration flows. Nor is it surprising in the light of the results derived from the analysis of migration by occupation groups that the United States immigration, consisting relatively more predominantly of managers and professional and technical workers, respond less to employment opportunities in Canada.

The proxy policy variable is statistically significant for each ethnic group. But as already mentioned there is no reason to assume that this proxy variable is a linear homogeneous monotonic increasing function of Canadian immigration policy toward each of these ethnic groups; accordingly meaningful comparisons of the various estimated coefficients of this proxy variable cannot be made. Nevertheless the relative magnitudes of the coefficients of this variable are interesting. The magnitudes of the coefficients for the British and "Common Market" migrants are much the same; the coefficient for Italian migration is smaller and, with the existence of a large backlog of sponsored applications, this smaller coefficient may be interpreted as an indication that the effects of changes in migration policy are less pronounced in this case. The coefficient of the proxy variable is smallest for the migration from the United States, a country from which migrants are generally readily accepted but from which they have not been actively sought.

Although such differences in the magnitudes of these various coefficients cannot be rigorously interpreted, they do nevertheless conform with the reasoning underlying the theoretical chapter. As such the overall empirical results of the analysis are in keeping

with the previous theoretical analysis.

Besides having provided an empirical analysis of short-term fluctuations in -- and some tests of hypotheses of -- Canadian post-war immigration, it is hoped that this study has provided at least four results which should be of general interest to all those who are interested in international migration.   The importance of considering migration policy in explaining post-war migration has been demonstrated;   correcting migration data for population changes has been shown to have an important effect at times, especially on the direction of influence and the statistical significance of real income as an exogenous variable;   moreover a three-country formulation of the regression equation and the use of the log linear form have each yielded at times better empirical results.

In all the relevant equations of Chapters IV and VI, the use of the proxy policy variable and the Canadian rate of unemployment as exogenous variables -- compared to using just the Canadian rate of unemployment alone -- resulted in higher coefficients of correlation (corrected for degrees of freedom).[3]   Admittedly the use of a proxy variable has its shortcomings, most notably that the magnitudes of the coefficients of this exogenous variable cannot readily be interpreted in terms of the numerical result of a given change in policy

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[3]On the other hand, it may be recalled that this was often not the case when the rate of unemployment in the country of emigration, the real income variable and/or the variable for sponsors were also used in the multiple regression equations.

and that in a single equation model an identifcation problem may exist. Available information about the changes in immigration policy --as would be manifested in orders-in-council and departmental directives -- are not readily available; otherwise an interesting study of the effects of policy on immigration could be undertaken in considerable detail.[4] Nevertheless, as incomplete and inadequate as the use of the proxy variable is in this study, it is a first attempt at the direct incorporation of immigration policy into the empirical analysis of migration; the empirical results should be sufficiently encouraging to prompt further analysis in this general area.

The desirability of using population indices to adjust the migration data for demographic changes was indicated by a priori reasoning; yet it was a comparison with the empirical results obtained by using immigration data adjusted and unadjusted as the exogenous variable which first showed that this adjustment has at times an important effect, especially on the coefficient of the real income variable. Some empirical studies have not apparently taken this into consideration;[5] accordingly it is interesting to speculate whether using a population adjustment would have altered their

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[4]And this is perhaps the major shortcoming of the use of the proxy policy variable in this study. Some knowledge of the relationship between immigration policy and such domestic economic factors as the rate of unemployment and changes in income would be desirable; given this information a simultaneous two equation model would have been used, the equations being that for the policy variable and for immigration.

[5]See, for example, Allen C. Kelley, "International Migration and Economic Growth, Australia: 1865-1935", loc. cit.

conclusions with respect to the empirical importance of real income in their regression equations. This study should serve to indicate to other researchers that this matter should be considered.

Although only a limited use was made of a three-country formulation of the regression equation -- namely, in the definition of the real income variable in the analysis of the British and (by necessity) the Italian immigration -- the results were gratifying. The t statistic of the real income variable defined in terms of three countries was frequently (but not statistically significantly) slightly higher than the comparable variable defined in terms of two countries. This would suggest that further consideration of this formulation -- especially in annual data covering a long period -- might be rewarding. Similarly the log form of the migration equation sometimes gave slightly better results, especially for the real income variable. Accordingly students of international migration might profit by following the example of those studying internal migration and make greater use of the log linear form of the regression equation.

2.   Comparisons with Other Studies

Although much of the empirical analysis in this study has been of quarterly data, the results are in general not vastly different from those of other recent studies of annual immigration into other countries.[6]   The positive results derived in this analysis as a

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[6]Appendix II summarizes these studies in some detail; the studies referred to in this section are those cited in the Appendix.

result of considering policy, a three-country situation and demo-
graphic growth are in some instances the major ways in which this
study essentially differs from these others.

The (reciprocal of or the) rate of unemployment in the country
of immigration was found to be statistically significant by Kelley,
Fleisher and McQuade; this result was also obtained in this analysis.
The lag structure and seasonal variations found in this study were
not essentially different from that found by Jerome.[7]

The rate of unemployment in the country of emigration, although
most often its coefficient was positive, was almost always not statis-
tically significant in this analysis. A priori considerations had
indicated this result.[8] The empirical results of Jerome, D.S. Thomas,
Fleisher and Kelley were similar in this respect; in terms of the
terminology of the earlier studies, this analysis has likewise
indicated the predominant importance of the "pull" influence of the
country of immigration in explaining the stream of immigration.

The use of the real income variable is the one major respect
in which the various studies differ from this one. Fleisher

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[7]One might be distressed by the fact that transportation is
now more efficient than earlier in the decade and accordingly the
lag should be shorter; however there is now the lag involved in
obtaining the required immigration visa.

Whereas Jerome analysed monthly data and examined in some
detail the possible changes in the length of the lag over the business
cycle, this was not done in this study.

[8]Various such considerations were set out earlier, for example,
by Allen Kelley, op. cit., pp. 340-341.

-- using the ratio of gross hourly earnings (but with no adjustment
being made for possible differences in the average hours of work) --
found that the real income variable was not statistically significant;
Kelley -- using net migration not adjusted for population growth as
the endogenous variable and the growth of real (but not per capita)
gross national product in either Australia or the United Kingdom
(but not their ratio) as the exogenous real income variable -- like-
wise did not find the real income variable to be statistically signifi-
cant. The formulation of these real income variables are, as
indicated above, inadequate and one can simply speculate whether hav-
ing used instead the above formulated real income variables in their
regression equations would have made any significant difference. As
published their studies yield results which minimize the role of the
real income variable as compared to the results obtained in this study.
In the analysis of the quarterly data in this study, the statistically
not significant coefficients of the real income variable were inter-
preted (in keeping with Fleisher and Kelley) as indicating that real
income is not of critical importance in determining the timing of
immigration. However it is interesting to note that the British
annual data yielded coefficients for the real income variable which
were (in the log linear form using the three-country definition of real
income) statistically significant (using a one-tail test) at the 5 per
cent level, with only 6 or 7 degrees of freedom.[9] Similarly with

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[9]This statement is made with reference to equations (B.13.6) and
(B.13.7).

immigration from the "Common Market" -- a geographic area which under-
went somewhat marked changes in real income during the period under
study -- the real income coefficient was statistically significant
even for the regression equations fitted to the quarterly data.[10]
All this seems to indicate that the statistical non-significance of
the real income variable cannot be readily accepted.   In terms of
this study it would appear that where real income changes are relatively
small, the real income variable cannot indeed be expected to be
statistically significant especially for short-term (quarterly)
migration and even for annual migration over a short period; but in
most other cases -- even in short-term migration where real income
changes noticeably or over the long run where relative real income
changes are slight -- the coefficient of the real income variable
may indeed be statistically significant.

3.   Some Policy Implications

     As already noted earlier in this chapter, the nature of the
proxy policy variable is such that one cannot interpret the (slope)
coefficient of this proxy policy variable as the numerical effect
upon immigration brought about by changes in the films shown and the
lectures given.   Nevertheless, by simply assuming that the proxy
variable is a monotonic increasing -- but not a linear homogeneous --
function of Canadian immigration policy, one can take extreme values

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[10]This can be seen from a number of equations in Tables B.20
and B.21.

of the proxy policy variable as being associated with extremes of inactive (or immigration discouraging) and active (or immigration encouraging) policy. Doing this and looking at British immigration in particular as an example, one can derive partial immigration functions as shown in Table 7.2 and Figure 7.1.

Upon first examination the aggregate effect of immigration policy seems to be relatively small; ceteris paribus a change in the unemployment rate from 2 to 8 per cent, for example, would reduce immigration to about one-sixth from 87 to 14 hundred whereas the extreme policy assumed would alter immigration by only 7.2 hundred. However, if one contrasts the period of either 1954-56 or 1964-65 -- relatively prosperous times when unemployment in Canada was approximately 4 per cent and the value of the proxy policy variable was about 55 -- to the period 1959-62 -- a time of recession when unemployment rates in Canada were close to 7 per cent and the value of the proxy policy variable was usually about 20[11]-- the relative impact of immigration policy is marked; as illustrated in Figure 7.1, the estimated decrease (of 7.2 hundred) in immigration brought about by changes in immigration policy would account for just over one quarter of the total decrease of 28.0 thousand. This countercyclical effect of immigration policy -- of reducing immigration during periods of unemployment and of increasing immigration during periods of increased employment opportunities -- accordingly appears to be of non-negligible

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[11]See Tables A.4 and A.12 of Appendix V. The figures cited are second quarter data since the equation has a 2 quarter lag relationship between the endogenous and exogenous variables.

Table 7.2

ESTIMATED (FOURTH QUARTER) IMMIGRATION OF BRITISH WORKERS
FOR DIFFERENT VALUES OF THE CANADIAN UNEMPLOYMENT RATE
AND THE PROXY POLICY VARIABLE

Rate of Un-employment (per cent)	Number of Immigrant Workers (Hundreds)	
	V = 20 (Inactive Policy)	V = 55 (Active Policy)
2	79.8	87.0
3	47.4	54.6
4	31.2	38.4
5	21.5	28.7
6	15.0	22.2
7	10.4	17.6
8	6.9	14.1

Source: Derived from equation (B.3.3).

Figure 7.1

ESTIMATED (FOURTH QUARTER) IMMIGRATION OF BRITISH WORKERS,
WITH VARIOUS VALUES OF CANADIAN UNEMPLOYMENT RATES AND
INACTIVE AND ACTIVE IMMIGRATION POLICY
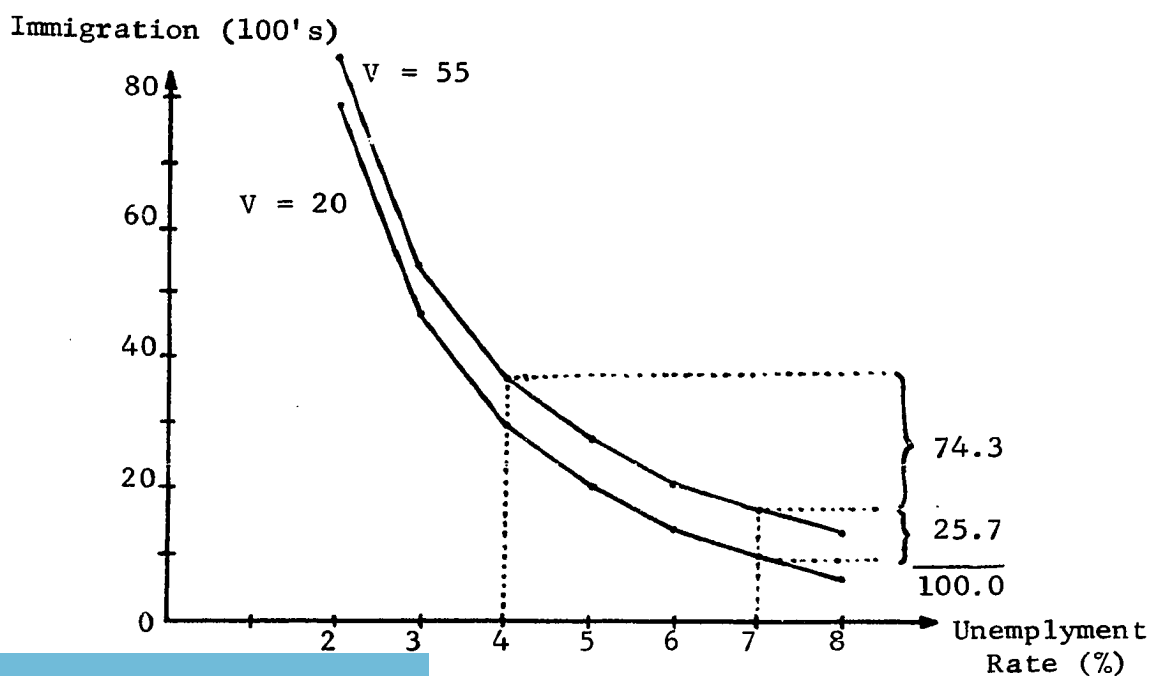
relative importance.

Of course with a labour force of between 5 and 6 million in Canada during this period, an increase in the rate of unemployment by 3 per cent implies that between 150 and 180 thousand more workers were now without jobs. The overall curtailment of British immigration by 11.2 thousand annually -- of which 3 thousand can be attributed to immigration policy -- is indeed quite small when viewed in these terms; as such immigration policy would appear not to be a significant policy instrument in the government's arsenal of weapons to combat unemployment.[12]

This evaluation of the importance of immigration policy undoubtedly tends to understate its significance. Two points must be noted. First, rather than viewing aggregates, a more meaningful comparison might be that of the relative size of the immigration of workers to the domestic increase in the labour force. According to one survey,[13] about 40 per cent of the net increase in the employed (and total) labour force during the period 1956-62 was accounted for by immigration. In terms of this comparison, changes in immigration have a much greater relative importance. Second, as indicated in the analysis of Chapter V, the impact of immigration policy appears

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[12] British immigration is of course only one-third to one-half of total immigration so that the total effect of immigration policy would as a rough estimate be two or three times that noted above. This still remains a relatively small figure.

[13] "Post War Immigrants in the Labour Force, February 1956 to February 1962", Canadian Statistical Review, Vol. XXXVII (November, 1962), p. iii.

also to be selective, regulating the flows of some workers more than others. Accordingly, to the extent that the immigration of those types of workers who have higher unemployment rates in Canada are relatively more curtailed, the impact of immigration policy in meeting the domestic employment requirements is greater than that originally suggested. Indeed since some types of workers are scarce even during times of recession, the immigration of such workers could relieve "bottlenecks" and thereby create employment opportunities for others which otherwise would not have existed.

3. Concluding Observations

The aims of this study, which from the beginning were modest and limited, have been realized. Lest too much be claimed by or attributed to this study, it seems fitting that it be concluded with a very brief note of what has not been attempted and what further research seems desirable.

Canadian immigration legislation has undergone substantial changes in the few years following the period which was analyzed in this study; accordingly a forecasting model estimated from the period which was studied is not obviously appropriate for the present period. Partly for this reason no effort was made to estimate a single immigration equation that could be used for forecasting. Moreover since 1962 the published (and readily available data) of the number of immigrant workers are available in the desired form by country of last permanent residence. Consequently if a forecasting model is desired,

a detailed study of the effects of the new legislation upon immigration
policy would first be required, along with a tabulation of the data
prior to 1962 by country of last permanent residence.

Such a single immigration equation would remain a partial
analysis of an important component of the Canadian labour market.
A more ambitious undertaking would be to construct a model of the
Canadian labour market which would consist of a number of equations;
within this framework international migration would be analyzed
concurrently with domestic changes and movements in the labour force.
Moreover it would encompass the determinants of immigration policy
and the lag structure of the migration equation, both of which were
largely omitted from detailed study in this analysis. The present
study should serve as a beginning to such an intensive and detailed
analysis.

Appendix I

INTERNATIONAL MIGRATION IN ECONOMIC ANALYSIS[1]

In economic analysis the study of international migration has been confined essentially to three fields of specialization: international trade, economic growth and development and the cyclical behavior of economic activity.

Within international trade theory, the migration of labour traditionally has not received much emphasis. A basic assumption underlying both the Ricardian (or Classical) and Heckscher-Ohlin models of trade is that factors of production are perfectly mobile within countries but perfectly immobile between countries; among the various results derived from the received theory is that trade in goods and services is at least to some extent a substitute for factor movements and that, under certain strict assumptions, factor prices will be equalized without any international movements of factors of production having taken place.[2] This assumption of perfect factor immobility -- especially in the case of capital -- has been relaxed and the models of trade have been used to analyze the effects of such factor movements on commodity

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[1] The economic analysis of international migration has been well summarized by Brinley Thomas in his International Migration and Economic Development, pp. 24-47, and his chapter, "International Migration" appearing in Philip M. Hauser and Otis Dudley Duncan, eds., The Study of Population (Chicago: University of Chicago Press, 1959), especially pp. 517 ff.

[2] Most of the good basic texts in international trade theory cover this analysis; see, for example, Charles P. Kindleberger, International Economics, Third Ed. (Homewood, Illinois: Richard D. Irwin, Inc., 1963), Chapter 5 and Appendix B, or Jaroslov Vanek, International Trade: Theory and Economic Policy (Homewood, Illinois: Richard D. Irwin, Inc., 1962), Chapter 12.

trade. The movement of factors of production, which go from loca-
tions of low (marginal) productivity to those of higher productivity,
tends to equalize factor prices, thereby decreasing the international
differences in the costs of goods and thus curtailing commodity trade.
Similarly it has been shown that an increase in trade impediments
stimulates the movement of factors and conversely that an increase
in restrictions on factor movements stimulates commodity trade.[3] More
recently attention has been given explicitly to the international move-
ment of labour, especially when considered as a movement of capital --
termed human capital.[4] Viewed as a form of capital formation or re-
allocation, migration can be treated conceptually as a component of
the balance of payments; moreover the analysis of migration can be
integrated with the study of various international schemes to promote
economic development, such as student exchange programmes and foreign
aid. The capital valuation of such migration, it should be noted,
involves numerous theoretical and empirical problems.[5]

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[3]For a discussion of factor movements and international trade,
see J.E. Meade, Trade and Welfare (London: Oxford University Press,
1955), Part III, and Robert A. Mundell, "International Trade and Factor
Mobility", American Economic Review, XLVII (June 1957), pp. 321-335.
A recent application of this analysis is that by J.H. Dales, "The Cost
of Protectionism with High International Mobility of Factors", Canadian
Journal of Economics and Political Science, XXX (November, 1964),
pp. 512-525.

[4]See, for example, H.G. Grubel and A.D. Scott, "The International
Flow of Human Capital", American Economic Review, Papers and Proceedings,
LVI (May, 1966), pp. 268-274, and their forthcoming publications on the
same subject.

[5]For a comprehensive summary of such problems see, for example,
B.W. Wilkinson, Studies in the Economics of Education, Occasional Paper

By those especially interested in the study of the economic growth and development of a country, international migration is regarded as one of the available -- and perhaps the quickest -- means of altering the size, composition and quality of the population and thereby of the labour force. In this context the study of migration has concentrated basically upon two points: explaining the (economic) causes of these voluntary movements of people and describing and analyzing the economic effects of such population movements on the economy of the receiving country and, less frequently, on the economy of the sending country.[6]

In the economic analysis of the determinants of the direction and volume of migration, the individual is assumed to be motivated by self-interest to improve his (economic) welfare. As already discussed at some length in Chapter II above, this welfare is considered to be a function not only of money wages, but also of various other benefits and costs -- to mention but a few, for example, public goods and services, social security and other transfer payments, direct and indirect taxes, changes in price levels and the existing

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No. 4, Economics and Research Branch, Department of Labour (Ottawa: Queen's Printer, 1965), especially Chapters 1 and 2; M.J. Bowman, "Human Capital: Concepts and Measures", Chapter 6 in S.J. Mushkin, ed., Economics of Higher Education (Washington: United States Government Printing Office, 1962); T.W. Schultz, et al, Investment in Human Beings, Journal of Political Economy, LXX (Supplement, October, 1962).

[6]For an interesting and comprehensive cataloguing of economic factors which affect migration and an excellent general discussion of the economic effects of migration, especially of the major migratory movements in modern times, see the United Nations, Department of Social Affairs, Population Division, The Determinants and Consequences of Population Trends (New York: United Nations, 1953), Chapters VI and XVI respectively.

institutional organizations -- which are integral components of an individual's real income to differing degrees in the home country and in foreign countries. The result of this analysis is that an individual will migrate from the home country if the difference in the discounted future stream of real net income in the home country and in another country is equal to or exceeds the total real costs which would be incurred in migrating. Thus where the social and climatic conditions are similar in two countries, migration will take place from the country with low real wages (or marginal productivity) to the country with higher wages; historically it has frequently been the case that the former country is a densely populated region and the latter country is a sparsely settled area. Capital, similarly in quest of higher returns, often accompanies this flow of migrants and is occasionally considered to be an integral part of the movement of human resources between countries. Undoubtedly the best known historical study of such combined movements of productive factors is that by Brinley Thomas, <u>Migration and Economic Growth: A Study of Great Britain and the Atlantic Community</u>,[7] in which he analyzed the crucial role of the pre-World War I migration of labour and capital in the development of the Atlantic economy.

Theoretical studies of the economic effects, especially of the indirect effects brought about through induced changes in population

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[7]Published by Cambridge University Press in 1954. A summary of this study is given in his "Migration and the Rhythm of Economic Growth, 1830-1913", <u>Manchester School of Economic and Social Studies</u>, XIX (September, 1951), pp. 215-271.

growth and in technology, of such movements of resources -- particularly labour -- on both the sending and receiving countries have been few and brief, largely because the theory of economic growth and development itself has not as yet provided acceptable conceptual tools with which to accomplish more extensive and detailed studies. Furthermore the necessary detailed data are not available with which to study the empirical relationship between migration and various economic varia-bles and as a result the existing empirical studies have been mainly descriptive.[8]

The more recent theoretical analyses of the direct effects of migration have focused essentially on three aspects: the resulting changes in the receiving country's income or total output (the macro or income effects of migration), the consequent changes in the relative prices of the various factors of production (the micro or substitution effects) and the possible pressures on money prices (the monetary effects).[9]

For a perfectly competitive economy satisfying the usual classical

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[8]See, for example, Brinley Thomas, ed., The Economics of International Migration (London: Macmillan, 1958), Parts II and III, the International Labour Office, op. cit., Part C, and J. Isaac, The Effect of European Migration on the Economy of Sending and Receiving Countries (The Hague: Research Group for European Migration Problems, 1953).

[9]For an analysis of the income and substitution effects of migration, see the two articles by J.J. Spengler, "Effects Produced in Receiving Countries by Pre-1939 Immigration", Chapter 2 in B. Thomas, ed., The Economics of International Migration, pp. 17-51, and "The Economic Effects of Migration" in the Milbank Memorial Fund, Selected Studies of Migration Since World War II (New York: Milbank Memorial Fund, 1958), pp. 172-192. A more general analysis of the economic effects of migration is given by M.W. Reder, "The Economic Consequences of Increased Immigration", Review of Economics and Statistics, XLV (August, 1963), pp. 221-230.

assumptions, it can readily be shown with comparative statics analysis that ceteris paribus if the marginal product of labour is positive (as undoubtedly is the case in the Western Hemisphere), then total output will increase in the country receiving immigrants; furthermore if the marginal product exceeds the average product of labour (as has been alleged, for example, to be the case in Canada), then per capita real income will increase as well. Of course this possibility of immigration bringing about an increase in per capita output has long been recognized as being possible by the proponents of the concept of an "optimum population".[10] According to this concept which follows from the marginal productivity theory, there is (for given technology, natural resources and capital) some optimum stock of population (or labour) for which average output is at a maximum; consequently if the population is less than this optimum, then an increase in population (say through immigration) must result in an increased per capita output.[11]

Similarly it may be shown with comparative statics analysis that within such a competitive economy ceteris paribus the marginal product (and relative price) of labour in general will be lowered by

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[10] For a general outline and discussion of the concept, see I. Ferenczi, The Synthetic Optimum of Population (Paris: International Institute of Intellectual Co-operation, 1938), especially Part I, or M. Timlin, Does Canada Need More People? (Toronto: Oxford University Press, 1951), especially Chapters I to V. A very brief but comprehensive review of the concept is given in the United Nations, The Determinants and Consequences of Population Trends, pp.233-235.

[11] Furthermore since migrants -- compared to the population in either the country of emigration or immigration -- almost always consist proportionately more of males of the ages 20 to 40 years, the labour participation ratio increases in the country of immigration and this tends further to increase per capita income.

immigration -- which increases the stock of labour working with given amounts of other resources -- unless offset by economies of scale brought about by the resulting enlargement of the domestic market.[12] It may likewise be shown that the relative prices of those factors of production which are substitutes for immigrant labour will decrease, whereas the relative prices of those productive factors (including some kinds of labour) which are complements to immigrant labour will increase; whether the absolute real prices of such complementary labour will rise or fall depends on the net effect of the (opposite) income and substitution effects. Furthermore these changes in the relative prices of the factors of production will in turn affect the relative prices of final goods and services. Those outputs which are relatively intensive in the use of the now relatively lower priced productive factors will be increased in supply and consequently their relative prices will fall.[13] To the extent that such outputs are "wage goods", their decline in relative price will tend to raise the general level of real wages.[14]

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[12]Bottlenecks in production may also be immediately relieved by immigration. Moreover in the long run immigration may also bring about various dynamic effects. For example, entrepreneurial expectations may rise as a result of the increased demand of the larger domestic population and this might lead to proportionately larger investment and greater technological change than would have otherwise taken place. The analysis of such dynamic effects of immigration have thus far been quite superficial.

[13]Immigrants are also consumers. To the extent that their tastes differ from that of the indigenous population, the competition of demand for goods and services will be altered and this will further affect relative prices. Similarly the composition of demand by the indigenous population will likely also change because of the income effect.

[14]J. Isaac, Economics of Migration (New York: Oxford University Press, 1947), pp. 204-205.

In addition to changes in relative prices, money prices may be
affected as a result of migration; both "demand pull" and "cost push"
forms of inflation have been postulated as being possible within the
economies of the receiving countries. It has been reasoned,[15] for
example, that if a constant capital-labour ratio is to be maintained,
increased domestic investment in both public and private capital will
undoubtedly accompany migration. Consequently aggregate demand will
increase more than aggregate supply and, given that full employment
existed, money prices will rise. On the other hand, to the extent
that migrants work harder, save more and utilize less public capital
and housing than the average indigenous person, the inflationary gap
would be narrowed; moreover an unfavourable balance on current
account in the balance of payments might likely result from the ex-
cess aggregate demand and this could possibly be offset temporarily
by an import of capital. It has further been argued,[16] however, that
even though the government through appropriate policies could prevent
excess demand from developing, there may still be inflationary pressures
associated with immigration. That is, if either the immigrants
adopt the real wage of the indigenous workers or if real wages are
inflexible downward because of union action, the real costs of

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[15] P.H. Karmal, "The Economic Effects of Immigration", Chapter 5
in H.E. Holt et al., Australia and the Migrant (Sydney: Angus and
Robertson, 1953), especially pp. 85-95.

[16] A.P. Lerner, "Immigration, Capital Formation and Inflationary
Pressure", Chapter 3 in B. Thomas, ed., The Economics of International
Migration, pp. 52-62.

production for the firm would increase after immigration occurred because the marginal product of labour in general would have fallen as a result of the now larger labour force and therefore increased labour-capital ratio. As a result fewer workers would be hired and/or commodity prices would be increased -- but only the latter would occur in a country in which the government was committed to maintaining full employment. With higher money prices, money wages would in turn be increased by labour union action in order to maintain the given real wage; thus a "cost push" inflation would result.

Finally it may be noted that although much of the analyses of the effects of migration have been focused upon the economy of the country receiving immigrants, undoubtedly similar results _mutatis mutandis_ may be shown for the economy of the country of emigration, especially for the income and substitution effects.

A relationship between fluctuations in international migration and in economic activity, as noted in Chapter I, was observed many decades ago. Subsequent studies have focused upon three general aspects of such relationships. The earlier studies were concerned with establishing the empirical fact that relationships indeed existed and with analyzing the extent to which the timing and the amplitudes of fluctuations in migration corresponded to those of fluctuations in economic activity in the receiving and (somewhat later) in the sending countries; some of these earlier studies also analyzed the role which migration played in dampening or accentuating the fluctuations in economic activity. The later studies, on the other hand, were more concerned with the extent to which fluctuations in migration are

determined by forces in the receiving countries and by forces in the sending country, these forces commonly being referred to as the "pull" and "push" forces respectively.

The fluctuations -- or cycles[17] -- in international migration which have been of special interest to economists are of three types or lengths. The longest of these -- frequently referred to as long-swing or minor-secular -- are associated with a period of one to two decades; the short-term or business cycle fluctuations are typically of a few years' length, whereas the seasonal fluctuations are a few months in duration.

The long-swing fluctuations in migration have been associated with cycles in various investment activities; the previously cited study by Brinley Thomas of migration in the Atlantic Community, for example, is in terms of 18 to 20 year building cycles in the United Kingdom and the new overseas settlements during the century preceding World War I.[18] His historial analysis pointed out, among other things,

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[17]Business cycle theory has been studied for decades, even though some economists -- who define cycles to be changes of regular time length and periodicity -- do not recognize the existence of such business cycles. Since the term "cycle" (originating in the physical sciences) would indeed seem to include these properties of regular length and periodicity, the convention taken in this study is to speak frequently of economic fluctuations which do not imply precise regularity and thereby allow for some random variations.

For a detailed discussion of business cycle theory, see, for example, J.A. Estey, Business Cycles, Third Ed., (Englewood Cliffs, N.J.: Prentice Hall, Inc., 1956), or M.W. Lee, Macroeconomics: Fluctuations Growth and Stability, Third Ed., (Homewood, Illinois: Richard D. Irwin, Inc. 1963).

[18]For additional comments on this relationship, see P.J. O'Leary and W. Arthur Lewis, "Secular Swings in Production and Trade, 1870-1913", The Manchester School of Economic and Social Studies, XXIII (May, 1955),

that the building cycles in the United Kingdom and in the United States were inversely related from the 1840's to the 1920's and that immigration to the United States was positively correlated with construction activity in America; moreover, with the exception of the decade or two following 1870, transatlantic migration to the United States preceded American construction activity, thus indicating that the "push" factors in Europe were the dominant influence on this flow of migration.[19] The mechanism relating these secular fluctuations in migration and investment was explained in detail and summarized as follows:

> If we look at the process from the point of view of Great Britain we may describe it in terms of seasons of sowing and harvesting. When Britain was investing heavily in America and migrants from Europe were flocking there, the capital equipment of America grew rapidly and she received a surplus of imports financed by the London market; in this sowing season the British export sector was exceptionally busy, while the rate of capital construction at home tended to languish. In the following phase the inflow of capital and labour and the volume of investment in America slowed down, while her exports increased relatively to imports; this was the harvesting season in which British capital went into home construction and foreign lending and exports slackened, while the volume of imports of raw materials

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pp. 113-152, and Brinley Thomas, "Migration and International Investment", Chapter 1 in The Economics of International Migration, pp. 3-11.
    This relationship between migration and building activity, it may be noted, has also been pointed out by S. Kuznets; see, for example, S. Kuznets and E. Rubin, Immigration and the Foreign Born, Occasional Paper 46, (New York: National Bureau of Economic Research, Inc., 1954), pp. 30-33.

[19] Migration and Economic Growth: A Study of Great Britain and the Atlantic Economy, Part III, especially Chapters VI, X and XI.

and foodstuffs expanded. Part of these imports con-
sisted of income on previous loans. When Britain was
sowing, her rate of economic development was low and
that of America was high; when Britain was harvest-
ing, her rate of economic development was high and
that of America was low.[20]

Short-term or cyclical fluctuations and, to a lesser degree,

seasonal fluctuations have received somewhat more attention than have

the long-swing fluctuations in the analysis of migration. The major

conclusions which have been derived by the various published studies --

many of which, it may be noted, analyzed migration flows to the United

States -- are that the short-term fluctuations in immigration tend

both to lag slightly and to be quite closely correlated with fluctua-

tions in economic activity in the country of immigration; seasonal

fluctuations are such that immigration is greatest during the spring

months and smallest during the winter months. Since these short-

term and seasonal fluctuations are of interest in this dissertation,

the previous major studies of these fluctuations are given detailed

and critical attention in the following appendix.

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[20]Ibid., p. 233.

Appendix II

PREVIOUS STUDIES OF SHORT-TERM FLUCTUATIONS IN MIGRATION[1]

J.R. Commons was among the first to give special attention to the study of the relationship between short-term fluctuations in economic activity and in immigration.[2] Comparing immigration to the United States with American per capita imports which he used as an index of economic activity in the country, he pointed out that in America

> A striking fact which first attracts the attention of one who examines the [annual] statistics since 1840 is the close sympathy between immigration and the industrial prosperity and depression of this country. Indeed, so close is the connection that many who comment on the matter have held that immigration during the past century has been strictly an industrial or economic phenomenon, depending on the opportunities in this country, and that the religious and political causes which stimulated earlier immigration no longer hold good.[3]

Thereafter Commons went on to conclude from his analysis that

> ...immigration, instead of increasing the production of wealth by a steady, healthful growth, joins with other causes to stimulate the feverish overproduction, with its inevitable collapse, that has characterized the industry of America more than of any other country.[4]

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[1] Brief résumés of these studies -- especially of those published during the 1920's and thereafter -- are given by Brinley Thomas in his "International Migration", chapter 22 in Hauser and Duncan, The Study of Population, pp. 526-528, and by the United Nations, Department of Social Affairs, Population Division, The Determinants and Consequences of Population Trends, pp. 115-117.

[2] Races and Immigrants in America (New York: Macmillan and Company, 1907), especially pp. 63-69, 107-108, 155-159.

[3] Ibid., p. 63. He also noted, however, that "Probably in the middle of the [nineteenth] century it was not so much the opportunities for employment in this country as it was conditions in Europe that drove people to our shores". (p. 64).

[4] Ibid., p. 159.

According to Commons, profit earners seek to gain greater profits at the expense of wages and that the easiest way for them to accomplish this is through immigration which augments the supply of workers and thereby either depresses wages or prevents them from rising as much as they would otherwise have increased. As a result of these greater profits, production is stimulated. Moreover the observed lag in immigration behind the business cycle further stimulates the profit earners to continue their investment with the use of cheap labour. On the other hand, the low wages prevent all of production from being sold. Consequently "overproduction" -- or "underconsumption" -- results which brings about an economic crisis.

Both the empirical observations and the theoretical analysis of fluctuations made by Commons were accepted by H.P. Fairchild and further elaborated.[5] Having at his disposal published monthly migration data which were previously unavailable, Fairchild was able to point out that during the downturn in economic activity in late 1906, the decrease in immigration occurred with a two month lag whereas emigration from the United States increased almost immediately; following this downturn the curtailment in immigration persisted much longer than the increased volume of emigration.[6] Furthermore, with the aid of the recently made available emigration data, he was able to consider

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[5]"Immigration and Crises", <u>American Economic Review</u>, I (December, 1911), pp. 753-765.

[6]<u>Ibid.</u>, pp. 757-758.

> Another fact...which has been given much prominence
> in recent years, is that a period of depression in
> this country is followed by a large exodus of aliens.
> The popular interpretation of this fact is that this
> emigration movement serves to mitigate the evils of
> the crisis by removing a large part of the surplus
> labourers, until returning prosperity creates a
> demand for them again.[7]

Yet the existing data for the period 1906-10 showed that the total net
emigration during the period of economic recession was small in com-
parison to the number of immigrants who arrived in the preceding
period of economic boom; Fairchild therefore concluded that

> It is thus evident that the importance of an alien pop-
> ulation as an alleviating force at the time of a crisis
> has been vastly exaggerated. The most that can be said
> for it is that it has a very trifling palliative effect.[8]

His theoretical analysis of the link between migration and fluctuations
in economic activity, it may be noted, was essentially similar to that
by Commons, although somewhat more complex.

These two early studies thus set out the close correspondence
between, and the lagged nature of, fluctuations in migration into and
out of the United States and fluctuations in economic activity within
that country. This was done simply by noting the existence of such
relationships among various statistical series. No comparable
attention was given to any such observable relationships between
migration and economic conditions in European countries from which
the immigrants came. Nor was there any statistical analysis em-
ployed to study more rigorously the various relationships and lags
which were noted. Similarly their theoretical analysis of the causal

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[7] Ibid., pp. 753-754.

[8] Ibid., p. 758.

link between migration and fluctuations in economic activity was speculative, with no attempt being made to verify empirically the extent to which the results of their analysis conformed to actual events.

The classic and most comprehensive study of short-term and seasonal fluctuations in migration is that by Harry Jerome.[9] It is, in the tradition of the National Bureau, basically a very detailed empirical analysis which studies the relationships between changes in migration to and from the United States and fluctuations in economic activity in that country primarily during the fifty years prior to 1924 when the first American restrictive immigration law was enacted; little effort is given to providing rigorous theoretical explanations of the causal links which may account for the observed relationships. Unlike the earlier studies, it is more sophisticated in that limited use is made of correlation analysis to determine the lag relationship between a few series and also much greater attention is given to the observable relationship between fluctuations in migration and in the economic conditions in the countries of emigration.

Jerome was primarily interested in analyzing four basic re-lationships: the extent to which cyclical and seasonal fluctuations in United States migration corresponded in time and degree to fluctua-tions in industrial activity in that country as measured by various indices, notably (un)employment, production, imports and prices; the

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[9]_Migration and Business Cycles_ (New York: National Bureau of Economic Research, 1926).

extent to which such fluctuations varied among groups cf migrants classified by sex, prior occupation, ethnic origin and country of last permanent residence; the extent to which fluctuations were primarily determined by changes in the country of emigration or the country of immigration; the economic effects of such fluctuations in migration.[10] He analyzed annual, quarterly and monthly data for various periods of time and frequently employed moving averages.[11]

From his analysis of this wealth of detailed statistical data which he published in his study, Jerome found -- just as others before him had -- that there was a close relationship in short-term fluctuations in American migration and in economic conditions in that country. Periods of prosperity in the United States were accompanied or closely followed by an increase in immigration and a decrease in emigration; during periods of depression immigration quickly fell off markedly and occasionally the number of immigrants arriving during a month fell below the increased number of emigrants leaving the country.[12] He found, for example, that on average during the period 1857-1914 immigration lagged imports and pig iron production by less than a year[13] and that during the period 1890-1914 immigration lagged fluctuations

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[10] Ibid., p. 26.

[11] Ibid., Chapters II and III.

[12] Ibid., Chapters IV to VI inclusive.

[13] Ibid., pp. 85 and 93. The correlation coefficients between annual immigration and yearly pig iron production over the period 1857-1914 were calculated to be +.78 with no lag in immigration, +.48 for a one year lag and -.11 for a two year lag. For monthly data for the period 1890-1914, the correlation coefficient for no lag was found to be +.63 ±.02. Similar correlation coefficients were not calculated for emigration.

in employment by two to four months;[14] however he was careful to
point out that these lags were not constant, but varied among different
cycles and also frequently differed on the downturn and the upturn of
the same cycle.[15] Cyclical fluctuations in emigration, being in-
versely related to fluctuations in immigration, resulted in net
immigration during prosperity and small net emigration during de-
pressions, but over an entire cycle considerable net immigration
occurred.[16] Furthermore seasonal fluctuations were clearly evident;
Jerome found for the years after 1909 and prior to the introduction
of period quotas in 1921 that

> Immigration...has...a marked peak of activity in March,
> April and May. Emigration, on the other hand, is at
> a maximum in the closing months of the year. Conse-
> quently net migration shows a large excess of arrivals
> in the second quarter of the year, a secondary peak in
> the early fall, and a marked decline in November and
> December. In fact, a net outgo of alien males occurs
> in December.[17]

These seasonal fluctuations in male migration coincided differently to
seasonal variations in employment opportunities in those industries
which were the primary employers of such migrant labourers; accord-
ing to Jerome the correspondence in seasonal fluctuations in male
migration and employment opportunities was "poor for bituminous coal
mining, fair for anthracite coal mining and factory employment, and

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[14]*Ibid.*, p. 93. Correlation coefficients of +.66, +.76, +.72
and +.55 were obtained for assumed lags of zero, 2, 4 and 6 months
respectively. Again, similar coefficients were not calculated for
emigration.

[15]*Ibid.*, pp. 93 and 240-241, for example.

[16]*Ibid.*, pp. 95-122.

[17]*Ibid.*, p. 237; for the detailed analysis, see Chapter IX.

still better for the selected outdoor industries, namely construction and railway maintenance".[18]

Various components of migration displayed different characteristics. Male migration compared to female migration was found to fluctuate relatively more and, not surprisingly, to be more responsive to fluctuations in economic activity. Similarly unskilled migrants responded more noticeably to changes in economic activity than did the skilled, professional and "no occupation" groups.[19]

Largely on the basis of the observed volume and timing of net immigration, Jerome commented briefly upon the effects of migration on changes in domestic employment. According to Jerome,

The number of incoming immigrants is sufficiently large, even in depression periods, to suggest that, even though there may be extensive emigration in the same period, the adjustments of the recent immigration to industry is an ever-present and serious problem...The cumulative volume of net immigration is seldom equal in numbers to the concurrent change in employment when periods as short as three months are considered, but in some instances is contrary in direction -- that is, an increase in unemployment is accompanied by an excess of immigrants over emigrants... ...when cumulated over long periods, as for twelve months... or during the duration of a depression..., it was found that only in the severe depression of 1908, and then for a brief time only, was there an excess of departures, and that in many parts of such periods there was a substantial excess of arriving over departing aliens, with a probable aggravation of the unemployment situation. The burden of such unemployment probably falls in part on the newly arrived immigrants and in part on the resident workers who are replaced by immigrants willing to work for lower wages.[20]

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[18] Ibid.

[19] Ibid., Chapter VII.

[20] Ibid., p. 122. The detailed analysis is given on pp. 109-122.

Considering the influence of economic conditions in the countries of emigration -- particularly the United Kingdom, Germany and Italy -- on the movements of migrants to the United States, Jerome concluded from numerous observed relationships that although fluctuations in migration were not always related to fluctuations in economic activity in either the country of immigration or emigration, nevertheless, "this movement is on the whole dominated by conditions in the United States. The 'pull' is stronger than the 'push'".[21]   Not surprisingly, the cyclical fluctuations in economic activity in the country of emigration in most cases coincided with such fluctuations in the United States; in these cases prosperity in both countries was associated with large migrant flows to the United States whereas depression in both countries was associated with much smaller flows to the United States.   In the few instances in which the fluctuations in economic activity in the two countries did not coincide, the magnitude of immigration to the United States was more closely related to the phase of economic activity in the receiving country.[22]   Furthermore the cycles in emigration from the United Kingdom (and similarly from Germany and Italy) to countries other than the United States were observed to diverge on many

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[21]Ibid., p. 208. The detailed analysis is given in Chapter VIII.

[22]Correlation coefficients were computed in order to indicate this point. For example (p. 182), correlation coefficients with zero, one and two year lags were found to be $+.42^{\pm}.08$, $+.06^{\pm}.10$ and $-.26^{\pm}.08$ respectively between British emigration to the United States and the British industrial composite index as compared to $+.56^{\pm}.07$, $+.37^{\pm}.09$ and $+.03^{\pm}.10$ between British emigration to the United States and the United States' industrial composite index. Similar results were found for Germany (p. 188) and Italy (p. 197).

occasions from the cycles of emigration to the United States; to Jerome this indicated that these emigration flows from the United Kingdom (or Germany or Italy) were not dominated primarily by conditions in the country of emigration as otherwise such emigration flows would have evidenced more similarity, but rather were more influenced by economic conditions in the countries of immigration. Such observations as these led Jerome to conclude that the "pull" forces predominated. Nevertheless he was aware of exceptions and pointed out, for example, that "conditions in Sweden have probably exerted some influence upon fluctuations in emigration to the United States in the period since 1870."[23]

Jerome's major conclusions -- especially that relating to the relative importance of conditions in the countries of emigration and immigration in determining fluctuations in the volume of migration -- were corroborated by various other studies that were published in the following years. D.S. Thomas, analyzing (annual) total British emigration and economic conditions in that country during the period 1862-1913, found a positive correlation ($+.48^{\pm}.11$ with no lag) between them; she likewise found a positive correlation ($+.77^{\pm}.06$ with no lag and $+.59^{\pm}.10$ with a one year lag) for the period 1870-1913 between annual British emigration to the United States and economic conditions in America.[24] These findings led her also to conclude that "conditions

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[23]Ibid., p. 206. He likewise pointed out (p. 197) that "In a few years...immigration [from Italy to the United States] increases with activity in Italy despite an industrial decline in the United States".

[24]Social Aspects of the Business Cycle (New York: Alfred A. Knopf, 1927), Chapter IX, pp. 147-151.

abroad are more important in causing emigration than conditions at home".[25]

In a later study of Swedish population movements,[26] Thomas likewise concluded that

> ...of the two factors, industrial "pull" to America and agricultural "push" from Sweden, the former played an overwhelmingly important role in respect to annual fluctuations from the 'seventies to the end of the emigration era just before the war. The agricultural period was... a latent, permanent factor of great significance, but a relatively unimportant influence upon the variations from one year to the next.[27]

However she found that fluctuations in Swedish industrial activity -- as contrasted to agricultural activity -- did affect fluctuations in emigration from Sweden. Although the net emigration cycles were negatively correlated with Swedish economic conditions (-.59) and positively correlated with American economic conditions (+.63), a systematic study of annual variations in terms of correspondence or non-correspondence of fluctuations in economic activity in Sweden and America indicated that the most consistent increases in emigration occurred when fluctuations in Sweden and America coincided and, more important,

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[25]Ibid., p. 149.

[26]Social and Economic Aspects of Swedish Population Movements, 1750-1933 (New York: Macmillan, 1941), pp. 88-92, 166-169, 318-321.

[27]Ibid., p. 166. The detailed analysis is given on pp. 88-92. She found (pp. 90, 111) the correlation coefficient between the unlagged net emigration from Sweden (which, however, was not quite the same as emigration from Sweden to the United States) and the Swedish harvest index was +.04±.16 as compared to +.67±.09 between the unlagged net Swedish emigration and American business cycles.

> ...the pull from America was quite ineffective in years
> of prosperity (no push) in Sweden; and the push in Sweden
> was similarly ineffective when there was depression (no
> pull) in America.[28]

She consequently concluded that

> ...prosperity in America was highly important as a
> stimulus to emigration from Sweden, but that cyclical
> upswings in Sweden were a far more powerful counter-
> stimulant than is generally recognized. In prosper-
> ous years, Swedish industry was able to compete success-
> fully with the lure to America, and the latent agri-
> cultural push towards emigration became an active
> force only when a Swedish industrial depression
> occurred simultaneously with expanding or prosperous
> business conditions in the new world.[29]

Other studies of emigration from Italy, France and Scandinavia
have likewise concluded that changes in economic conditions in the
country of immigration affect fluctuations in migration relatively
more than do changes in conditions in the country of emigration.[30]

These numerous conclusions which were reached by Jerome and
substantiated by others remain among the main facts that are now known
about the empirical relationships between short-term fluctuations in
migration and in economic activity. Nevertheless the method of analy-
sis cannot be described as having been the most appropriate. The ex-
tensive use of moving averages to remove random (and often seasonal)
variations could affect somewhat the findings about the timing of a

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[28] _Ibid._, p. 169. The analysis is given on pp. 166-169.

[29] _Ibid._

[30] See especially H. Winsemius, _Economische Aspecten der inter-
nationale Migratie_ (Haarlem: Netherlandsch Economisch Instituut, 1939);
H. Bunle, "Migratory Movements Between France and Foreign Lands" in
W.F. Willcox, ed., _International Migration_, Vol. II, pp. 201-238; A.

correspondence between the various statistical series. More important, the relatively simple comparisons based on correlation coefficients which were made among migration flows and economic conditions in the countries of emigration and immigration cannot show the relative strength of the "push" and "pull" factors nor (given a theoretical formulation of the cause and effect relationship) the relative importance of each of the various factors which affects migration; it is only more recently with multiple regression analysis that this has been studied. With the advent of the electronic computer, such regression analysis has been utilized especially within the past few years to study, for example, the migration from Puerto Rico to the United States, from the United Kingdom to Australia and from the United Kingdom to Canada.

Belton M. Fleisher has analyzed the (annual) post-World War II Puerto Rican (net) migration to the United States.[31] The theoretical model which he utilized was particularly applicable to this specific empirical analysis. Because Puerto Rican migration is predominantly to the United States and was unrestricted by regulations, a two-country model which did not consider policy was appropriate; similarly since

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Jensen, "Migration Statistics of Denmark, Norway and Sweden", ibid., pp. 283-312. These and other shorter studies are summarized in the United Nations, Department of Social Affairs, Population Division, The Determinants and Consequences of Populations Trends, pp. 116-117.

[31]"Some Economic Aspects of Puerto Rican Migration to the United States", Review of Economics and Statistics, XLV (August, 1963), pp. 245-253. In another article -- also based upon his unpublished Ph.D. dissertation (Stanford University, 1961) -- "The Impact of Puerto Rican Migration to the United States" in Mark Perlman, Ed., Human Resources in the Urban Economy (Washington, D.C.: Resources for the Future, Inc., 1963), pp. 179-194, he examines some of the economic effects of this migration flow.

the volume of that migration is relatively small compared to the total labour force in the United States -- or even to the labour force in the New York City region where most of these immigrants went -- this particular flow of migrants could be studied with reference only to the determinants of the supply of immigrant Puerto Rican labour, without having to consider the effects of this migration on the American demand for such labour.

Theorizing that labourers migrate whenever they can improve their lifetime earning prospects (net of all costs involved in migrating), Fleisher further postulated that once a worker had decided to migrate, he had further to decide when to migrate. Such timing according to Fleisher is primarily a function of unemployment rates in the sending and receiving countries and on the costs of transportation. This short-run relationship was specified to be a linear one and, using annual data for the period 1947-58, the method of ordinary least squares was used to obtain estimates of the relevant parameters. Both unemployment[32] and transportation were found to

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[32]The unemployment variable was defined as the difference in the unemployment rates (in the country of emigration and of immigration) relative to the rate of unemployment in the country of immigration. This formulation, it may be noted, was first utilized by H. Makower, J. Marshak and H.W. Robinson in their study of internal mobility in England, the results of which were published in their "Studies in Mobility of Labour: A Tentative Statistical Measure", Oxford Economic Papers, No. 1 (October, 1938), pp. 83-123; it was again used in their "Studies in Mobility of Labour: Analysis for Great Britain", Part I and Part II, Oxford Economic Papers, No. 2 (May, 1939), pp. 70-97 and No. 4 (September, 1940), pp. 39-62. The analyses and results of these studies are summarized by H.W. Robinson in his "The Response of Labour to Economic Incentives", Chapter VI in T. Wilson and P.W.S. Andrews, Eds., Oxford Studies in the Price Mechanism (Oxford University Press, 1951), pp. 204-244.

be statistically significant in explaining the annual net migration rate.[33] The relative wage level (represented by the ratio of gross hourly manufacturing earnings in the two countries) was not found to be statistically significant; this supported Fleisher's hypothesis that the timing of migrants' departures is not influenced greatly by short-run variations in wage differentials.[34] Moreover since the unemployment series for the United States alone did almost as well as the difference in unemployment rates did in explaining the annual migration rate, Fleisher suggested that the "pull" forces are likely more important than the "push" factors in determining migration.[35]

Allen C. Kelley, also using annual data, has analyzed short-term fluctuations in Australian (net) immigration during the period 1865-1935.[36] His theoretical analysis is similar to that of Fleisher,

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[33]Among other relationships, he found (ibid., p. 251) the following:

$$M = 221 + 116 \, X_1 - .706 \, X_2 \qquad R^2 = .83$$
$$ (18) \qquad (.192)$$

where M is the rate of net migration and is defined as the net migration (in thousands) from Puerto Rico to the United States divided by the population of Puerto Rico,

X_1 is the unemployment variable and is defined as the unemployment rate in Puerto Rico minus the unemployment rate in the United States all divided by the unemployment rate in the United States,

X_2 is the transportation variable and is defined as the nominal cost of air transportation from San Juan to New York City, divided by nominal per capita personal income in Puerto Rico each year,

and where the bracketed number gives the standard error.

[34]Ibid., p. 245.

[35]Ibid., p. 252.

[36]"International Migration and Economic Growth, Australia: 1865-1935", Journal of Economic History, XXV (September, 1965), pp. 333-354.

with the major exception that Kelley rightfully recognized the need of a three-country model since America during this period was a far more important destination for European migrants than was Australia; unfortunately data were not available whereby he could directly incorporate the third-country into his regression analysis, but instead he was compelled to compare the unexplained residuals with major events in America which might have affected the migration flows.[37]

In his empirical analysis Kelley related his dependent variable, total net migration to Australia, to conditions in the United Kingdom since over 80 per cent of Australian immigrants were of British origin during the period under study.   Unlike in Fleisher's empirical analysis, both lagged and unlagged linear relationships were estimated. Kelley found that the unemployment rate in Australia was a statistically significant variable in his regression equations, but that the unemployment rate in the United Kingdom was not; this supported his hypothesis based on numerous a priori reasons that unemployment as a "pull" was more important than as a "push" force.[38]   Similarly

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[37] See especially ibid., pp. 336, 340-342 and 347-350.

[38] Ibid., pp. 340-341.   Kelley argued that i) fluctuations in home employment may have been anticipated and consequently are not a good indicator of the stimulus to move; ii) for some workers, earnings and employment status are relatively invariant to the domestic economic situation; iii) the arriving immigrant is a marginal worker in the country of immigration and hence the economic conditions abroad are of greater importance to him; iv) the immigrant's ability to sustain a period of unemployment is less in the new country than in his home country and this makes the economic condition in the country of immigration relatively more important to him; v) to the extent that unemployment in the home country eliminates the financial ability of workers to finance migration and that gifts and loans from relatives abroad are directly related to conditions in the country of immigration, migration would be more correlated with unemployment abroad in the country of immigration.

no statistically significant relationship between migration and the growth of real gross national product (in either Australia or the United Kingdom) was found; this supported Kelley's hypothesis that real income differentials tend to determine the direction and volume, and not the timing, of migration.[39] The largest coefficient of determination, it might be noted, was found for the general distributed lag formulation of the regression equation.[40, 41]

The other recently published study of short-term fluctuations is that by G.D. McQuade in which he examined (gross) immigration to Canada from the United Kingdom during the period 1953-64.[42] After

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[39]Ibid., p. 339.

[40]Ibid., pp. 344-345; Kelley found that

$$M_t = -24.32 + \underset{(.08)}{.63} M_{t-1} + \underset{(.08)}{.36} (1/U^a_{t-1}) \qquad R^2 = .77$$

where M is the annual net immigration to Australia,

U^a is the rate of unemployment in Australia,

t denotes the (annual) time period,

and the long-run coefficient of $1/U^a_{t-1}$ is 0.97. This compares to the following single-lag formulation:

$$M_t = 2.66 + \underset{(.09)}{.69} (1/U^a_{t-1}) \qquad r^2 = .51$$

[41]It might also be noted that a general descriptive and non-theoretical analysis of quarterly fluctuations in immigration to Australia and unemployment in Australia and the major countries of origin of these migrants (the United Kingdom, Germany and the Netherlands) during the period 1959-62 is given by R.T. Appleyard in his two articles "The Effect of Unemployment on Immigration to Australia", Economic Record, XXXIX (March, 1963), pp. 65-80, and "The Economics of Recent Emigration to Australia from Germany and the Netherlands", International Migration, X (No. 1, 1963), pp. 29-37.

[42]"Trends in Canadian Immigration", International Migration, XI (No. 3, 1964), pp. 221-234.

having simply stated that some people believe that changes in immigration from the United Kingdom to Canada result from variations in employment opportunities in Canada and the United Kingdom, McQuade proceeded to study the empirical relationships between the number of potential immigrants from the United Kingdom examined by medical officers (rather than the actual number of immigrant arrivals from that country) during the peak period January - March and unemployment during various preceding months.   He found the largest linear (negative) coefficients of determination associated with the variable unemployment in Canada lagged two to seven months; using similar simple linear regression equations, unemployment in the United Kingdom was not found to be significantly correlated.[43]   However, other than computing the above noted regression relationships, nothing more was attempted in this essentially descriptive article.   No theoretical analysis was given to explain either why the particular variables were employed in the empirical analysis or why one should expect (or not expect) the empirical findings which were given, nor was there any other aspect of the possible relationships between short-term fluctuations in economic activity and immigration studied.

These more recently published studies by Fleisher and Kelley thus essentially have supported the major findings made earlier by Jerome and others; furthermore, to the extent that these two studies were centered around theoretical models and have employed regression

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[43]Ibid., pp. 224-226 and 231.   The coefficients of correlation (using Canadian unemployment rates) for these lagged relationships varied between -.74 and -.79, all of them being statistically significant.

analysis, the nature of the relationship between short-term fluctuations in migration and unemployment (and other economic variables) in the countries of origin and destination has further been clarified. Nevertheless additional research should prove to be fruitful.

None of the published empirical studies has yet explicitly incorporated the theoretical concept of a third (immigrant competing) country into the regression analysis. Other variables -- such as government immigration policy and short-run variations in real income[44] -- have not been incorporated into the empirical analysis. Broad groups of immigrant workers -- such as professional, skilled and semi-skilled -- do perhaps respond differently to short-term fluctuations in economic conditions and should be examined again in light of more recently available data.[45] The use of quarterly data may likewise give additional insights into

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[44]As already indicated, Fleisher, op. cit., p. 250, has used the ratio of gross hourly manufacturing earnings and Kelley, op. cit., pp. 346-347, has used the growth rates of real gross national product as real income variables in their analyses. However hours of work also change; real gross national product does not necessarily change to the same extent as per capita real income does. Consequently different specifications of real income changes should be utilized.

[45]This belief that a further understanding of migration can come from the analysis of disaggregated data has also motivated the research by W. Robert Needham; in his study (cited in Footnote 1 of Chapter I), he disaggregates according to regions in the country of emigration.

the problems being analyzed.[46]   Furthermore it may be possible

to pull together most of the earlier empirical findings into a

more general theoretical model.   The purpose of this dissertation

has been to accomplish some of these possibilities and thereby

further augment the corpus of knowledge of the relationships

between short-term fluctuations in economic activity and in

international migration.

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[46]Fleisher, *op. cit.*, p. 249, Footnote 22, indicated that he
had attempted to work with quarterly data but that the insufficiency
of statistics prevented him from deriving publishable results.

Appendix III

CANADIAN POST-WAR IMMIGRATION POLICY

The basic aims of Canadian post-war immigration policy were

enunciated two years after the war by the Right Honourable W.L.

Mackenzie King, Prime Minister at that time.   In a statement to

Parliament which has since been much quoted, he said that

> The policy of the government is to foster the
> growth of the population of Canada by the encouragement
> of immigration.   The government will seek by legisla-
> tion, regulation, and vigorous administration, to ensure
> the careful selection and permanent settlement of such
> numbers of immigrants as can advantageously be absorbed
> in our national economy....
>   The essential thing is that immigrants be selected
> with care, and that their numbers be adjusted to the
> absorptive capacity of the country....
>   The figure that represents our absorptive capacity
> will clearly vary from year to year in response to
> economic conditions....
>   With regard to the selection of immigrants, much
> has been said about discrimination.   I wish to make it
> clear that Canada is perfectly within her rights in
> selecting the persons whom we regard as desirable future
> citizens.   It is not a "fundamental human right" of any
> alien to enter Canada.   It is a privilege.   It is a
> matter of domestic policy.   Immigration is subject to
> the control of the parliament of Canada....
>   There will, I am sure, be general agreement with
> the view that the people of Canada do not wish, as a
> result of mass immigration, to make a fundamental alter-
> ation in the character of our population.   Large-
> scale immigration from the orient would change the
> fundamental composition of the Canadian population.[1]

Although this latter statement was made with explicit reference to

only oriental migration, such mass immigration was intended without

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[1]Canada, House of Commons Debates, 1947, Vol. III, pp. 2644-2646.
(This reference will hereafter be cited simply as Debates).

doubt to include all groups except the English and French speaking

Europeans who have traditionally formed the major ethnic groups in

Canada.   J.W. Pickersgill -- secretary to Mackenzie King in the

immediate post-war years and who has been credited with writing the

above statement on Canadian immigration policy[2]-- has stated in his

capacity as Minister of Citizenship and Immigration that

> We try to select as immigrants those who will have to
> change their ways least in order to adapt themselves to
> Canadian life and to contribute to the development of
> the Canadian nation.   This is why entry into Canada
> is virtually free to citizens of the United Kingdom,
> the United States, and France so long as they have good
> health and good characters.... That is why a deliberate
> preference is shown for immigrants from countries with
> political and social institutions similar to our own.[3]

And again when asked in a special committee " If Italy is considered

a good source of immigrants, why not enlarge our [immigration] faci-

lities?", he replied

> ...there was a long debate downstairs [in the House of
> Commons] about the phrase which Mr. Mackenzie King used
> in his statement of 1947 about not altering the fundamental
> composition of the Canadian population, and there is plenty
> of room I admit for interpretation of the meaning of that
> statement, but I myself am of the opinion that we have a
> certain kind of society here in Canada with certain politi-
> cal and social institutions which we have developed, and
> there are some sources of immigrants from which we get
> people who adapt themselves more quickly and more readily
> to the kind of society which I think we want to preserve,
> than others.   I do not say this in any way as a reflec-
> tion on the Italian immigrants.... I would like to think
> that the people who do come are fitting well into our

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[2]_Debates, 1955_, Vol. II, p. 1196, and G.A. Rawlyk, "Canada's
Immigration Policy, 1945-1962", _Dalhousie Review_, Vol. XLII
(Autumn, 1962), pp. 289-290.

[3]_Debates, 1955_, Vol. II, p. 1254.

economy, as well as into our society, and I do think that
if we went beyond a certain number, if that number became
disproportionate, we should really be facing a problem
within Canada; it would be bound to create a certain
"shift" which I do not think the public would want. We
want those Italians who do come to be Canadians, and to
be welcome and to fit into our society, and only so many
can come from any country and fit in and be welcomed into
our society at any one time.[4]

The previously existing criteria of selecting immigrants to
Canada and the means by which their numbers were to be regulated --
which were embodied in an earlier Act that had become unwieldy because
of accumulated amendments -- were formally embodied in the Immigration
Act that was passed by Parliament in 1952 and made effective as of June
1, 1953[5]; it remained basically unchanged until early in 1962.
Flexibility existed in this Act in that it gave the Cabinet (that
is, the executive branch ⁊ the federal government) considerable
discretionary authority to regulate by means of Orders-in-Council
and departmental directives the composition and volume of immigra-
tion into the country.

This government legislation has not accorded the right to any-
one to enter Canada as an immigrant. Categories of persons speci-
fically prohibited from entering are clearly stated and the con-
ditions under which others may be admitted are defined. All

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[4]Canada, House of Commons, Special Committee on Estimates,
Minutes of Proceedings and Evidence, (Ottawa, Queen's Printer, 1955), p.
288. (Hereafter this reference will be cited simply as Special
Committee on Estimates.)

[5]An amendment in May, 1956 to this Immigration Act specified
which groups of persons from various areas were eligible for admission
into Canada as immigrants.

An excellent summary of the major provisions of the Immigration

immigrants to Canada must be in good health and of good character; explicitly excluded from entering are those with certain physical and mental illnesses, those having been convicted of any crime involving "moral turpitude" and those having been associated with a subversive organization. Besides being in good health and of good character, each individual must obtain an immigrant's visa in order to be actually admitted into Canada as a landed immigrant. To obtain such a visa, an individual is required to meet certain additional conditions, these conditions having varied prior to 1962 according to the geographic location from which the individual came.

Only certain groups were allowed to enter Canada virtually unimpeded by further regulations. British subjects who were born or naturalized in the United Kingdom, Australia, New Zealand or the Union of South Africa, citizens of Ireland, citizens of the United States and the citizens of France who were born in France or in Saint-Pierre and Miquelon Islands were admitted as immigrants if they had sufficient means to maintain themselves until employment was secured. Consequently only for these people could immigration to Canada be described as having been virtually free from governmental regulations.[6]

Act is set out in the Dominion Bureau of Statistics, Canada Year Book, 1957-58, pp. 154-176. A detailed discussion of these provisions and their administration is given by David C. Corbett, Canada's Immigration Policy: a Critique (Toronto: University of Toronto Press, 1957), Chapters 2 and 3.

[6]Of course, as will be explained below, even this migration was not entirely outside the influence of Canadian immigration policy. In the United Kingdom the Canadian immigration authorities actively encouraged immigration through advertising during periods of rapid

Those British subjects and citizens of the United States and France described above, but without sufficient means to maintain themselves until employment was secured -- as well as citizens (by birth or naturalization) of all other non-communist countries of Europe -- were issued visas according to the employment opportunities available to them. They were admissible to Canada as immigrants either for job placement by the Department of Citizenship and Immigration or, with the Department's approval, to establish themselves in employment.[7]

Citizens (by birth or naturalization) of any European country could also come to Canada as immigrants if, in addition to being in good health and of good character, they were the relatives of legal residents in Canada who would sponsor them.[8]

Similar sponsorship provisions existed for the citizens of all other countries, including Asia, except that sponsorship was limited

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economic expansion in Canada and discouraged it by refraining from such advertising at other times. In all countries the Canadian immigration authorities described to all prospective immigrants the existing prospects in Canada for workers in various occupations and gave them appropriate advice accordingly about the wisdom of migrating under such circumstances.

[7]Refugees from European countries were admissible on the same conditions.

[8]This provision was also true for citizens of Egypt, Israel, Lebanon and Turkey and of the countries of North, Central and South America. A Canadian resident could sponsor his wife (or husband in the case of a woman), son, daughter, brother, sister (as well as the husband or wife and the unmarried children under 21 years of age of such a relative); his father, mother, grandparent, unmarried orphan nephew or niece under 21 years of age; his fiance (or fiancee).

to close relatives of Canadian <u>citizens</u> (and not just legal residents).[9, 10]

These numerous conditions which were required of individuals and which varied according to the geographic origin of people have been established so as to favour those immigrants who most closely conformed to the ways of Canadian society. This selection -- or discrimination[11] -- favoured the English and French speaking people of Europe, Australia and the United States who likely had sufficient financial means to look after themselves as immigrants in Canada, as well as those Europeans within skilled and professional occupations which were in demand in Canada. The majority of those from Southern Europe, and mid-East and Asia did not have the necessary skills and

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[9]The relationship was limited to the citizen's husband (or wife), unmarried children under 21 years of age, the father (where he is over 65 years of age) and the mother (where she is over 60 years of age). To become a citizen, an immigrant must have resided in Canada for at least 5 years.
In addition, by agreement with each country a limited number (of 300, 100 and 50 respectively) of citizens from India, Pakistan and Ceylon were admissible to Canada as non-sponsored immigrants provided that they possessed necessary skills and could maintain themselves in Canada until they obtained employment.

[10]As sponsors these Canadian residents and citizens were required to be able to receive and care for such sponsored immigrants. These sponsors retained their responsibility until the immigrants were established in employment which enabled them to maintain themselves. (<u>Debates 1957-58</u>, Vol. IV, p. 4073.)

[11]These criteria are almost always described officially as being selective rather than discriminatory. Yet as one Minister of Immigration has phrased it, "...I must say that I do not understand there is any real difference between the words selection and discrimination". (<u>Debates, 1955</u>, Vol. II, p. 1248.)

training required in the Canadian economy; moreover the number of potential sponsors for these people often was very small since in the past not many had come to Canada from these areas.

The requirements were not the sole ways by which this geographic (and thereby ethnic and racial) discrimination was manifested. Efforts by the immigration authorities to recruit immigrants, both by advertising and by application processing facilities, likewise reflected this preference. Accordingly, as described by the Minister of Citizenship and Immigration,

> ...We put forth much more effort in the United Kingdom than in any other country. As the departmental report shows, we have far more offices there and we are allowed to do active promotion in the United Kingdom. We have the goodwill of the government....
> Now, of course, the situation is that we apply to France the same regime we apply to the United Kingdom. We do what we can to encourage immigration. The French government does not permit any kind of promotional activity and therefore we cannot advertise or do anything of that sort, but they do not prevent emigration...
> Now, the other country in Europe from which there is considerable immigration to Canada is, of course, Italy.... The only difficulty there might be to find people in the categories of persons for whom employment can readily be found in Canada. That is the real problem in the Italian picture.[12]

In addition to determining the (ethnic) composition of migration into Canada, government immigration policy has sought to regulate the magnitude of this immigration. Thus it has been said that

> In practical terms the present regulations mean that the government controls the flow of immigration from year to year and from month to month in accordance with

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[12] Special Committee on Estimates, pp. 21-22. Similarly, see, for example, ibid., p. 25; Debates, 1955, Vol. II, p. 1253; Debates, 1959, Vol. II, p. 1647; and Debates, 1960-61, Vol. II, p. 2135.

estimates of the economic climate while at the same time
favouring immigrants from certain countries.[13]

Such cyclical and seasonal regulating of the numbers of immigrants
has been carried out through a system of pre-examination abroad,
including promotional activities (in those countries where these
are permitted), counselling of applicants, and specifying permiss-
ible times of arrival.

In the United Kingdom, advertising of economic opportunities
in Canada tends to be carried on fairly continuously, with the
activity being much more intensive during periods when economic ex-
pansion is occurring in Canada; even during other times some ad-
vertising is carried out to recruit immigrants for employment in
occupations in which there are labour shortages in Canada, particu-
larly in certain regions.[14] Moreover there seems to have been an

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[13]Debates, 1960-61, Vol. II, p. 1939. This two-fold purpose of
immigration policy has likewise been accepted by the opposition party;
see, for example, Debates, 1955, Vol. II, pp. 1161-1162; and Debates,
1960, Vol. IV, p. 4713.

[14]As an illustration of this one may quote the following
question and answer which occurred in the House of Commons (Debates,
1960, Vol. III, p. 3347):
"[Question] I should like to direct a question to the Minister of
Citizenship and Immigration, based upon government of Canada immi-
gration services advertisements placed in British provincial newspapers.
In view of the unemployment here, and the advertising campaign
of the minister's department in Great Britain for immigrants in a wide
category of occupations, can the minister explain the scope and in-
tention of the recruiting now being carried on in the United Kingdom?
[Answer] Mr. Speaker, the advertisement to which the hon. member refers
is primarily an invitation to persons to attend film showings. In-
cluded in it, I believe, is a list of occupations in which there are
vacancies at the present time. These are openings of which we were
advised by the national employment service. There are always a few
openings at various places in Canada, regardless of the employment

effort made to avoid, if at all possible, any drastic curtailment of recruiting activities since this has tended to cause problems when immigrants were again sought.[15]

Unsponsored applicants for immigration visas to Canada are counselled about the job opportunities in the country; all applicants are either advised of the most opportune times to come to take up such jobs or are informed of the times when they can come.[16]

In consultation with the Department of Labour, the immigration authorities each year assessed the probable labour needs in Canada[17]; this information, revised monthly, was provided to all overseas immigration officials. The original procedure has thus

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situation."
    Similar information has been given at other times as well: see for example, Debates, 1960, Vol. III, pp. 3347-48 and Vol. IV, pp. 4718-19, 4761.

[15]"...there is a very serious time lag in immigration. When [economic] conditions become unfavourable for immigration and there is a discouragement of immigration, it takes quite a long time to get the steam up again."
(Debates, 1959, Vol. II, p. 1471).

"We must...avoid haphazard or arbitrary stimulations or restrictions of that flow [of immigration], in other words the sudden turning on and off of the immigration tap which on occasion has given rise to difficulties in the past."
(Debates, 1960, Vol. IV, p. 4712).

[16]The steps through which an individual must go from the time he applies for immigration until he settles in Canada is well summarized by the Deputy Minister of Immigration in Special Committee on Estimates, pp. 50-52. The procedures followed by the immigration authorities in looking after the needs of the immigrants once they were in Canada is described further in Debates, 1960-61, Vol. II, pp. 1949-50.

[17]Special Committee on Estimates, pp. 23, 165, and Debates, 1960, Vol. IV, p. 4273.

been summarized:

> We obtain information from our field staff early in
> the fall. They are familiar with their particular areas.
> They report the probable opportunities in their respective
> regions. That information is then sent in and centralized
> here [in the Department in Ottawa]. Early in the fall,
> let us say in September, we obtain what we consider is a
> reasonably full estimate of what the requirements will be
> in the coming year; and then we supplement that informa-
> tion with monthly reports as to changes in the economic
> situation in their particular areas. The result is that
> that information is sent overseas and we see that certain
> occupations and certain numbers of workers should be sent
> to the area which has indicated a need of their services.[18]

This occupational counselling guide listing occupations in which

workers were needed and giving a general indication of the likely re-

quirements [19] was replaced by a somewhat more general monthly memo-

randum which was prepared by the national employment service of the

Department of Labour.[20]

Moreover, for immigrants who were not being sponsored, visas

issued until about 1956 were often such that they were not valid after

certain dates in the fall so as to limit the number of immigrants

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[18] Special Committee on Estimates, p. 52.

[19]   "The occupational guide is compiled on a monthly basis
and contains for each locality and each occupational classi-
fication one of three designations, the letter 'G' indicating
good prospects for establishment in a particular occupation in
a particular area; the letter 'L' indicating limited prospects
for establishment of immigrants with a particular occupation in
a particular area, and a blank space indicating little or no
prospects."
(Debates, 1960, Vol. IV, p. 4273).

[20] Debates, 1960-61, Vol. II, p. 1949. The change occurred in
August, 1960, for one reason because this agency had more current
information about the existing labour situation.

arriving during the winter months;[21] during most of the time since then such winter immigration has only been discouraged.[22] Occasionally as in 1957 when an unusually large immigration occurred, visas have been sharply curtailed as of certain dates when conditions seemed to have indicated that problems of employing such immigrants might arise.[23]

In 1962 a significant change occurred in the immigration regulations which set out the requirements for admission.[24] Effective February lst of that year, emphasis was no longer to be placed to a large extent upon the country of origin of the applicant; instead an immigrant's occupational qualifications -- expressed in terms of his education, training and skills and judged in light of the domestic labour needs of Canada -- were to be the criteria for admissibility. Henceforth immigrants in good health and of good character who possessed skills and training required in Canada were admissible, regardless of their race, nationality or citizenship. Those who did not possess such occupational qualifications or who were unable

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[21]See, for example, Special Committee on Estimates, pp. 160, 165-75; Debates, 1952, Vol. IV, p. 4270; and Debates, 1952-53, Vol. I, p. 21.

[22]Debates, 1955, Vol. II, pp. 1161-62; Debates, 1957-58, Vol. III, p. 2400 and Vol. IV, pp. 4055-57; Debates, 1960-61, Vol. II, p. 1939; and Canada Year Book, 1957-58, p. 173. Wives and children of those workers who had immigrated earlier were encouraged to arrive during the winter.

[23]Debates, 1957-58, Vol. I, pp. 99-100, Vol. IV, pp. 4055, 4067-69, 4188-89; Debates, 1958, Vol. IV, pp. 4033-34.

[24]For further details see Department of Citizenship and Immigration, Annual Report for the Fiscal Year Ended March 31, 1963, pp. 14-15 and Anthony Richmond, op. cit., pp. 17-18.

to maintain themselves until they found employment could still be sponsored by relatives legally resident in Canada.

A discernible (relative) increase in the number of immigrant workers with professional and technical occupations has occurred over the past years, but this increase commenced in 1961.[25] It may also be argued a priori that for those ethnic groups being analyzed in this study these new regulations did not represent a marked change in policy; accordingly for purposes of this study the immigration policy for the period being analyzed can be assumed to be essentially the same.[26] For the English and French speaking migrants the regulations remained basically unchanged; for the Italians sponsored immigration continued to predominate since the new regulations did not essentially reduce the barriers to immigration for the unskilled; for the other Europeans quotas did not

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[25]The relevant data are as follows:

Year	Professional and Technical Workers	
	Number	% of Total
1958	7,553	12.0
1959	6,947	13.0
1960	7,436	13.9
1961	6,696	19.2
1962	8,218	22.4
1963	9,640	21.0
1964	11,965	21.3
1965	16,654	22.4

Source: Department of Citizenship and Immigration, Statistics Division, Immigration Statistics (various years). (Data for the earlier post-war years are given in Parai, op. cit., Table A-8.)

[26]Similarly available evidence suggests that no basic changes occurred in policy whenever the political party in government was replaced by the party in opposition; see Debates, 1960. Vol. IV, p. 4713.

exist previously and those in the professional and skilled occupations were qualified for admission then as they now were.[27]

Over the entire period under study, immigration into Canada has been encouraged only marginally by means other than that of promotional activities, counselling and pre-examination procedures which have already been discussed. There was no use made of agreements between governments even though soon after the war, for example, the so-called Netherlands-Canadian Settlement Scheme was agreed upon by the Government of Canada and the Netherlands whereby the migration of agricultural workers from the Netherlands to Canada was to be encouraged.[28] Nor have there been government transportation grants made to immigrants to Canada as has been given by the Australian government to immigrants to that country because it was felt that such grants would essentially serve to provide many with "relatively cheap holidays" in Canada.[29] However the Assisted Passage Loan

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[27] In the empirical analysis, an examination of the residuals gives some verification to this assumption.

[28] For further details, see A.S. Tuinman, "The Netherlands-Canadian Migration", Tijdschrift Voor Economische en Sociale Geografie, 47 (August, 1956), pp. 181-189, and W. Petersen, Planned Migration: The Social Determinants of the Dutch-Canadian Movement (Berkeley and Los Angeles: University of California Press, 1955).

[29] According to the Minister of Citizenship and Immigration,

"There is no doubt that the immediate cash advantage of having your passage paid to Australia -- it is free there and they do not have to pay it back -- does appeal to a certain number of people. Why do we not do that? I think the answer is very simple. The passage to Australia costs a great deal, and so does the return passage. With the buoyant employment we have in this country it is very

Scheme was inaugurated in 1951 by which interest-free loans were made available to immigrants -- initially only to single workers and heads of families entering the labour force and then broadened in December of 1955 to include dependent wives and children of the working head of the family.[30] These loans were to pay for the immigrants' passage to their Canadian destination and were to be repaid within 24 months;[31] in the case of those immigrants having been admitted for placement by the Department of Citizenship and Immigration, employers were authorized to make the necessary deductions for repayment. Grants of five dollars per month per child for a period of one year (that is, until the children were eligible for the regular Family Allowance) were introduced in April of 1956 under the Family Assistance Scheme.

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easy for a person to earn his passage back. I would be very much afraid that if we undertake to pay passages we would find we were providing some relatively cheap holidays for a lot of people."
(Debates, 1956, Vol. VII, p. 7220.)

Such travel grants were used in the 1920's and were judged to be inappropriate for this reason; see, for example, Special Committee on Estimates, pp. 295-303.

[30]Debates, 1956, Vol. VII, 7220-22. This extension of travel loans to families may have initially brought about a slight increase in immigration, but probably more in total immigration than in the immigration of workers. See, for example, Special Committee on Estimates, pp. 286, 295-303; Debates, 1956, Vol. VII, pp. 7154-55, 7220-22; and Debates, 1957-58, Vol. III, p. 3370.

[31]The portion of the cost of transportation within Canada was cancelled for those who went to work on farms for a period of at least a year (ibid., p. 7022). For additional details about the Assisted Passage and the Family Assistance Schemes, see Special Committee on Estimates, pp. 278-286, and Department of Citizenship and Immigration, Annual Reports (for various years).

Mention should also be made of the efforts made by companies and provincial governments to recruit immigrants for employment. In times of labour shortages in Canada, such advertising and recruiting abroad by large employers and employer groups and junior governments were frequently sanctioned by the Department of Citizenship and Immigration.[32]

Throughout the period under study, labour legislation in Canada has not in most instances explicitly discriminated against the foreign worker. Only in some professions and in the civil service has Canadian citizenship (or being a British subject) normally been a requirement.[33]

The above review of the immigration policy and regulations in post-war Canada has been undertaken in order to provide some indications of the effects of these policies and regulations on immigration into the country and thereby to suggest appropriate proxy variables for them which could be used in the empirical analysis. Regulations specifying the admission requirements have essentially determined the

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[32] Debates, 1956, Vol. V, pp. 4974-77, 4992-98 and Vol. VII, pp. 7224-25; Debates, 1958, Vol. I, p. 827; Debates, 1960, Vol. IV, p. 4761.

[33] International Labour Organization, op. cit., p. 222. For a comparison of legislative restrictions on certain professional workers in various countries of immigration, see the International Catholic Migration Commission, Admission of Architects to the Practice of their Profession in Immigration Countries (Geneva: ICMC, 1958), and the other publications of the similar title which discuss dentists, lawyers and medical practitioners.
    Immigrant workers were informed of restrictive laws that might affect them in their anticipated occupations in Canada (Special Committee on Estimates, p. 166).

relative size of immigration from the various source countries;
they have affected the intercept of the migration equation. Numerous
administrative procedures regulate the timing -- or the changes in
magnitude over time -- of the immigration; this aspect of policy
is a variable in the single equation model and thereby determines
the associated parameter in this equation. The task has been to
specify an appropriate proxy variable for this aspect of policy.

In the case of British immigration, essentially no sponsor-
ship has occurred. Changes in promotional activities, counselling
and the time taken to process applications are basically the means
by which immigration regulations and policies have functioned to
regulate the number of immigrants. Neither the monthly occupational
guide nor the directives which have been issued to the overseas immi-
gration officials have been made available. However unpublished
statistics of the films shown and lectures given by these immigra-
tion officials in the United Kingdom have been provided by the Depart-
ment of Citizenship and Immigration.[34] This series is taken to be
the proxy variable for policy. It is argued that this series re-
flects the intensity with which immigrants in general are being sought;
when, for example, the number of films shown and lectures given goes
up, this is taken to indicate that immigrants are actively being
sought, applicants are being encouraged through counselling to go

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[34]Department of Citizenship and Immigration, Immigration Branch,
Monthly Operational Report, published for private circulation within
numerous government departments.

to Canada, travel loans are probably being made more readily and that very likely these applicants are being processed with a minimum of delay.   Utilizing this series as a policy variable does <u>not</u> require the assumption that increased advertising abroad is the cause of increased immigration;   this series is, as already noted, a proxy variable and therefore it does not rest on this particular assumption of cause and effect.

Such films and lectures are only infrequently provided in the rest of Europe since the governments in these countries do not permit the active seeking of migrants within their countries through advertising. It is assumed that similar policy changes occur in Europe as in the United Kingdom;   that is, when immigration from Britain is being encouraged by immigration officials, it is also likely that applicants throughout Europe are encouraged to come to Canada, travel loans are made available more readily and the application processing procedure is speeded up.   Accordingly the available series for the United Kingdom can be taken to be a proxy variable for policy changes in Britain as well as in Europe in general.

The availability of sponsors is also of importance in determining the flow of immigrants to Canada from some of these European countries.[35]

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[35]In 1962, for example, the following numbers (and proportions) of immigrants were sponsored:

Country of Last Permanent Residence	Total Immigrant Workers	Sponsored Workers	Sponsored as % of Total
Great Britain	8,524	411	4.8
Italy	6,396	5,780	90.4
France	1,438	159	11.1

But no data exist on the existing number of such sponsors. If it is assumed that most immigrants already arrived in Canada wish to sponsor their relatives as soon as they are able to do so, an approximation of the number of such sponsors could be made by defining the available sponsors to be equal to the number of immigrant workers who had arrived in the previous (say) three years.[36] This variable -- which also is to be regarded as a proxy variable for the actual number of available sponsors -- is another facet of immigration policy in the migration equation for Italy and the "Common Market".

Both these proxy variables, of course, are for general

Germany	3,261	528	16.2
Netherlands	876	212	24.2
United States	4,228	287	6.8
All countries	36,744	12,310	33.5

Source: Department of Citizenship and Immigration, Economic and Social Research Division, Report GI-8, The Skill Content of the 1962 Immigration, Tables 2 and 3, pp. 29, 38-42.

[36]Such an approximation has numerous shortcomings. Since no Canadian emigration data exist, this sum will overstate the actual number within Canada. On the other hand some of the wives (and others who may not be in the labour force) can also sponsor relatives; on this account the sum tends to understate the actual number. There is no way of estimating the direction or magnitude of the bias; but since there is no a priori reason to think that this bias changes over time in any significant way, it may be argued that the approximation is a good proxy for the actual number. Similarly the three years over which the sum is taken is simply an assumed period; no study has yet been published which presents any of the characteristics of the sponsors, although it has been estimated that the heads of families bring out their families in about six months time (Special Committee on Estimates, p. 286). Hence, varying the assumed time period would alter both the absolute magnitude of and the pattern of changes in this sum; accordingly the three year sum can be regarded as a tentative proxy variable.

immigration policy; they are actually too broad to indicate the immigration policy with respect to workers in specific occupations or occupational groups. Accordingly the results for the occupation groups which are given in Chapter V must be interpreted with care.

Appendix IV

DATA: SOURCES, PROBLEMS AND DEFINITIONS

In this study, as is undoubtedly the case in almost all
empirical studies, numerous difficulties were encountered with the
data.   The necessary statistics could not always be found and
often those that were obtained were not quite what were needed.
These difficulties are pointed out in this appendix and, in addi-
tion, the regression variables are empirically defined and the pro-
cedures used in correcting and adjusting the available data are
described.   Migration, unemployment and income data are each
discussed in general terms in the following three sections;   the
detailed constructions and sources of the variables used in the
analysis are given in the footnotes to the statistical tables in
the following appendix.

1.   Migration Data

Annual and quarterly Canadian immigration data are published
in a number of sources;   these statistics are derived from the infor-
mation collected by the Department of Citizenship and Immigration
(and now the Department of Manpower and Immigration) from the forms
filed by all immigrants admitted into Canada.

The published annual data are especially detailed.[1]

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[1] These are published (since 1950) in the Department of Citizen-
ship and Immigration, Immigration Statistics (annual) which for the
years 1950-55 was entitled Immigration Facts and Figures;   Annual

Tabulations cross-classifying immigrants by <u>intended</u> occupations and <u>ethnic</u> origin are available for the years 1946-1961; thereafter the classification is by country of last permanent residence. These tabulations provide the basic immigration data for this analysis.

The available immigration statistics have numerous short-comings. Intended occupation can conceivably differ from the occupation which the individual actually held (or for which he was qualified) in his home country as well as from the occupation which this immigrant worker will take up in Canada; in Chapter V (in which migration is related to the employment opportunities in the sending and receiving countries) it is assumed that the intended occupation is the one which was held in the home country and will also be taken up in the country of immigration.[2] The country of last permanent residence -- rather than ethnic origin -- is requir-ed in this study since data on economic conditions in the country of origin are utilized in the analytical model; nevertheless ethnic origin has been used as only those statistics are available (except

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<i>Report of the Department of Citizenship and Immigration</i>; and the Dominion Bureau of Statistics, <u>Canada Year Book</u> (annual). Three special tabulations published in 1956 by the Statistics Division of the Department of Citizenship and Immigration cross-classify intended occupation, ethnic origin and province of intended destination; the title of the one which is relevant to this study is <u>Immigration to Canada by Ethnic Origin from Overseas and Total from the United States by Intended Occupation</u> which gives data for the calendar years 1946-1955 inclusive.

[2] With the exception of some professional and skilled occupa-tions in which some time is required to obtain the necessary formal recognition of qualifications, this assumption is probably valid for the broad occupation groups being considered; for more details about this and other aspects of Canadian migration data, see my <u>Immigration and Emigration of Professional and Skilled Manpower During the Post-War Period</u>, pp. 95ff.

for the United States) for the period under study.[3]   The discrepancy
in the occupational data cross-classified by ethnic origin and country
of last permanent residence varies both by the ethnic group and the
occupations.[4]   To minimize such discrepancies, the French, German,
Belgian and Dutch immigrants have been grouped together and analyzed
as the "Common Market countries"; the remaining discrepancies are
considered as errors of measurement.

The major individual occupations into which immigrant workers
have been classified are defined basically in terms of the kind of
work performed, rather than of education and training required or of
industries.[5]   But many of the questions of interest to economists are
often in terms of the education and training embodied in workers; more-
over unemployment and income data are frequently available only for
occupations grouped by industries.   Accordingly the broader groups
of occupations analyzed in Chapter V have been defined in terms of
skills and then again by the kind of work performed.[6]

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[3]For the years 1963-65, special quarterly tabulations have been
provided, without charge, by the Department of Citizenship and Immigra-
tion. A similar tabulation -- but by country of last permanent residence --
for the earlier years was not possible because the data have not been
stored in a manner which would make this tabulation possible at a
reasonable cost.

[4]Parai, op. cit., pp. 124-125, and Table A.9 in the following
Appendix.

[5]Dominion Bureau of Statistics, Occupational Classification
Manual, Census of Canada, 1961 (Ottawa: Queen's Printer, 1961).

[6]The difficulties and method of doing the former are discussed
in Parai, op. cit., pp. 102-107. The occupations included within
these broader groups are listed with Table A.3 in Appendix V.

The quarterly data are not published in the same detail as are the annual;[7] in particular, occupation groups cross-classifed by ethnic groups are not published. The necessary data for this analysis has been obtained from the work sheets of the Department of Citizenship; these detailed statistics have not previously been available for analysis.

Emigration from Canada is not recorded by Canadian authorities and consequently no Canadian emigration statistics are available. Immigration from Canada to the United States and to the United Kingdom are published by these two countries and thereby provide an incomplete estimate of the emigration from Canada.[8] Census data can provide estimates of emigration, but these are often of questionable reliability.[9] Accordingly gross immigration -- rather than net

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[7] Quarterly data since 1954 are published in the Department of Citizenship and Immigration, Quarterly Immigration Bulletin. A summary of the basic data is given in the Dominion Bureau of Statistics, Canadian Statistical Review (monthly), Table 1.

[8] The American data of immigration from Canada are published in the United States Department of Justice, Immigration and Naturalization Service, Annual Report (various years) in aggregate annual numbers; detailed semi-annual tabulations by occupations for Canadian-born immigrants to the United States are prepared by the Immigration and Naturalization Service for the Canadian Dominion Bureau of Statistics.

The annual immigration to Britain from Canada by boat is published in the Commonwealth Relations Office, (Annual) Report of the Oversea Migration Board and reprinted in the United Kingdom Central Statistical Office, Annual Abstract of Statistics (various years).

Canadian-born and previous immigrants to Canada who have emigrated from Canada and then later returned are not recorded again as immigrants to Canada unless they had in the meantime become citizens of foreign countries.

[9] See, for example, the short discussion in L. Parai, op. cit., pp. 126-129 and the sources cited therein.

migration -- is the dependent variable being analyzed in this empirical study.

These gross immigration statistics can be expressed in terms of rates which thereby take into account changes in the populations in the sending and receiving countries. Annual estimates of the labour force have been interpolated to give the quarterly estimates; given the paucity of (comparable) occupational wage data, the same procedure was not attempted for the occupation groups analyzed in Chapter V.

The proxy variables for immigration policy have been obtained from the statistics provided by the Department of Citizenship and Immigration. The films shown and lectures given are unpublished data which have been made available by the Department;[10] the proxy variable for the available sponsors has been derived from the immigration data described above.

2.   Unemployment Data

Three major sources were used in obtaining this data: statistical bulletins of the individual countries and, where these were not available, the United Nations Monthly Bulletin and the International Labour Office Year Book of Labour Statistics.

Unemployment data are not comparable for all countries. Some countries, such as Canada and the United States, obtain estimates of

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[10]Department of Citizenship and Immigration, Immigration Branch, Monthly Operational Report.

unemployment from regular labour force surveys;   other countries

such as the United Kingdom and Germany derive their estimates from

the registered unemployment figures.   Italy has utilized both methods

for different periods and therefore the series which is used in this

study has been constructed by splicing together the two overlapping

series that have been published.

Although these unemployment rates are not strictly comparable,

it is assumed in this study that each series accurately reflects the

changes in unemployment which have occurred over the period being

studied;   the differences among these series are considered to affect

only the intercept in the regression equations.

Published unemployment data for occupation groups are not

available for any country for the entire period under study.   The

available statistics for Canada (considered in Chapter V) suggest

that such occupational unemployment rates are very closely correlated

and differ from one another essentially in magnitude.   Accordingly

the aggregate unemployment rate is used for the occupational rates;

thus in the arithmetic linear specification, only the intercept of

the regression equation is assumed to be altered.

3.   Income Data

The income variable used in the analysis of the flow of all

workers from a particular country is the (average) real wages and

supplements per employed worker.   The wages and supplements obtained

from the national accounts are deflated by the country's published

consumer price index (adjusted so that 1959 = 100) and divided by
the estimated employed labour force and expressed in United States
dollars.   These statistics are obtained from the statistical bulletins
of the individual countries or when available from the OCED, Main
Econcmic Indicators, Historical Statistics, 1955-1964.

Such estimates of real income have many shortcomings.   They
are broad averages which do not take into account the effects of
government taxes and services.   The price indices are based on
different weights (or "baskets of goods") and thereby the ratios of
incomes in two countries do not accurately reflect the real income
differential between them.   Nevertheless, given the available
statistical data -- and even more important an immigrant's know-
ledge of real income in the countries of emigration and immigration --
these are probably the best available estimates.

When similar estimates of real incomes for broad occupation
groups are required in Chapter V, the statistical publications of the
individual countries have not provided strictly comparable data.
Therefore the occupational regression analyses do not include the real
income variable.

4.   Seasonally Unadjusted Data

Not all of the required statistics are available in seasonally
adjusted form; the immigration and policy proxy variables, for example,
are seasonally unadjusted data.   The question therefore arises whether
the data should first be seasonally adjusted or used directly (along

with seasonal dummy variables) in the estimated regression equations. The latter has been done in this analysis.

The use of deseasonalized data is essentially the method employed in the classical time series analysis in which each time series is assumed to consist of four independent components -- trend, seasonal, cyclical and random -- which can be eliminated one by one; in this approach the seasonal variation is extracted from the basic time series in advance of econometric estimations and then the estimates of the structural parameters are made from seasonally adjusted data.[11] It is an accepted approach which is still in use.[12] The major advantage of this method is that the seasonal variation, possibly of a quite complicated nature, has supposedly been eliminated and hence attention can be focused wholly on the structural parameters.

Yet as Lawrence Klein has pointed out,

> There is, however, always a doubt in the statistician's mind after he has corrected or adjusted a series for seasonal variation whether he has, in a quantitative sense, taken out too much or too little on this account. Moreover, the problem of seasonal adjustment techniques being non-parametric in character, it is doubtful how many degrees of freedom have been used up in this process.[13]

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[11] Lawrence R. Klein, A Textbook of Econometrics (New York: Row, Peterson and Company, 1956), pp. 315-316.

[12] See, for example, J.S. Duesenberry, G. Fromm, L.R. Klein and E. Kuh, Eds., The Brookings Quarterly Econometric Model of the United States (Chicago: Rand McNally and Company, 1965).

[13] L.R. Klein, R.J. Ball, A. Hazlewood and P. Vandome, An Econometric Model of the United Kingdom (Oxford: Basil Blackwell, 1961), p. 40.

Malinvaud similarly holds these views and adds that

> Once we have started, we cannot very well see where to
> stop applying corrections to the series. And the more
> we change the basic data, the more cautiously must we
> regard the estimated relationship, and in any case the
> more difficult does its interpretation become. If
> the initial model does not provide a sufficient ex-
> planation of the phenomenon under study, we must
> rather try to improve it by explicit introduction of
> the factors which it does not take into account...[14]

Accordingly seasonal fluctuations are explicitly taken into account
in the migration model by means of seasonal dummy variables.

This approach, of course, has its shortcomings as well. The
use of such dummy variables in the arithmetic linear specification
implicitly assumes that the seasonal variation is unchanging over
time and that it is additive in nature -- that is, that the seasonal
component for a particular quarter can be represented by a given
change in the intercept of the estimated regression equation; in
the log linear specification it is assumed that the seasonal varia-
tion is the same multiple over time during each particular quarter.
Should either or both of these implicit assumptions not be true for
a given specification of the regression equation, appropriate modi-
fications could be introduced which might, however, become quite
complex.[15] There is no particular reason to expect complications
in this analysis and accordingly seasonally unadjusted data together
with seasonal dummy variables have been employed in the regression

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[14]E. Malinvaud, Statistical Methods of Econometrics (Chicago:
Rand McNally and Company, 1966), p. 403.

[15]Ibid., p. 404 and Klein, A Textbook of Econometrics,
pp. 316-317.

analysis.

   Similarly the data have not been adjusted to take into account
the effects of any non-economic variable which, although not explicitly
included in the migration models, undoubtedly changed noticeably during
the period under study and brought about significant changes in mi-
gration.   The fear of war during and following the Suez Crisis un-
questionably is the major -- and probably the only -- one of the
non-economic variables which should be recognized.   This could have
been done by means of a dummy variable which would have been equal
to one for the six quarters from 1956-III to 1957-IV inclusive and
equal to zero otherwise;   however such a formulation would have
implicitly assumed that the response to this non-economic variable
was constant over the relevant period.   Even a cursory glance at
the data indicates otherwise.   Accordingly the dummy variable was
not set equal to one for each of the six quarters, but instead it
was made to increase to a maximum of one and thereafter to diminish.

Appendix V

DETAILED STATISTICAL TABLES[1]

Table A.1 Total Annual Immigration to Canada, by Selected Ethnic Origins and Countries of Last Permanent Residence, 1953-1965.

Table A.2 Immigration of Workers into Canada, by Selected Ethnic Origins and from the United States, by Quarters, 1953-1965.

Table A.3 Immigration of British Workers into Canada, by Selected Occupation Groups, by Quarters, 1953-1965.

Table A.4 Rates of Unemployment Among All Civilian Workers for Selected Countries, by Quarters, 1952-1965.

Table A.5 Estimated Employed Civilian Labour Force for Selected Countries, by Quarters, 1952-1965.

Table A.6 Estimated Population Aged 15-64 Years for Selected Countries, by Quarters, 1953-1965.

Table A.7 Population Indices for Converting Data of (Gross) Immigration of Workers into (Gross) Immigration Rates, by Quarters, 1953-1965.

Table A.8 Wages and Supplements (as given in National Accounts) for Selected Countries, by Quarters, 1952-1965.

Table A.9 Price Indices for Selected Countries, by Quarters, 1952-1965.

Table A.10 Exchange Rates for Selected Countries at the End of Quarters, 1952-1965.

Table A.11 Estimated Real Wages and Supplements (Expressed in US Dollars) per Employed in the Labour Force, by Quarters, 1952-1965.

Table A.12 Proxy Variables for Canadian Immigration Policy, by Quarters, 1953-1965.

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[1] The data used in the empirical analysis are given in the tables in this appendix. Notes following each table set out the construction and sources of each statistical series.

Table A.1

TOTAL ANNUAL IMMIGRATION TO CANADA, BY SELECTED ETHNIC ORIGINS AND COUNTRIES OF LAST PERMANT RESIDENCE, 1953-65

Year	British	From Britain	Ratio From Britain/British	Italian	From Italy	Ratio From Italy/Italian	Ethnic "Common Market"	Country "Common Market"	Ratio "CM" Country/"CM" Ethnic
1953	47,077	46,791	0.994	24,293	23,704	0.976	60,054	60,867	1.014
1954	44,593	43,381	0.973	24,595	23,780	0.967	50,326	50,510	1.004
1955	30,150	29,382	0.975	20,247	19,139	0.945	28,224	29,009	1.028
1956	51,319	50,390	0.982	29,806	27,939	0.937	39,646	40,742	1.028
1957	112,828	108,989	0.966	29,443	27,740	0.942	50,131	50,142	1.000
1958	26,622	24,777	0.931	28,564	27,043	0.947	25,583	25,811	1.009
1959	19,361	18,222	0.941	26,822	25,655	0.956	18,746	19,290	1.029
1960	20,853	19,585	0.939	21,308	20,681	0.971	19,308	20,429	1.058
1961	13,295	11,870	0.893	14,630	14,161	0.968	10,589	11,361	1.073
1962	16,635	15,603	0.938	14,181	13,641	0.962	9,424	10,483	1.112
1963	25,256	24,603	0.974	15,887	14,427	0.908	9,786	12,976	1.326
1964	29,928	29,279	0.978	21,091	19,297	0.915	11,018	13,552	1.230
1965	39,523	39,857	1.008	28,893	26,398	0.914	14,099	17,748	1.259

Source: Canada, Department of Citizenship and Immigration, Statistics Division, Immigration Facts and Figures (years 1953 to 1955 inclusive), Immigration to Canada by Ethnic Origin from Overseas and Total from the United States by Intended Occupations, and Immigration Statistics (various years).

Table A.2

IMMIGRATION OF WORKERS INTO CANADA, BY SELECTED ETHNIC ORIGINS[1]
AND FROM THE UNITED STATES, BY QUARTERS, 1953-1965

Quarter		British	"Common Market"	Italian	United States
1953	I	3,795	4,024	831	1,021
	II	10,400	11,666	2,185	934
	III	6,648	10,683	2,911	979
	IV	6,002	6,150	5,638	1,070
1954	I	5,058	3,529	3,364	931
	II	10,981	11,415	3,297	1,004
	III	5,545	9,010	4,640	1,198
	IV	3,942	2,660	2,524	1,038
1955	I	2,623	1,683	2,481	872
	II	7,082	5,919	4,100	1,067
	III	4,530	4,804	1,967	1,256
	IV	3,189	2,355	1,592	989
1956	I	3,259	1,997	2,025	822
	II	10,873	7,401	4,184	930
	III	7,412	5,961	4,245	962
	IV	8,337	6,597	4,157	1,136
1957	I	14,502	4,247	3,610	867
	II	28,392	11,217	6,457	1,005
	III	12,288	7,694	1,977	1,341
	IV	5,329	3,662	1,304	1,117
1958	I	3,000	1,392	2,183	842
	II	6,430	7,357	4,457	1,036
	III	3,620	3,479	3,214	1,268
	IV	2,027	1,416	3,061	1,070
1959	I	1,426	806	2,994	830
	II	5,405	4,965	4,462	1,052
	III	3,309	3,217	2,526	1,283
	IV	1,844	1,192	2,249	1,016
1960	I	1,849	995	1,847	837
	II	6,476	6,038	3,161	1,007
	III	3,095	2,730	1,944	1,441
	IV	1,826	1,254	1,833	1,096
1961	I	1,142	627	1,190	789
	II	3,347	2,998	1,943	978
	III	2,343	1,467	1,652	1,428
	IV	1,415	859	1,394	1,007

Quarter		British	"Common Market"	Italian	United States
1962	I	1,256	702	1,372	761
	II	3,429	2,341	1,729	911
	III	2,949	1,459	1,648	1,446
	IV	1,996	876	1,545	1,027
1963	I	1,873	693	1,244	768
	II	4,534	2,303	2,357	904
	III	3,819	1,577	1,952	1,489
	IV	2,834	980	1,977	1,049
1964	I	2,365	762	1,899	827
	II	5,377	2,411	3,009	1,086
	III	4,930	2,130	2,695	1,727
	IV	3,384	1,201	2,400	1,252
1965	I	2,888	1,101	2,530	1,007
	II	6,454	3,119	4,035	1,317
	III	6,723	2,481	3,876	2,310
	IV	4,990	1,632	3,213	1,597

[1] Data cross-classifying immigrants by country of last permanent residence and occupation are not available except for the period beginning in 1962; accordingly, as suggested by the data in Table A.1, some consistent error of over-stating probably occurs in both the British and Italian statistics.

Source: Canada Department of Manpower and Immigration (formerly the Department of Citizenship and Immigration), Immigration Division, Worksheets.

Table A.3

IMMIGRATION OF BRITISH WORKERS INTO CANADA, BY SELECTED OCCUPATION GROUPS,
BY QUARTERS, 1953-1965

Quarter		Managers	Professional	Skilled	Semi-skilled	Female Unskilled	Male Unskilled	Clerical	Commercial and Financial	Service	Agriculture	Manufacturing
1953	I	95	652	872	1617	149	87	574	280	384	189	1540
	II	224	1705	2582	4372	286	347	1520	700	709	658	3822
	III	127	1464	1321	2875	160	225	1114	472	461	272	2033
	IV	97	1080	1114	2917	257	206	1049	440	677	152	1811
1954	I	157	860	1160	2235	112	198	782	309	437	225	1746
	II	181	1645	2665	4958	266	456	1829	595	867	541	3973
	III	91	1637	844	2394	133	181	1060	317	494	183	1303
	IV	87	920	558	1952	170	102	824	303	529	98	875
1955	I	67	700	437	1103	68	98	415	163	324	109	597
	II	114	1209	1313	3428	194	323	1472	503	631	377	1993
	III	50	1396	497	2021	140	162	985	295	417	179	816
	IV	50	803	349	1592	172	84	786	242	447	95	532
1956	I	34	734	547	1538	104	136	660	223	317	127	837
	II	86	1559	2262	5545	233	515	2353	805	797	479	3562
	III	60	1772	1087	3487	161	282	1567	517	554	201	1797
	IV	81	1458	1505	4255	255	298	1781	687	790	210	2412
1957	I	85	2124	3678	6984	207	715	2647	1094	913	420	5536
	II	132	3408	7137	14063	424	1630	5378	2138	1795	1090	10849
	III	107	3197	1985	5691	239	430	2542	782	976	365	3120
	IV	63	1253	627	2777	253	102	1365	424	744	119	961
1958	I	45	704	369	1575	100	67	800	212	392	73	526
	II	75	1177	905	3411	234	175	1777	491	681	312	1365
	III	34	1448	325	1486	136	53	838	169	363	90	487
	IV	33	640	160	940	141	29	519	121	305	45	245
1959	I	26	434	154	626	78	30	328	109	182	53	195
	II	54	1016	863	2786	208	141	1472	418	547	245	1211
	III	33	1286	263	1390	154	58	773	196	336	88	426
	IV	13	564	166	866	112	40	470	109	259	40	266

Quarter		Managers	Professional	Skilled	Semi-skilled	Female Unskilled	Male Unskilled	Clerical	Commercial and Financial	Service	Agriculture	Manufacturing
1960	I	27	539	240	760	85	46	331	150	198	69	349
	II	34	1127	1001	3338	211	241	1709	489	553	321	1495
	III	38	1178	261	1309	92	63	721	191	237	108	428
	IV	27	603	123	870	128	30	464	117	285	29	208
1961	I	15	419	75	500	63	13	291	57	142	44	118
	II	40	802	460	1692	110	78	996	227	326	148	623
	III	20	1132	204	848	62	28	532	107	181	44	258
	IV	27	483	125	672	68	20	402	91	173	17	171
1962	I	35	455	161	515	36	23	314	64	112	24	198
	II	60	856	589	1643	72	71	1005	197	260	121	762
	III	62	1274	332	1157	43	25	702	146	173	38	462
	IV	51	753	241	857	43	14	518	120	140	30	321
1963	I	36	563	381	791	32	19	379	87	127	35	564
	II	69	1012	975	2181	80	74	1157	240	278	117	1437
	III	66	1604	575	1402	61	38	777	178	192	60	810
	IV	57	942	373	1319	50	27	755	174	211	47	548
1964	I	35	791	413	975	46	35	491	112	150	48	644
	II	66	1268	1076	2597	75	135	1354	304	308	116	1666
	III	81	1889	701	2009	60	90	993	276	251	56	1147
	IV	55	1113	449	1562	60	68	854	218	218	47	704
1965	I	48	925	485	1231	51	70	645	178	164	48	720
	II	98	1402	1403	3074	82	197	1551	440	375	114	2000
	III	100	2575	1158	2539	69	136	1324	356	318	94	1604
	IV	110	1427	973	2180	84	77	1162	295	317	73	1324

The available data of Canadian immigration by occupations are classified for the period 1953-II - 1961-IV according to the Dominion Bureau of Statistics, Classification of Occupations Ninth Census of Canada, 1951; this classification, it may be noted, is by type of work performed and not by levels of skill required. Data for the period since 1961 has been converted to the previous basis according to the information given in Appendix I, Department of Labour, Research Programmes on the Training of Skilled Manpower, Occupational Trends in Canada 1931-1961; special computer tabulations were made by the Department of Manpower and Immigration for the period 1963-65 in order to obtain a continuous series for the period being studied.

All of the above occupation groups - except for the skilled, semi-skilled and unskilled - are defined according to the above named classification. These remaining groups consist of the following occupation groups which are shown separately in the available statistics (as, for example, in the Department of Citizenship and Immigration annual Immigration Statistics):

Skilled: airpilots; barbers, hairdressers and manicurists; manufacturing, mechanical and construction workers, except for those occupations listed below in the semi-skilled.

Semi-Skilled: clerical workers; transportation workers (except airpilots); communication workers; commercial and financial workers; service workers (except barbers and domestic servants); butchers; butter and cheese workers; glove makers; leather cutters; machine operators; metal fitters and assemblers; sawyers; farmers; welders and flame cutters; those in the sub group "other manufacturing, mechanical construction" (except printing trades).

Male Unskilled: labourers.

Female Unskilled: domestic servants.

The sum of the first six skill groups listed differs from the whole number of workers by those in agriculture; fishing, trapping and logging; mining; and occupations not stated.

For a discussion of the problems involved in defining these various occupation groups by skill - and a detailed description of the annual migration of professional and skilled workers - see my Immigration and Emigration of Professional and Skilled Manpower During the Post-War Period, especially pp. 102-107. (Note, however, that in contrast to the above study, only the skilled workers in manufacturing - but not in the primary industries - are included in the skilled group in this analysis).

Source: Worksheets and tabulations made available by the Department of Manpower and Immigration.

Table A.4

RATES OF UNEMPLOYMENT AMONG ALL CIVILIAN WORKERS FOR SELECTED COUNTRIES, BY QUARTERS, 1952-1965

Quarter	Canada[1]	Britain[2]	United States[3]	Germany[4]	Italy[5]
1952 I					
II					
III					
IV					
(A)	(2.9)	(1.9)			
1953 I	4.3	1.9	3.2	8.6	11.0
II	2.7	1.5	2.7	6.4	9.8
III	1.9	1.3	2.6	5.5	9.4
IV	3.3	1.4	3.3	8.9	10.0
(A)	(3.0)	(1.5)			
1954 I	6.2	1.6	6.1	8.3	11.0
II	4.6	1.3	5.8	5.8	9.8
III	3.3	1.0	5.5	4.7	9.3
IV	4.2	1.2	4.8	7.2	10.1
(A)	(4.6)	(1.2)			
1955 I	7.4	1.3	5.6	7.9	10.6
II	4.4	1.1	4.5	3.6	9.6
III	2.6	0.9	3.8	2.7	9.2
IV	3.2	1.0	3.8	5.7	9.8
(A)	(4.4)	(1.0)			
1956 I	5.8	1.2	4.7	5.5	11.2
II	3.3	1.1	4.4	2.5	9.8
III	1.9	1.1	3.9	2.2	9.1
IV	2.7	1.3	3.7	5.7	9.6
(A)	(3.4)	(1.1)			
1957 I	6.1	1.8	4.6	3.7	10.0
II	4.0	1.4	4.3	2.3	8.9
III	3.2	1.2	3.9	1.9	8.2
IV	5.3	1.4	4.5	6.3	8.9
(A)	(4.6)	(1.3)			
1958 I	10.1	1.9	7.4	5.7	9.9
II	7.0	2.0	7.4	2.0	8.8
III	4.8	2.0	6.7	1.7	8.3
IV	6.3	2.4	5.7	4.7	9.1
(A)	(7.1)	(1.9)			

Quarter	Canada[1]	Britain[2]	United States[3]	Germany[4]	Italy[5]
1959 I	9.3	2.7	6.8	3.0	9.8
II	5.7	2.2	5.3	1.3	8.6
III	3.8	1.9	4.9	0.9	7.8
IV	5.2	1.9	5.1	2.2	8.5
(A)	(6.0)	(2.0)			
1960 I	9.4	2.0	6.0	1.3	9.2
II	6.7	1.6	5.4	0.7	7.6
III	5.1	1.4	5.2	0.5	7.2
IV	6.8	1.6	5.7	1.3	7.7
(A)	(7.0)	(1.5)			
1961 I	11.0	1.7	7.8	0.8	8.2
II	7.4	1.3	7.1	0.5	6.9
III	4.9	1.3	6.3	0.5	6.6
IV	5.5	1.7	5.6	1.1	7.1
(A)	(7.2)	(1.4)			
1962 I	8.7	1.9	6.5	0.9	7.0
II	5.6	1.8	5.6	0.4	5.7
III	4.2	2.0	5.2	0.4	5.0
IV	5.3	2.4	5.1	1.0	5.5
(A)	(5.9)	(1.9)			
1963 I	8.4	3.5	6.6	1.0	7.1
II	5.6	2.4	5.9	0.5	5.2
III	3.9	2.1	5.2	0.4	5.0
IV	4.5	2.0	5.1	1.1	5.2
(A)	(5.5)	(2.3)			
1964 I	6.9	2.0	6.2	1.0	6.7
II	4.7	1.6	5.4	0.5	5.6
III	3.4	1.5	4.8	0.4	5.5
IV	3.8	1.5	4.5	0.9	5.9
(A)	(4.7)	(1.5)			
1965 I	5.8	1.6	5.4	0.9	7.4
II	4.2	1.3	4.9	0.4	6.6
III	2.9	1.3	4.2	0.4	6.7
IV	3.0	1.4	3.8	0.8	6.6
(A)	(3.9)	(1.3)			

[1] Quarterly rates are averages for the months of each quarter; unemployment rates are obtained from estimates of the numbers unemployed and total labour force based on monthly labour force surveys. Source: Canadian Dominion Bureau of Statistics Historical Monthly Statistics (catalogue number 11-503) and The Labour Force (catalogue number 71-001).

[2]Quarterly rates are averages for the months of each quarter; unemployment rate is defined as the number registered as unemployed expressed as a percentage of the estimated total number of employers.
Source: Great Britain Central Statistical Office, Monthly Digest of Statistics.

[3]Quarterly rates are averages for the months of each quarter; unemployment rates are obtained from estimates of the numbers unemployed and total labour force based on monthly labour force surveys.
Source: United States Department of Commerce, Office of Business Economics, Business Statistics 1965 and Survey of Current Business.

[4]Unemployment rate is defined as the number of registered unemployed at the end of each quarter expressed as a percent of the estimated total labour force.
Source: International Labour Office, International Labour Review Statistical Supplement and the United Nations Monthly Bulletin of Statistics.

[5]For the period 1953-1962(II) unemployment rates were defined as the number of registered unemployed expressed as a percent of the estimated total labour force; quarterly rates are the averages of the monthly rates of the quarter. Thereafter, unemployment rates were estimated quarterly on the basis of the labour force survey; the earlier series were continued for the entire period by taking the differences in the new series to be the same as that in the old series.
Source: As given in 4 above.

Table A.5

ESTIMATED EMPLOYED CIVILIAN LABOUR FORCE FOR
SELECTED COUNTRIES, BY QUARTERS, 1952-1965
(Thousands)

Quarter		Canada[1]	Britain[2]	United States[3]	Germany[4]
1952	I	4967	22184	59487	
	II	5222	22159	61015	
	III	5333	22173	61958	
	IV	5192	22126	61676	
1953	I	5023	22047	61037	18430
	II	5240	22201	61466	19025
	III	5448	22316	63033	19260
	IV	5229	22388	61571	18810
1954	I	5006	22328	59582	18975
	II	5215	22554	60857	19715
	III	5455	22617	61822	20045
	IV	5296	22761	61291	19730
1955	I	5031	22762	59957	19655
	II	5337	22910	62539	20720
	III	5618	23045	64769	21020
	IV	5472	23138	64505	20600
1956	I	5266	23006	62604	20745
	II	5553	23095	64924	21605
	III	5832	23120	66179	21825
	IV	5690	23163	65114	21220
1957	I	5437	22992	63210	21680
	II	5730	23197	65315	2213_
	III	5998	23136	66427	22175
	IV	5758	23298	65093	21385
1958	I	5381	23103	62179	21535
	II	5710	23122	63650	22420
	III	5967	23165	65724	22595
	IV	5765	23094	64644	22000
1959	I	5526	23032	63084	22340
	II	5853	23175	66127	22830
	III	6157	23371	67060	23015
	IV	5945	23451	66259	22720

Quarter		Canada[1]	Britain[2]	United States[3]	Germany[4]
1960	I	5646	23415	64268	23320
	II	5950	23607	67315	23555
	III	6236	23845	68246	23655
	IV	6029	23896	66894	23535
1961	I	5672	23798	64874	23685
	II	6047	23953	67073	24015
	III	6341	24056	68015	24175
	IV	6159	24096	67213	24025
1962	I	5873	23942	65721	24100
	II	6245	24075	68185	24435
	III	6521	24225	69331	24500
	IV	6261	24154	68142	24360
1963	I	5966	23758	6 6480	24395
	II	6325	24054	69159	24730
	III	6695	24290	70316	24860
	IV	6512	24342	69277	24685
1964	I	6255	24211	67916	24690
	II	6589	24404	70977	25000
	III	6906	24579	71771	25150
	IV	6685	24616	70764	24955
1965	I	6481	24375	69554	25060
	II	6835	24413	72398	25350
	III	7171	24570	73837	25525
	IV	6960	24803	72927	25305

[1] Quarterly data are the average of monthly estimates derived from sample surveys. Source: Dominion Bureau of Statistics, The Labour Force Quarterly Survey for the Week Ending August 16, 1952 (catalogue number 71-001) for 1952 and Annual Supplement to the Canadian Statistical Review (years 1963 and 1965) (catalogue number 11-206) for the remaining data.

[2] Quarterly data are monthly averages of each quarter. Estimates derived mainly from registrations with the National Insurance Scheme. Source: Great Britain Central Statistical Office, Monthly Digest of Statistics.

[3] Quarterly data are averages of monthly data of each quarter. Estimates based on monthly sample surveys. Source: United States Department of Commerce, Office of Business Economics, Business Statistics, 1965 and The Survey of Current Business.

[4] Data include the Saar and West Berlin from 1960. Quarterly data available for 1953-1963 for registered employees only; quarterly data of employers and self employed estimated from annual data, and data for 1964-65 estimated on the basis of past seasonal trends, and growth in the annual employed labour force. Source: OECD General Statistics and Manpower Statistics (1954-64 and 1956-66).

Table A.6

ESTIMATED[1] POPULATION AGED 15-64 YEARS FOR
SELECTED COUNTRIES, BY QUARTERS, 1953-1965
(Thousands)

Quarter	Canada	Britain	Italy	Germany	U.S.A.
1953 I	9,015	33,717	31,548	34,040	100,515
II	9,066	33,720	31,615	34,105	100,730
III	9,118	33,723	31,693	34,174	100,960
IV	9,169	33,726	31,772	34.246	101,200
1954 I	9,219	33,730	31,850	34,317	101,440
II	9,267	33,734	31,927	34,385	101,670
III	9,313	33,738	32,004	34,446	101,896
IV	9,357	33,743	32,080	34,502	102,011
1955 I	9,401	33,749	32,156	34,563	102,226
II	9,444	33,756	32,229	34,629	102,451
III	9,486	33,761	32,296	34,701	102,679
IV	9,527	33,751	32,358	34,778	103,012
1956 I	9,568	33,736	32,413	34,858	103,250
II	9,612	33,741	32,461	34,940	103,393
III	9,662	33,746	32,503	35,022	103,641
IV	9,730	33,751	32,541	35,105	103,896
1957 I	9,810	33,756	32,578	35,188	104,159
II	9,883	33,762	32,614	35,272	104,434
III	9,951	33,772	32,651	35,359	104,733
IV	10,007	33,787	32,689	35,448	105,063
1958 I	10,056	33,809	32,727	35,537	105,393
II	10,100	33,841	32,766	35,623	105,703
III	10,140	33,876	32,806	35,706	106,003
IV	10,178	33,914	32,848	35,783	106,293
1959 I	10,215	33,955	32,891	35,851	106,573
II	10,256	34,000	32,931	35,901	106,843
III	10,306	34,045	32,967	35,943	107,109
IV	10,365	34,091	33,001	35,977	107,377
1960 I	10,428	34,137	33,033	36,014	107,649
II	10,482	34,184	33,065	36,057	107,926
III	10,529	34,231	33,108	36,110	108,205
IV	10,570	34,278	33,158	36,171	108,489
1961 I	10,611	34,326	33,211	36,236	108,778
II	10,655	34,375	33,267	36,304	109,073
III	10,702	34,435	33,324	36,375	109,473
IV	10,750	34,555	33,382	36,447	110,023

Quarter	Canada	Britain	Italy	Germany	U.S.A.
1962 I	10,798	34,755	33,442	36,518	110,623
II	10,847	34,835	33,504	36,584	111,156
III	10,896	34,902	33,569	36,639	111,627
IV	10,947	34,964	33,635	36,672	112,087
1963 I	11,000	35,022	33,702	36,705	112,542
II	11,054	35,075	33,768	36,750	112,992
III	11,111	35,126	33,834	36,802	113,443
IV	11,171	35,175	33,899	36,857	113,893
1964 I	11,233	35,221	33,964	36,914	114,342
II	11,298	35,265	34,028	36,968	114,789
III	11,364	35,305	34,093	37,020	115,174
IV	11,430	35,335	34,157	37,071	115,524
1965 I	11,496	35,359	34,220	37,121	115,847
II	11,563	35,369	34,281	37,170	116,158
III	11,631	35,379	34,323	37,219	116,483
IV	11,700	35,388	34,357	37,268	116,818

[1] Quarterly data obtained by fitting a curve (by hand) to the annual estimates provided, and adjusting so that the quarterly changes over the year equal the estimated annual change.

Source: Organization for Economic Co-operation and Development, Manpower Statistics for 1950-1962, 1954-1964 and 1956-1966.

Table A.7

POPULATION INDICES[1] FOR CONVERTING DATA OF (GROSS) IMMIGRATION OF WORKERS
INTO (GROSS) IMMIGRATION RATES, BY QUARTERS, 1953-1965

1959=1.000

		Canadian/ Britain		Canadian/ United States		Canadian/ Germany		Canadian/ Italy	
		L_s	L_p	L_s	L_p	L_s	L_p	L_s	L_p
1953	I	0.966	0.872	0.935	0.827	0.933	0.833	0.939	0.842
	II	0.967	0.877	0.938	0.833	0.935	0.840	0.942	0.849
	III	0.968	0.882	0.940	0.840	0.938	0.846	0.945	0.856
	IV	0.969	0.887	0.943	0.847	0.941	0.853	0.948	0.863
	(A)	(0.967)	(0.877)						
1954	I	0.970	0.892	0.945	0.853	0.943	0.859	0.951	0.869
	II	0.972	0.896	0.947	0.860	0.946	0.865	0.954	0.876
	III	0.973	0.901	0.950	0.866	0.948	0.871	0.957	0.882
	IV	0.974	0.905	0.951	0.871	0.950	0.877	0.959	0.889
	(A)	(0.972)	(0.896)						
1955	I	0.975	0.910	0.953	0.877	0.952	0.882	0.962	0.895
	II	0.976	0.914	0.956	0.883	0.955	0.888	0.965	0.901
	III	0.977	0.918	0.958	0.889	0.957	0.894	0.967	0.907
	IV	0.978	0.922	0.961	0.896	0.960	0.900	0.970	0.913
	(A)	(0.976)	(0.914)						
1956	I	0.978	0.926	0.963	0.902	0.962	0.906	0.972	0.918
	II	0.980	0.930	0.965	0.907	0.965	0.912	0.974	0.924
	III	0.981	0.935	0.968	0.914	0.968	0.919	0.976	0.930
	IV	0.982	0.942	0.970	0.923	0.971	0.928	0.979	0.937
	(A)	(0.980)	(0.930)						
1957	I	0.984	0.950	0.973	0.932	0.975	0.938	0.981	0.946
	II	0.986	0.957	0.976	0.942	0.978	0.947	0.984	0.954
	III	0.988	0.964	0.979	0.951	0.981	0.956	0.986	0.962
	IV	0.990	0.970	0.983	0.959	0.985	0.963	0.989	0.969
	(A)	(0.986)	(0.957)						
1958	I	0.991	0.975	0.986	0.967	0.988	0.971	0.991	0.974
	II	0.993	0.980	0.989	0.974	0.991	0.977	0.993	0.980
	III	0.995	0.985	0.992	0.981	0.993	0.983	0.994	0.985
	IV	0.996	0.990	0.995	0.987	0.996	0.989	0.996	0.990
	(A)	(0.993)	(0.980)						
1959	I	0.998	0.995	0.997	0.993	0.998	0.995	0.998	0.995
	II	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
	III	1.002	1.006	1.003	1.007	1.002	1.006	1.002	1.006
	IV	1.005	1.013	1.005	1.016	1.004	1.013	1.004	1.013
	(A)	(1.000)	(1.000)						

	Canadian/Britain		Canadian/United States		Canadian/Germany		Canadian/Italy	
	L_s	L_p	L_s	L_p	L_s	L_p	L_s	L_p
1960 I	1.007	1.021	1.008	1.024	1.006	1.020	1.006	1.020
II	1.009	1.028	1.011	1.032	1.008	1.026	1.008	1.026
III	1.011	1.034	1.014	1.040	1.010	1.033	1.010	1.032
IV	1.013	1.039	1.017	1.046	1.013	1.038	1.013	1.038
(A)	(1.009)	(1.028)						
1961 I	1.015	1.045	1.020	1.053	1.015	1.044	1.015	1.043
II	1.017	1.050	1.022	1.061	1.017	1.051	1.017	1.050
III	1.020	1.057	1.026	1.069	1.020	1.057	1.019	1.056
IV	1.024	1.065	1.031	1.079	1.023	1.064	1.022	1.063
(A)	(1.017)	(1.050)						
1962 I	1.029	1.076	1.037	1.090	1.025	1.071	1.024	1.069
II	1.032	1.084	1.042	1.100	1.028	1.078	1.027	1.076
III	1.035	1.091	1.046	1.110	1.030	1.084	1.030	1.083
IV	1.037	1.098	1.051	1.120	1.032	1.090	1.032	1.090
(A)	(1.032)	(1.084)						
1963 I	1.040	1.105	1.055	1.130	1.034	1.097	1.035	1.098
II	1.042	1.112	1.059	1.140	1.036	1.103	1.038	1.105
III	1.045	1.119	1.064	1.150	1.038	1.111	1.041	1.113
IV	1.047	1.129	1.068	1.161	1.041	1.118	1.044	1.121
(A)	(1.042)	(1.112)						
1964 I	1.050	1.135	1.072	1.172	1.043	1.126	1.047	1.130
II	1.052	1.143	1.077	1.184	1.046	1.134	1.050	1.138
III	1.055	1.151	1.081	1.194	1.048	1.143	1.053	1.147
IV	1.056	1.158	1.084	1.205	1.051	1.151	1.056	1.156
(A)	(1.052)	(1.143)						
1965 I	1.057	1.166	1.087	1.215	1.053	1.159	1.059	1.165
II	1.060	1.173	1.091	1.226	1.056	1.167	1.062	1.174
III	1.062	1.180	1.094	1.236	1.058	1.176	1.064	1.182
IV	1.064	1.187	1.098	1.247	1.061	1.184	1.066	1.190
(A)	(1.060)	(1.173)						

[1] For any quarter (t), the following are defined as:

$$L_s = \frac{\text{Canadian population}_t + \text{Other Country population}_t}{\text{Canadian population}_{1959} + \text{Other Country population}_{1959}}$$

$$L_p = \frac{\text{Canadian population}_t \times \text{Other Country population}_t}{\text{Canadian population}_{1959} \times \text{Other Country population}_{1959}}$$

where population includes the estimated population of working ages 15-64 years.

Source: Table A.6.

Table A.8

WAGES AND SUPPLEMENTS (AS GIVEN IN NATIONAL ACCOUNTS)
FOR SELECTED COUNTRIES, BY QUARTERS, 1952-1965

Quarter		Canada[1]	Britain[2]	United States[3]	Germany[4]
1952	I	2651	2198	180.4	
	II	2737	2135	181.4	
	III	2874	2200	184.7	
	IV	2946	2248	192.7	
	(A)	(11208)	(8781)		
1953	I	2895	2283	196.6	16.1
	II	3016	2264	199.8	16.4
	III	3118	2338	200.0	16.8
	IV	3081	2394	198.5	17.6
	(A)	(12110)	(9279)		
1954	I	2965	2437	196.8	16.8
	II	3076	2424	196.5	18.3
	III	3201	2482	197.2	18.8
	IV	3190	2568	201.6	19.7
	(A)	(12432)	(9911)		
1955	I	3086	2639	206.1	19.3
	II	3261	2657	212.4	20.8
	III	3429	2734	217.5	21.3
	IV	3447	2816	222.6	22.3
	(A)	(13223)	(10846)		
1956	I	3402	2898	226.9	21.7
	II	3679	2912	231.5	23.5
	III	3906	2974	234.6	23.7
	IV	3903	3037	240.5	24.5
	(A)	(14890)	(11821)		
1957	I	3777	3092	244.1	24.0
	II	4003	3060	245.8	26.5
	III	4183	3156	248.3	26.8
	IV	4055	3213	247.1	27.4
	(A)	(16018)	(12521)		
1958	I	3903	3265	244.0	27.2
	II	4146	3187	243.4	28.3
	III	4274	3234	249.1	28.8
	IV	4198	3320	255.5	29.3
	(A)	(16521)	(13006)		

Quarter		Canada[1]	Britain[2]	United States[3]	Germany[4]
1959	I	4121	3354	262.8	29.0
	II	4368	3358	270.2	30.1
	III	4497	3318	270.4	30.6
	IV	4477	3521	273.5	31.3
	(A)	(17463)	(13651)		...
1960	I	4343	3572	282.0	33.2
	II	4565	3631	285.2	34.9
	III	4718	3715	286.0	36.1
	IV	4625	3778	284.2	37.1
	(A)	(18251)	(14696)		
1961	I	4448	3885	284.8	37.0
	II	4730	3979	289.5	39.0
	III	4936	4003	294.7	39.8
	IV	4875	4064	300.7	41.6
	(A)	(18989)	(15921)		
1962	I	4763	4131	306.0	40.8
	II	5060	4159	311.9	43.3
	III	5242	4223	315.1	43.7
	IV	5168	4263	318.5	45.1
	(A)	(20233)	(16776)		
1963	I	5058	4298	323.1	43.2
	II	5358	4374	327.4	46.4
	III	5566	4449	332.3	46.9
	IV	5565	4563	337.9	48.1
	(A)	(21546)	(17684)		
1964	I	5482	4619	343.5	47.4
	II	5809	4731	350.3	50.3
	III	6074	4808	357.3	50.6
	IV	6068	4959	363.5	53.6
	(A)	(23433)	(19117)		
1965	I	6026	4957	369.9	53.6
	II	6431	5090	376.1	56.4
	III	6741	5175	383.6	57.0
	IV	6835	5340	393.5	58.9
	(A)	(26033)	(20562)		

All data, except for the United States, are seasonally unadjusted.

[1] Wages and Supplements in millions of (current) Canadian dollars.
Source: Canadian Dominion Bureau of Statistics, National Accounts Income and Expenditures by Quarters (catalogue number 13-519).

[2] Wages and Supplements in millions of (current) British pounds. Source: Great Britain Central Statistical Office, Monthly Digest of Statistics.

[3] Wages and Supplements in millions of (current) United States dollars; seasonally adjusted quarterly data at annual rates. Source: United States Department of Commerce, Office of Business Economics, The National Income and Product Accounts of the United States, 1929-1965 and Survey of Current Business.

[4] Net Wages, Salaries and Social Security in billions of (current) German marks. Saar and West Berlin included for the period 1960-1965. Source: OECD, Main Economic Indicators Historical Statistics 1955-64 and Main Economic Indicators for the period 1955-65. Earlier data estimated on the basis of annual index numbers given in United Nations, Current Economic Indicators and quarterly GNP figures in Table 4 (pp. 224-25) of K. D. Arndt, "Quarterly National Accounts in Western Germany", Chapter 4 in the "International Association for Research in Income and Wealth," Series XI, Studies in Short-Term National Accounts and Long-Term Economic Growth (London: Bowes and Bowes, 1965).

Table A.9

PRICE INDICES FOR SELECTED COUNTRIES, BY QUARTERS, 1952-1965

1959=100

Quarter		Canada[1]	Britain[2]	United States[3]	Germany[4]	Italy[5]
1952	I	93.0	78.9	91.8	93.6	84.4
	II	91.9	81.0	92.2	91.8	86.1
	III	91.8	81.4	93.1	91.8	87.3
	IV	91.7	82.0	93.1	92.7	88.0
	(A)	(92.1)	(80.8)	(92.6)		
1953	I	91.1	82.6	92.6	91.8	87.6
	II	90.6	83.8	93.0	90.9	88.9
	III	91.5	83.6	93.7	90.9	88.0
	IV	91.9	83.4	93.9	90.0	88.7
	(A)	(91.3)	(83.4)	(93.3)		
1954	I	91.4	83.5	93.7	90.0	88.9
	II	91.5	84.3	93.6	90.0	90.4
	III	92.3	85.6	93.7	90.0	91.6
	IV	92.3	86.0	93.3	92.7	91.7
	(A)	(91.9)	(84.9)	(93.6)		
1955	I	91.9	86.8	93.2	92.0	92.7
	II	91.8	87.5	93.1	91.9	92.9
	III	92.0	89.0	93.5	92.6	93.1
	IV	92.4	91.1	93.6	93.9	94.0
	(A)	(92.0)	(88.6)	(93.4)		
1956	I	92.1	91.6	93.4	94.4	95.5
	II	92.5	93.5	94.1	95.1	96.6
	III	94.0	93.2	95.3	94.9	96.5
	IV	95.0	94.1	96.0	95.5	96.8
	(A)	(93.4)	(93.1)	(94.7)		
1957	I	95.2	95.2	96.6	95.8	97.3
	II	95.8	95.7	97.6	96.6	96.8
	III	96.9	97.1	98.6	97.6	97.5
	IV	97.5	98.3	99.0	97.8	98.8
	(A)	(96.4)	(96.6)	(98.0)		
1958	I	97.9	98.5	100.0	98.8	99.6
	II	98.9	100.1	100.7	99.8	101.0
	III	99.0	98.9	100.9	98.7	101.0
	IV	99.8	100.2	100.9	98.8	100.1
	(A)	(98.9)	(99.4)	(100.6)		

Quarter		Canada[1]	Britain[2]	United States[3]	Germany[4]	Italy[5]
1959	I	99.4	100.6	100.8	99.3	99.5
	II	99.3	99.7	101.2	99.4	99.4
	III	100.0	99.5	101.8	100.4	99.5
	IV	101.3	100.2	102.3	101.0	101.2
	(A)	(100.0)	(100.0)	(101.5)		
1960	I	100.6	100.2	102.3	101.0	101.9
	II	100.8	100.8	103.0	101.5	101.8
	III	101.1	101.0	103.2	101.4	102.5
	IV	102.4	102.0	103.8	101.8	102.8
	(A)	(101.2)	(101.0)	(103.1)		
1961	I	102.1	102.6	103.9	102.7	103.5
	II	102.0	103.8	103.9	103.5	103.9
	III	102.0	105.2	104.4	104.2	104.5
	IV	102.5	106.4	104.6	104.6	105.5
	(A)	(102.2)	(104.5)	(104.3)		
1962	I	102.5	107.4	104.8	105.8	107.1
	II	103.0	109.7	105.2	107.2	108.7
	III	103.6	109.2	105.7	107.2	109.8
	IV	104.2	109.1	106.0	107.3	111.6
	(A)	(103.3)	(108.9)	(105.4)		
1963	I	104.4	110.7	106.1	109.8	115.3
	II	104.7	111.4	106.3	110.2	116.9
	III	105.6	110.6	107.1	109.5	117.4
	IV	105.8	111.5	107.4	110.6	119.9
	(A)	(105.1)	(111.1)	(106.7)		
1964	I	106.2	112.5	107.7	111.9	121.8
	II	106.8	114.5	107.9	112.5	123.2
	III	107.7	115.5	108.3	112.9	125.3
	IV	107.6	116.4	108.7	113.4	127.1
	(A)	(107.1)	(114.7)	(108.2)		
1965	I	108.4	117.5	108.9	114.6	128.5
	II	109.2	120.5	109.7	116.0	129.3
	III	110.1	121.0	110.1	117.2	130.6
	IV	110.8	121.8	110.7	117.8	131.4
	(A)	(109.6)	(120.2)	(109.9)		

All indices are consumer price indices which are seasonally unadjusted; they have been converted from various base years to 1959=100, except for the United States index which has been maintained at 1957-1959=100.

[1]Source: Canadian Dominion Bureau of Statistics, Historical Monthly Statistics (catalogue number 11-503) and Canadian Statistical Review (catalogue number 11-003).

[2]Source: Great Britain Central Statistical Office, Monthly Digest of Statistics.

[3]Source: United States Department of Commerce, Office of Business Economics, Business Statistics 1965 and The Survey of Current Business.

[4]Source: OECD, Main Economic Indicators Historical Statistics 1955-64 for the years 1955-65; earlier series from United Nations, Monthly Bulletin of Statistics.

[5]Sources as cited in 4 above.

Table A.10

EXCHANGE RATES FOR SELECTED COUNTRIES AT THE END OF QUARTERS, 1952-1965

Quarter		Canada[1]	Britain[2]	Italy[3]	Germany[4]
1952	I	100.06	↑	↑	↑
	II	98.13			
	III	96.33			
	IV	97.05			
	(A)	(97.89)			
1953	I	97.70			
	II	99.07			
	III	98.81			
	IV	97.78			
	(A)	(98.34)			
1954	I	97.01			
	II	98.27			
	III	97.14			
	IV	96.90			
	(A)	(97.32)			
1955	I	97.57			
	II	98.55			
	III	98.58			4.20
	IV	99.81			
	(A)	(98.63)			
1956	I	99.88			
	II	99.13			
	III	98.02		6.25	
	IV	96.60			
	(A)	(98.41)			
1957	I	95.84			
	II	95.62			
	III	95.27			
	IV	96.82			
	(A)	(95.88)			
1958	I	98.10			4.20
	II	96.64			4.19
	III	96.71			4.19
	IV	96.79			4.18
	(A)	(97.06)			
1959	I	97.05		6.20	4.18
	II	96.17			4.18
	III	95.45	2.80		4.18
	IV	94.97			4.17
	(A)	(95.90)	↓	↓	

Quarter		Canada[1]	Britain[2]	Italy[3]	Germany[4]
1960	I	95.19			4.17
	II	97.44			4.17
	III	97.36			4.17
	IV	97.92			4.17
	(A)	(96.97)			
1961	I	98.99			3.97
	II	99.40			3.98
	III	103.21			4.00
	IV	103.62			4.00
	(A)	(101.32)			
1962	I	104.77			
	II	107.33			
	III	107.78			
	IV	107.63			
	(A)	(106.89)			
1963	I	107.76		6.20	
	II	107.74		6.21	
	III	108.08		6.22	
	IV	107.83		6.22	
	(A)	(107.85)			
1964	I	108.02		6.25	
	II	108.09			
	III	107.87			
	IV	107.46			
	(A)	(107.86)			
1965	I	107.69			
	II	108.03			
	III	107.94			
	IV	107.53			
	(A)	(107.80)			

[1] Canadian cents per United States dollar; average noon rates (spot buying).

[2] United States dollars per Pound Sterling; spot rate.

[3] Lire per United States dollar.

[4] Deutsche Mark per United States dollar; spot rate.

Sources: Bank of Canada, Statistical Summary Supplement (various years) for Canadian data and International Monetary Fund, International Financial Statistics (various series).

Table A.11

ESTIMATED REAL WAGES AND SUPPLEMENTS (EXPRESSED IN U.S. DOLLARS) PER EMPLOYED IN THE LABOUR FORCE, BY QUARTERS, 1952-1965

Quarter		Canada	United States	Great Britain	Germany
1952	I	573.2	825.9	351.7	
	II	581.2	806.1	332.9	
	III	609.4	800.5	341.3	
	IV	637.6	839.0	346.9	
	(A)	(600.1)	(817.9)	(343.3)	
1953	I	647.5	869.6	351.1	226.6
	II	641.3	873.6	340.8	225.8
	III	633.0	846.6	351.1	228.5
	IV	655.7	858.3	359.0	247.5
	(A)	(644.3)	(862.1)	(350.6)	
1954	I	668.0	881.3	366.0	234.2
	II	655.9	862.4	357.0	245.6
	III	654.5	851.1	359.0	248.1
	IV	673.4	881.4	367.4	256.5
	(A)	(663.0)	(869.1)	(362.3)	
1955	I	684.1	922.1	373.8	254.1
	II	675.4	912.0	371.3	260.1
	III	673.1	897.9	373.2	260.5
	IV	683.0	921.7	374.1	274.5
	(A)	(678.9)	(913.4)	(373.2)	
1956	I	702.2	970.1	385.3	263.8
	II	722.5	947.3	377.7	272.3
	III	727.0	929.9	386.4	272.4
	IV	747.4	961.8	390.0	287.9
	(A)	(724.6)	(952.3)	(385.0)	
1957	I	761.4	999.4	395.6	275.1
	II	762.6	964.0	385.8	295.1
	III	755.4	947.7	393.4	294.8
	IV	746.0	958.6	392.8	311.9
	(A)	(756.4)	(967.4)	(392.0)	
1958	I	755.2	981.1	401.8	304.4
	II	759.7	949.4	385.6	301.9
	III	748.1	939.1	395.4	308.2
	IV	753.9	979.3	401.8	322.5
	(A)	(754.3)	(962.2)	(396.2)	

Quarter		Canada	United States	Great Britain	Germany
1959	I	773.0	1033.2	405.2	312.7
	II	781.5	1009.4	394.8	317.3
	III	765.2	990.2	399.6	316.8
	IV	782.8	1008.7	419.4	327.1
	(A)	(775.7)	(1010.4)	(404.9)	
1960	I	803.2	1072.3	426.4	338.0
	II	781.1	1028.3	427.3	350.1
	III	768.7	1015.2	432.0	360.9
	IV	765.0	1023.2	434.0	371.3
	(A)	(779.4)	(1034.8)	(430.1)	
1961	I	775.9	1056.3	445.5	383.1
	II	771.5	1038.5	448.0	394.2
	III	739.4	1037.6	443.0	395.0
	IV	745.2	1069.3	444.1	413.8
	(A)	(757.6)	(1050.4)	(445.2)	
1962	I	755.2	1110.7	449.7	400.0
	II	732.9	1087.0	441.0	413.3
	III	720.0	1075.0	446.9	416.0
	IV	735.9	1102.4	453.0	431.4
	(A)	(735.8)	(1093.8)	(447.7)	
1963	I	753.6	1145.2	457.5	403.2
	II	751.0	1113.4	457.0	425.6
	III	728.4	1103.1	463.7	430.7
	IV	749.1	1135.4	471.0	440.5
	(A)	(745.6)	(1124.3)	(462.3)	
1964	I	763.9	1174.0	474.9	428.9
	II	763.7	1143.5	474.0	447.1
	III	757.0	1149.2	474.3	445.5
	IV	785.0	1181.4	484.7	473.5
	(A)	(767.4)	(1162.0)	(477.1)	
1965	I	796.5	1220.9	484.7	466.6
	II	797.6	1183.9	484.4	479.5
	III	791.0	1179.7	487.2	476.3
	IV	824.2	1218.6	495.0	494.0
	(A)	(802.3)	(1200.8)	(487.8)	

Estimated real wages and supplements per employed is defined as

$$\frac{\text{(wages and supplements in national currency)} \times \text{(exchange rate)}}{\text{(employed civilian labour force)}}$$

Source: Data given in Tables A.8 - A.10.

Table A.12

PROXY VARIABLES FOR CANADIAN IMMIGRATION POLICY,
BY QUARTERS, 1953-1965

Quarter		Films Shown and Lectures Given in Great Britain[1]	Potential Italian Sponsors[2]	Potential "Common Market" Sponsors[2]
			(Hundreds)	(Hundreds)
1953	I	83	370	616
	II	48	373	648
	III	45	383	743
	IV	119	390	834
1954	I	133	426	882
	II	56	430	887
	III	55	413	881
	IV	192	388	868
1955	I	162	383	836
	II	70	388	815
	III	78	389	771
	IV	204	358	747
1956	I	126	355	739
	II	46	367	719
	III	52	387	676
	IV	221	401	629
1957	I	166	386	633
	II	33	388	640
	III	68	420	639
	IV	209	393	625
1958	I	128	381	635
	II	42	378	632
	III	26	382	647
	IV	136	394	634
1959	I	88	409	624
	II	22	418	612
	III	19	421	588
	IV	109	404	560

Quarter		Films Shown and Lectures Given in Great Britain[1]	Potential Italian Sponsors[2]	Potential "Common Market" Sponsors[2]
1960	I	120	385	506
	II	62	367	474
	III	12	334	422
	IV	33	334	372
1961	I	30	339	348
	II	22	329	341
	III	4	304	297
	IV	36	289	277
1962	I	61	272	271
	II	19	256	270
	III	16	228	244
	IV	42	220	227
1963	I	60	213	223
	II	54	207	220
	III	35	199	183
	IV	73	199	172
1964	I	52	200	169
	II	62	207	170
	III	35	218	164
	IV	24	228	171
1965	I	61	238	174
	II	56	250	178
	III	26	273	186
	IV	74	295	196

[1] Data obtained from Department of Citizenship and Immigration, Immigration Branch, Monthly Operational Report, published for restricted circulation within numerous government departments.

[2] Potential Sponsors in particular quarter t are defined as $\sum_{t-1}^{t-12}$ (Immigrant Workers of that Ethnic group). Data derived from Table A-2 and estimated quarterly immigration during the earlier quarters.

Appendix VI

REGRESSION RESULTS

Table B.1[1]

ESTIMATES OF β, SIMPLE REGRESSION EQUATIONS WITH VARIOUS LAGS,
BRITISH QUARTERLY DATA, 1953-I TO 1965-IV

$$\left(\frac{M}{L_p}\right)_t^{B:C} = \text{Dummy Variables} + (\text{Exog. Var.})_{lagged} + E_t$$

	0	1	2	3	4	5	d.f.	$\bar{R}$ DW	ρ
— β Coefficient for lags of —									
A. Canadian Unemployment (1/U^C)									
	19530 (3032) [6.44]						45	.942 1.15	
		18320 (3455) [5.30]					44	.933 1.34	
			21330 (3349) [6.37]				43	.949 1.86	
				28140 (1769) [15.90]			42	.987 1.50	
					19540 (2760) [7.08]		41	.960 1.58	
						12360 (3394) [3.64]	40	.938 1.21	
B. Proxy Policy Variable (V)									
	-6.27 (6.04) [1.04]						44	.921 1.71	.583
		0.683 (6.00) [0.11]					43	.927 1.98	.599
			21.15 (4.85) [4.36]				42	.952 2.33	.703
				4.47 (5.80) [0.77]			41	.931 2.11	.605
					-6.60 (5.73) [1.15]		40	.933 1.92	.611
						2.36 (5.79) [0.41]	39	.939 1.90	.588

[1]In this and the remaining tables summarizing the regression analysis, the standard error is shown in round brackets on the second line, the "t" value in square brackets on the third line and, in most tables, the separate determination coefficient is given on the fourth line. $\bar{R}$ is the multiple coefficient of correlation corrected for degrees of freedom (denoted by d.f.) and D.W. is the Durbin-Watson statistic. Where the D.W. statistic indicate the existence of serial correlation, the equations are re-estimated, using the Durbin procedure with the indicated value of ρ .

Table B.2

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS WITH VARIOUS LAGS, BRITISH QUARTERLY
DATA, 1953-I TO 1965-IV

$$\left(\frac{M}{L_p}\right)_t^{B:C} = \alpha_0 X_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \lambda \left(\frac{M}{L_p}\right)_{t-1}^{B:C} + \beta_1\, 1/U^C_{t-n} + \beta_2 V_{t-n'} + E_t$$

where n, n' = 1,2,3,4

Equation Number	λ	β_1 for $1/U^C_{t-4}$	β_1 for $1/U^C_{t-3}$	β_1 for $1/U^C_{t-2}$	β_2 for V_{t-4}	β_2 for V_{t-3}	β_2 for V_{t-2}	β_2 for V_{t-1}	d.f.	$\bar{R}$ DW
B.2.1		19620 (2950) [6.65]			-0.37 (4.76) [0.08]				40	.959 1.57
B.2.2		19190 (3342) [5.74]				1.04 (5.36) [0.19]			40	.959 1.59
B.2.3		15350 (2726) [5.63]					16.15 (4.63) [3.49]		40	.969 1.53
B.2.4	-.1006 (0.089) [1.13]	19340 (4457) [4.34]					16.49 (4.62) [3.57]		39	.969 1.55
B.2.5			26990 (1784) [15.13]			5.47 (2.59) [2.12]			41	.988 1.79
B.2.6			23560 (1659) [14.20]				10.96 (2.75) [3.98]		41	.988 1.87
B.2.7	0.0036 (0.038) [0.10]		23460 (1973) [11.89]				10.91 (2.83) [3.85]		40	.988 1.87
B.2.8			27310 (1912) [14.29]					3.33 (2.96) [1.12]	40	.987 1.69
B.2.9				18640 (2700) [6.90]		21.73 (4.20) [5.17]			42	.968 2.02
B.2.10	0.1523 (0.050) [3.03]			16480 (2570) [6.41]		17.42 (4.10) [4.25]			41	.973 2.38
B.2.11	0.2277 (0.056) [4.09]			15580 (3384) [4.61]				5.86 (5.08) [1.15]	41	.963 2.38

Table B.3

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION ADJUSTED BY L_p,
BRITISH QUARTERLY DATA, 1953-III TO 1965-IV

$$\left(\frac{M}{L_p}\right)^{B:C}_t = \alpha_0 X_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \lambda \left(\frac{M}{L_p}\right)^{B:C}_{t-1} + \beta_1 \left(\frac{1}{U^C}\right)_{t-2} + \beta_2 \left(\frac{1}{U^B}\right)_{t-2} + \beta_3 V_{t-2} + \beta_4 \left(Y\right)^1_{t-2} + E_t$$

Each cell shows: coefficient (standard error) [t-statistic] β-coefficient.

Equation Number	α_0	α_1	α_2	α_3	α_4	λ	$\frac{1}{U^C_{t-2}}$	$\frac{1}{U^B_{t-2}}$	V_{t-2}	$(Y)^1_{t-2}$ #1	#2	#3	#4	$\bar{R}$ / DW
B.3.1	18150 (1467) [12.37] .6075	-4068 (1089) [3.73] .0790	1925 (840) [2.29] .0735	1862 (618) [3.01] .0012	-1337 (815) [1.64] .0259		21330 (3349) [6.37]							.949 1.86
B.3.2	15520 (1416) [10.96] .5059	-3502 (945) [3.71] .0662	2271 (726) [3.13] .0844	519 (625) [0.83] .0003	-1599 (702) [2.28] .0302	.2265 (.056) [4.05] .1466	17330 (3039) [5.70] .1683							.962 2.31
B.3.3	15240 (1196) [12.75] .4868	-3603 (797) [4.52] .0667	721 (712) [1.01] .0263	-418 (571) [0.73] -.0003	-1818 (594) [3.06] .0337	.1523 (.050) [3.03] .0953	16480 (2570) [6.41] .1568		17.42 (4.10) [4.25] .1347					.973 2.38
B.3.4	15300 (1217) [12.58] .4886	-3786 (917) [4.13] .0701	596 (780) [0.76] .0217	-560 (671) [0.83] -.0004	-2012 (761) [2.65] .0372	.1534 (.051) [3.02] .0959	15970 (2874) [5.56] .1519	493.2 (1187) [0.42] .0057	16.69 (4.50) [3.71] .1291					.973 2.37
B.3.5	15320 (1229) [12.46] .4890	-2454 (2883) [0.85] .0454	1864 (2715) [0.69] .0678	698 (2667) [0.26] .0004	-674 (2846) [0.24] .0125	.1586 (.052) [3.02] .0992	15890 (2907) [5.47] .1511	498.5 (1199) [0.42] .0058	17.47 (4.81) [3.63] .1351	-768.0 (1574) [0.49] -.0064				.972 2.38
B.3.6	15360 (1230) [12.48] .4901	-4406 (1402) [3.14] .0816	129 (1461) [0.09] -.0047	-1369 (1532) [0.89] -.0009	-2704 (1404) [1.93] .0500	.1589 (.052) [3.05] .0994	15530 (2992) [5.29] .1477	628.5 (1219) [0.52] .0073	17.46 (4.72) [3.70] .1349		969.1 (1646) [0.59] -.0055			.972 2.36
B.3.7	15300 (1223) [12.51] .4883	-1571 (3058) [0.51] .0291	2678 (2851) [0.94] .0974	1477 (2766) [0.53] .0009	138 (2932) [0.05] -.0026	.1606 (.052) [3.09] .1004	15630 (2924) [5.34] .1486	519.9 (1194) [0.44] .0061	17.99 (4.83) [3.72] .1390			-1227 (1615) [0.76] -.0072		.973 2.37
B.3.8	15330 (1221) [12.55] .4891	-4716 (1426) [3.31] .0873	-468 (1472) [0.32] -.0170	-1687 (1482) [1.14] -.0011	-3032 (1418) [2.14] .0561	.1600 (.052) [3.10] .1000	15230 (3011) [5.06] .1448	701.4 (1216) [0.58] .0082	17.78 (4.69) [3.79] .1374				1467 (1718) [0.85] -.0046	.973 2.36
B.3.9	15690 (1399) [11.21] .5085	-6272 (3066) [2.05] .1179	-514 (3009) [0.17] -.0190	-2174 (2908) [0.75] -.0014	-4453 (3025) [1.47] .0837	.2053 (.058) [3.53] .1304	15070 (3309) [4.55] .1456	2084 (1275) [1.63] .0247	1136 (1694) [0.67] .0097					.964 2.35

[1] The real income variables for period t are defined as follows:

1. $\dfrac{Y^C \cdot ex_t}{Y^B \cdot ex_t}$

2. $\dfrac{Y^{US}_t - Y^C \cdot ex_t}{Y^B \cdot ex_t}$

3. $\dfrac{\frac{1}{4}\sum\limits_{t-3}^{t}(Y^C \cdot ex)}{\frac{1}{4}\sum\limits_{t-3}^{t}(Y^B \cdot ex)}$

4. $\dfrac{\frac{1}{4}\sum\limits_{t-3}^{t}(Y^{US}) - \frac{1}{4}\sum\limits_{t-3}^{t}(Y^C \cdot ex)}{\frac{1}{4}\sum\limits_{t-3}^{t}(Y^B \cdot ex)}$

where $Y = \dfrac{\text{Wages and Supplements}}{(\text{employed labour force}) \cdot \text{Price Index}}$

ex = the appropriate rate of exchange to convert Y (expressed in domestic currency) into United States dollars.

Table B.4

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION ADJUSTED BY L_s,
BRITISH QUARTERLY DATA 1953-III TO 1965-IV

$$\left(\frac{M}{L_s}\right)^{B:C}_t = \alpha_0 X_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \lambda \left(\frac{M}{L_s}\right)^{B:C}_{t-1} + \beta_1 (1/U^C)_{t-2} + \beta_2 (1/U^B)_{t-2} + \beta_3 V_{t-2} + \beta_4 (Y)^1_{t-2} + E_t$$

Equation Number	α_0	α_1	α_2	α_3	α_4	λ	β Coefficients for $1/U^C_{t-2}$	$1/U^B_{t-2}$	V_{t-2}	$(Y)^1_{t-2}$ #1	#2	#3	#4	$\bar{R}$ DW
B.4.1	17800 (1315) [13.54] .6219	-3398 (976) [3.48] .0716	2375 (753) [3.16] .0966	2149 (554) [3.88] .0021	-863 (730) [1.18] .0178		19020 (3002) [6.33] .1900							.955 1.91
B.4.2	15380 (1290) [11.93] .5256	-3016 (849) [3.55] .0622	2589 (653) [3.97] .1030	870 (578) [1.51] .0008	-1207 (637) [1.90] .0243	.2103 (.0533) [3.95] .1296	15810 (2718) [5.82] .1545							.966 2.33
B.4.3	15150 (1126) [13.46] .5098	-3059 (740) [4.13] .0621	1342 (658) [2.04] .0526	109 (542) [0.20] .0001	-1358 (556) [2.44] .0269	.1486 (.0492) [3.02] .0902	14970 (2379) [6.29] .1440		14.37 (3.80) [3.78] .1143					.975 2.31
B.4.4	15190 (1146) [13.26] .5111	-3180 (854) [3.72] .0645	1259 (722) [1.74] .0493	14 (637) [0.02] .0000	-1487 (713) [2.08] .0294	.1495 (.0499) [3.00] .0907	14630 (2668) [5.48] .1407	326 (1109) [0.29] .0037	13.88 (4.18) [3.32] .1105					.974 2.30
B.4.5	15250 (1141) [13.36] .5122	-222 (2624) [0.08] .0045	4069 (2466) [1.65] .1592	2822 (2597) [1.16] .0026	1490 [0.57] -.0295	.1593 (.0503) [3.17] .0965	14500 (2657) [5.46] .1393	337 (1104) [0.31] .0038	15.71 (4.43) [3.54] .1248	-1711 (1436) [1.19] -.0134				.974 2.36
B.4.6	15340 (1136) [13.51] .5148	-4566 (1280) [3.57] .0924	-363 (1335) [0.27] -.0142	-1769 (1390) [1.27] -.0016	-3022 (1279) [2.36] .0597	.1588 (.0496) [3.20] .0962	13730 (2707) [5.07] .1318	623 (1114) [0.56] .0070	15.69 (4.31) [3.64] .1246		2147 (1493) [1.44] -.0107			.975 2.32
B.4.7	15220 (1128) [13.50] .5107	851 (2767) [0.31] -.0172	5042 (2574) [1.96] .1970	3741 (2517) [1.49] .0035	2436 (2660) [0.92] -.0481	.1599 (.0495) [3.23] .0968	14070 (2650) [5.31] .1350	373 (1092) [0.34] .0042	16.37 (4.42) [3.70] .1299			-2239 (1464) [1.53] -.0118		.975 2.35
B.4.8	15280 (1117) [13.69] .5124	-4952 (1291) [3.84] .1002	-775 (1334) [0.58] -.0303	-2104 (1333) [1.58] -.0019	-3416 (1280) [2.67] .0674	.1579 (.0497) [3.24] .0955	13310 (2699) [4.93] .1276	716 (1101) [0.65] .0081	16.08 (4.25) [3.78] .1275				2775 (1546) [1.79] -.0066	.975 2.35
B.4.9	15550 (1292) [12.04] .5295	-3767 (2754) [1.37] .0774	1824 (2706) [0.67] .0723	129 (2633) [0.05] .0001	-2022 (2726) [0.74] .0405	.2035 (.0553) [3.68] .1250	13820 (3008) [4.59] .1345	1770 (1166) [1.52] .0203		50 (1530) [0.03] .0004				.967 2.33

[1] For definitions of Y, see footnote 1 of Table B.3.

Table B.5

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION UNADJUSTED
BRITISH QUARTERLY DATA, 1953-III TO 1965-IV

$$M_t^{B:C} = \alpha_0 X_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \lambda M_{t-1}^{B:C} + \beta_1 (1/U^C)_{t-2} + \beta_2 (1/U^B)_{t-2} + \beta_3 V_{t-2} + \beta_4 (Y)_{t-2}^1 + E_t$$

Each cell shows coefficient, (standard error), [t-statistic], and β coefficient (bottom value).

Equation Number	α_0	α_1	α_2	α_3	α_4	λ	$1/U^C_{t-2}$	$1/U^F_{t-2}$	V_{t-2}	$(Y)^1_{t-2}$ #1	$(Y)^1_{t-2}$ #2	$(Y)^1_{t-2}$ #3	$(Y)^1_{t-2}$ #4	$\bar{R}$ / DW
B.5.1	17530 (1267) [13.84] .6230	-3155 (941) [3.53] .0696	2567 (725) [3.54] .1079	2280 (533) [4.27] .0027	-678 (703) [0.96] .0144		18230 (2892) [6.30] .1823							.956 / 1.90
B.5.2	15200 (1251) [12.15] .5291	-2833 (820) [3.45] .0612	2738 (631) [4.34] .1127	1015 (566) [1.79] .0012	-1052 (618) [1.70] .0218	.2052 (.053) [3.89] .1245	15270 (2623) [5.82] .1495							.967 / 2.30
B.5.3	14990 (1124) [13.34] .5151	-2856 (735) [3.88] .0609	1651 (652) [2.53] .0671	348 (545) [0.64] .0004	-1175 (555) [2.12] .0241	.1512 (.050) [3.03] .0906	14480 (2363) [6.13] .1401		12.64 (3.77) [3.35] .1017					.974 / 2.21
B.5.4	15020 (1144) [13.13] .5161	-2947 (850) [3.47] .0629	1589 (717) [2.22] .0646	277 (639) [0.43] .0003	-1272 (712) [1.79] .0261	.1520 (.051) [3.00] .0910	14230 (2654) [5.36] .1376	244.5 (1105) [0.22] .0027	12.28 (4.15) [2.96] .0988					.973 / 2.20
B.5.5	15110 (1123) [13.46] .5178	985 (2562) [0.38] -.0209	5321 (2405) [2.21] .2157	4020 (2390) [1.68] .0047	2690 (2539) [1.06] -.0549	.1631 (.050) [3.25] .0974	14090 (2603) [5.42] .1359	257.3 (1083) [0.24] .0028	14.77 (4.35) [3.39] .1185	-2278 (1203) [1.62] -.0169				.974 / 2.32
B.5.6	15230 (1112) [13.70] .5214	-4769 (1249) [3.82] .1013	-547 (1303) [0.42] -.0222	-2050 (1351) [1.52] -.0024	-3282 (1245) [2.64] .0670	.1617 (.049) [3.28] .0964	13080 (2634) [4.97] .1260	631.7 (1037) [0.58] .0070	14.73 (4.21) [3.50] .1180		2814 (1452) [1.94] -.0126			.975 / 2.27
B.5.7	15080 (1104) [13.66] .5160	2177 (2690) [0.81] -.0463	6394 (2500) [2.56] .2538	5029 (2455) [2.05] .0058	3722 (2590) [1.44] -.0759	.1628 (.049) [3.31] .0971	13560 (2581) [5.25] .1305	301.9 (1066) [0.28] .0033	15.52 (4.32) [3.59] .1243			-2850 (1425) [2.00] -.0137		.975 / 2.31
B.5.8	15170 (1086) [13.97] .5183	-5204 (1251) [4.16] .1104	-1005 (1293) [0.78] -.0406	-2399 (1287) [1.86] -.0028	-3718 (1231) [3.00] .0757	.1592 (.048) [3.31] .0948	12610 (2607) [4.84] .1212	735.8 (1068) [0.69] .0081	15.17 (4.12) [3.68] .1214				3522 (1495) [2.36] -.0406	.976 / 2.33
B.5.9	15380 (1259) [12.22] .5338	-2409 (2651) [0.91] .0519	3151 (2605) [1.21] .1293	1426 (2546) [0.56] .0017	-675 (2628) [0.26] .0140	.2057 (.055) [3.77] .1244	13460 (2915) [4.61] .1314	1609 (1132) [1.42] .0180		-592 (1475) [0.40] -.0045				.967 / 2.29

[1] For definitions of Y, see footnote 1 of Table B.3.

Table B.6

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION ADJUSTED[1] FOR THE PERIOD
1956-IV - 1957-IV, BRITISH QUARTERLY DATA, 1953-III TO 1965-IV

$$\left(\frac{M}{L_p}\right)^{B:C}_t = \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \lambda \left(\frac{M}{L_p}\right)^{B:C}_{t-1} + \beta_1\left(\frac{1}{U_C}\right)_{t-2} + \beta_2\left(\frac{1}{U_B}\right)_{t-2} + \beta_3 V_{t-2} + \beta_4 (Y)^2_{t-2} + E_t$$

Equation Number	α_1	α_2	α_3	α_4	λ	$1/U^C_{t-2}$	$1/U^B_{t-2}$	V_{t-2}	$(Y)^2_{t-2}$ #1	#2	#3	#4	$\bar{R}$ DW
B.6.1	-4753 (1037) [4.58] .3512	1543 (829) [1.86] .1628	1575 (606) [2.60] .0322	-1834 (777) [2.36] .0955		23880 (3017) [7.92] .3582							.838 1.90
B.6.2	-3290 (943) [3.49] .2192	2519 (739) [3.41] .2396	-415 (693) [0.60] -.0077	-2027 (660) [3.07] .0952	.4439 (.1038) [4.28] .2565	14570 (3357) [4.34] .1971							.887 2.62
B.6.3	-3352 (786) [4.26] .2079	893 (716) [1.25] .0791	-998 (592) [1.69] -.0172	-2015 (551) [3.66] .0881	.2901 (.0932) [3.11] .1561	14180 (2801) [5.06] .1784		18.22 (4.09) [4.45] .3075					.923 2.52
B.6.4	-3308 (946) [3.50] .2051	925 (814) [1.14] .0820	-968 (696) [1.39] -.0106	-1972 (752) [2.62] .0862	.2905 (.0944) [3.08] .1563	14260 (2989) [4.77] .1795	-103 (1194) [0.09] -.0021	18.35 (4.39) [4.18] .3096					.921 2.52
B.6.5	-1484 (2993) [0.50] .0919	2659 (2819) [0.94] .2352	694 (2679) [0.26] .0075	-171 (2901) [0.06] .0075	.3080 (.0989) [3.11] .1654	14060 (3025) [4.65] .1767	-131 (1204) [0.11] -.0026	19.45 (4.74) [4.10] .3276	-1038 (1615) [0.64] -.0136				.919 2.56
B.6.6	-4164 (1416) [2.94] .2577	-81 (1480) [0.05] -.0071	-2176 (1639) [1.33] -.0373	-2971 (1440) [2.06] .1296	.3127 (.0986) [3.17] .1678	13550 (3125) [4.33] .1701	41 (1212) [0.03] .0008	19.49 (4.63) [4.21] .3280		1376 (1688) [0.82] -.0096			.920 2.54
B.6.7	-443 (3176) [0.14] .0274	3615 (2962) [1.22] .3192	1585 (2790) [0.57] .0271	767 (2995) [0.26] -.0334	.3136 (.0976) [3.21] .1682	13670 (3057) [4.47] .1715	-109 (1196) [0.09] -.0022	20.02 (4.74) [4.22] .3368			-1566 (1657) [0.94] -.0145		.920 2.56
B.6.8	-4379 (1441) [3.04] .2707	-307 (1492) [0.21] -.0271	-2344 (1560) [1.50] -.0401	-3185 (1442) [2.21] .1388	.3103 (.0965) [3.21] .1664	13290 (3148) [4.22] .1667	103 (1213) [0.08] .0021	19.67 (4.59) [4.28] .3307				1730 (1755) [0.99] -.0080	.921 2.55
B.6.9	-6271 (3244) [1.93] .4135	-451 (3196) [0.14] -.0425	-3089 (2960) [1.04] -.0564	-4958 (3126) [1.59] .2305	.3888 (.1141) [3.41] .2223	13620 (3559) [3.83] .1822	1470 (1304) [1.10] .0316		1342 (1774) [0.76] .0187				.886 2.59

[1] The migration data was adjusted by those magnitudes given in Table 4.1.

[2] For definitions of Y, see footnote 1 of Table B.3.

Table B.7

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION DATA UNADJUSTED AND ADJUSTED, MIXED DISCRETE LAGS, BRITISH QUARTERLY DATA, 1953-IV TO 1965-IV

Endogenous Variable $= \alpha_0 X_0 + \alpha_1 X_1 + \alpha_2 Y_2 + \alpha_3 X_3 + \alpha_4 X_4 + \beta_1 1/U^C_{t-3} + \beta_2 1/U^B_{t-3} + \beta_3 V_{t-2} + \beta_4 (Y)^1_{t-3} + E_t$

Each cell: coefficient (standard error) [t-statistic] elasticity

Equation Number	Endogenous Variable	α_0	α_1	α_2	α_3	α_4	$1/U^C_{t-3}$	$1/U^B_{t-3}$	V_{t-2}	$(Y)^1_{t-3}$ #1	#2	#3	#4	$\bar{R}$	DW	ρ
B.7.1	M_t	16020 (799) [20.04] .4982	903 (2361) [0.39] -.0341	2443 (2236) [1.09] .1636	2121 (2223) [0.95] .0164	2975 (2249) [1.32] -.0637	21080 (2305) [9.14] .3772	696.9 (936) [0.74] .0126	7.41 (3.36) [2.21] .0662	-1943 (1260) [1.54] -.0035				.986	2.00	.299
B.7.2	M_t	16160 (766) [21.10] .5153	-4087 (1018) [4.02] .1328	-2383 (1084) [2.20] -.1404	-2798 (1058) [2.65] .0150	-2128 (1356) [2.04] .0449	20120 (2270) [8.87] .3580	929 (876) [1.06] .0175	7.87 (3.35) [2.35] .0618		2310 (1263) [1.83] -.0108			.987	1.97	.222
B.7.3	M_t	16010 (773) [20.72] .5029	1626 (2290) [0.71] -.0579	3271 (2257) [1.45] .2082	2908 (2222) [1.31] -.0196	3719 (2220) [1.68] -.0791	20720 (2242) [9.24] .3697	754.9 (896) [0.84] .0139	7.57 (3.23) [2.32] .0665			-2349 (1235) [1.90] .0045		.986	2.02	.268
B.7.4	M_t	16040 (744) [21.57] .5088	-4589 (1046) [4.39] .1528	-2892 (1107) [2.61] -.1740	-3295 (1073) [3.07] .0188	-2542 (1032) [2.46] .0537	19840 (2226) [8.91] .3529	1111 (875) [1.27] .0208	7.63 (3.14) [2.43] .0660				3032 (1304) [2.32] .0001	.987	2.03	.235
B.7.5	$\left(\frac{M}{L_g}\right)_t$	16210 (725) [22.37] .5125	-4247 (997) [4.25] .1239	-2678 (1059) [2.53] -.1455	-3030 (1027) [2.95] .0142	-2151 (986) [2.18] .0440	20660 (2155) [9.59] .3605	1205 (838) [1.44] .0231	8.13 (3.10) [2.62] .0682				2099 (1245) [1.69] -.0009	.988	2.02	.192
B.7.6	$\left(\frac{M}{L_p}\right)_t$	16370 (729) [22.44] .5010	-3356 (2012) [1.67] .0795	-2029 (1901) [1.07] -.0944	-2254 (1890) [1.19] .0081	-1079 (1921) [0.56] .0208	23320 (2040) [11.43] .3913	1385 (801) [1.73] .0271	8.41 (3.27) [2.57] .0671	-107 (1073) [0.10] -.0005				.989	2.01	.138
B.7.7	$\left(\frac{M}{L_p}\right)_t$	16370 (737) [22.22] .5004	-3632 (949) [3.83] .0872	-2296 (1018) [2.26] -.1079	-2526 (994) [2.54] .0095	-1362 (988) [1.38] .0262	23260 (2160) [10.77] .3905	1400 (821) [1.71] .0274	8.44 (3.31) [2.55] .0675		130 (1181) [0.11] -.0007			.989	2.03	.144
B.7.8	$\left(\frac{M}{L_p}\right)_t$	16370 (728) [22.48] .5006	-3093 (2051) [1.51] .0739	-1768 (2007) [0.88] -.0828	-1995 (1974) [1.01] .0074	-820 (1977) [0.41] .0158	23250 (2070) [11.23] .3902	1395 (805) [1.73] .0273	8.56 (3.23) [2.65] .0684			-255 (1097) [0.23] .0009		.989	2.03	.142
B.7.9	$\left(\frac{M}{L_p}\right)_t$	16380 (727) [22.54] .5008	-3861 (978) [3.95] .0922	-2534 (1044) [2.43] -.1186	-2769 (1012) [2.74] .0102	-1600 (970) [1.65] .0308	23070 (2147) [10.74] .3872	1460 (826) [1.77] .0286	8.69 (3.16) [2.75] .0695				475 (1223) [0.39] -.0006	.989	2.03	.142

^{1}For definitions of Y^1, see footnote 1, Table B.3.

Table B.8

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, LOG FORM, MIGRATION ADJUSTED BY L_p,
BRITISH QUARTERLY DATA, 1953-III TO 1965-IV

$$\ln\left(\frac{M}{L_p}\right)^{B:C}_t = \alpha_0 \ln X_0 + \alpha_1 \ln X_1 + \alpha_2 \ln X_2 + \alpha_3 \ln X_3 + \alpha_4 \ln X_4 + \lambda\, \frac{M}{L_p}{}^{B:C}_{t-1} + \beta_1 \ln U^C_{t-2} + \beta_2 \ln U^B_{t-2} + \beta_3 \ln V_{t-2} + \beta_4 \ln(Y)^l_{t-2} + E_t$$

Each cell: coefficient, (standard error), [t-statistic], elasticity. The columns $\ln U^C_{t-2}$, $\ln U^B_{t-2}$, $\ln V_{t-2}$, and $\ln(Y)^l_{t-2}$ (#1–#4) are the β Coefficients.

Equation Number	α_0	α_1	α_2	α_3	α_4	λ	$\ln U^C_{t-2}$	$\ln U^B_{t-2}$	$\ln V_{t-2}$	$\ln(Y)^l_{t-2}$ #1	#2	#3	#4	$\bar{R}$ / DW	ρ
B.8.1	0.97 (0.21) [4.62] .1097	9.56 (0.25) [38.93] -4.9667	10.94 (0.29) [37.57] 7.1381	11.34 (0.39) [29.42] .4843	10.29 (0.31) [32.72] -1.8061	.3762 (.067) [5.57] .2503	-1.839 (0.184) [7.93] .0407							.954 / 1.97	.431
B.8.2	0.71 (0.14) [5.16] .1196	6.00 (0.66) [9.12] -1.3416	7.32 (0.68) [10.21] 1.9886	7.08 (0.80) [8.89] .6140	6.41 (0.72) [8.85] -0.8643		-1.002 (0.224) [8.11] .2334							.978 / 1.95	
B.8.3	0.87 (0.12) [7.53] .1452	6.97 (0.57) [12.28] -1.5348	8.07 (0.57) [14.21] 2.1633	8.07 (0.68) [11.96] .6896	7.41 (0.62) [11.95] -0.9856	.1922 (.066) [2.89] .1260	-1.075 (0.101) [10.66] .2469		.1748 (.0361) [4.85] .1493					.985 / 2.19	
B.8.4	0.88 (0.12) [7.46] .1454	6.99 (0.58) [12.11] -1.5391	8.10 (0.58) [13.98] 2.1690	8.10 (0.69) [11.79] .6916	7.43 (0.63) [11.78] -0.5882	.1901 (.067) [2.82] .1247	-1.068 (0.104) [10.23] .2453	-0.024 (.078) [0.31] .0029	.1737 (.0366) [4.74] .1484					.985 / 2.20	
B.8.5	0.87 (0.12) [7.33] .1444	7.05 (0.59) [11.96] -1.5521	8.17 (0.59) [13.76] 2.1870	8.19 (0.71) [11.56] .6997	7.50 (0.65) [11.56] -0.9979	.1738 (.072) [2.39] .1139	-1.096 (0.114) [9.62] .2517	-0.019 (.079) [0.24] .0023	.1695 (.0375) [4.52] .1448	.2059 (.3219) [0.64] .0062				.985 / 2.21	
B.8.6	0.87 (0.12) [7.31] .1443	7.16 (0.64) [11.17] -1.5765	8.28 (0.65) [12.69] 2.2185	8.33 (0.78) [10.65] .7113	7.63 (0.71) [10.77] -1.0145	.1713 (.074) [2.31] .1123	-1.113 (0.127) [8.77] .2556	-0.010 (.081) [0.12] .0012	.1698 (.0374) [4.54] .1450		-0.0886 (.1389) [0.64] .0030			.985 / 2.23	
B.8.7	0.87 (0.12) [7.37] .1448	7.06 (0.59) [11.96] -1.5542	8.18 (0.60) [13.74] 2.1907	8.22 (0.71) [11.52] .7016	7.52 (0.65) [11.59] -1.0005	.1723 (.073) [2.37] .1129	-1.107 (0.119) [9.26] .2542	-0.016 (.079) [0.20] .0019	.1687 (.0376) [4.49] .1441			.2308 (.3372) [0.68] .0044		.985 / 2.20	
B.8.8	0.87 (0.12) [7.38] .1452	7.11 (0.62) [11.38] -1.5654	8.23 (0.63) [12.98] 2.2036	8.26 (0.76) [10.93] .7052	7.57 (0.69) [11.00] -1.0067	.1770 (.072) [2.44] .1160	-1.104 (0.126) [8.78] .2536	-0.011 (.082) [0.13] .0013	.1709 (.0373) [4.58] .1460				-0.0755 (.1421) [0.53] .0012	.985 / 2.20	
B.8.9	0.71 (0.14) [5.15] .1197	6.25 (0.69) [9.12] -1.3948	7.58 (0.71) [10.74] 2.0553	7.43 (0.84) [8.86] .6424	6.69 (0.76) [8.85] -0.9012	.3223 (.079) [4.08] .2141	-1.052 (0.138) [7.60] .2448	-0.046 (.096) [0.48] .0057		.4587 (.3865) [1.19] .0140				.977 / 2.01	

1 For definitions of Y, see footnote 1 of Table B.3.

Table B.9

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, LOG FORM, MIGRATION UNADJUSTED AND ADJUSTED, BRITISH QUARTERLY DATA, 1953-III TO 1965-IV

$$\ln(\text{Exogenous Variable}) = \alpha_0 \ln X_0 + \alpha_1 \ln X_1 + \alpha_2 \ln X_2 + \alpha_3 \ln X_3 + \alpha_4 \ln X_4 + \lambda \ln\left(\frac{\text{Ex.}}{\text{Var}}\right)_{t-1} \beta_1 \ln U^C_{t-2} + \beta_2 \ln U^B_{t-2} + \beta_3 \ln V_{t-2} + \beta_4 \ln(Y)^1_{t-2} + E_t$$

Equation Number	Exogenous Variable	α_0	α_1	α_2	α_3	α_4	λ	$\ln U^C_{t-2}$	$\ln U^B_{t-2}$	$\ln V_{t-2}$	#1	#2	#3	#4	$\bar{R}$ / DW
											$\ln(Y)^1_{t-2}$				
B.9.1	M_t	0.95 (0.12) [7.61] .1665	7.29 (0.62) [11.71] -1.8017	8.40 (0.63) [13.43] 2.5186	8.36 (0.74) [11.33] .7804	7.73 (0.68) [11.38] -1.1296	.1878 (0.073) [2.57] .1145	-0.999 (.1105) [9.05] .2284	-.039 (.080) [0.48] -.0041	.1599 (0.379) [4.22] .1406	-.5946 (.3101) [1.92] -.0135				.983 2.02
B.9.2	M_t	0.95 (0.12) [7.67] .1673	6.96 (0.63) [10.98] -1.7210	8.05 (0.64) [12.51] 2.4140	7.96 (0.76) [10.43] .7430	7.36 (0.70) [10.57] -1.0755	.1951 (0.073) [2.66] .1189	-.947 (.1185) [7.99] .2164	-.009 (.083) [0.10] -.0034	.1606 (.0376) [4.27] .1411		.2653 (.1314) [2.02] -.0009			.983 2.00
B.9.3	M_t	0.94 (0.12) [7.61] .1654	7.28 (0.62) [11.73] -1.8004	8.38 (0.62) [13.43] 2.5134	8.32 (0.74) [11.30] 0.7773	7.70 (0.68) [11.37] -1.1253	.1881 (0.073) [2.58] .1147	-0.975 (.1138) [8.56] .2228	-.030 (.080) [0.37] -.0032	.1621 (.0380) [4.26] .1425			-.6357 (.3234) [1.97] -.0071		.983 2.06
B.9.4	M_t	0.94 (0.12) [7.78] .1657	7.04 (0.62) [11.43] -1.7387	8.13 (0.62) [13.06] 2.4362	8.06 (0.74) [10.96] .7523	7.45 (0.67) [11.04] -1.0873	.1857 (0.071) [2.60] .1131	-0.939 (.1157) [8.11] .2143	-.002 (.082) [0.03] .0003	.1619 (.0369) [4.39] .1422				.3109 (.1339) [2.32] .0020	.983 2.11
B.9.5	$\left(\frac{M}{L}\right)_{g\,t}$	0.93 (0.12) [7.64] .1615	7.22 (0.60) [11.93] -1.7229	8.33 (0.61) [13.69] 2.4156	8.32 (0.72) [11.54] .7549	7.67 (0.66) [11.60] -1.0902	.1785 (0.072) [2.46] .1113	-1.029 (.1103) [9.33] .2362	-.019 (.079) [0.24] -.0021	.1645 (.0374) [4.39] .1438	-.3080 (.3100) [0.99] -.0079				.984 2.10
B.9.6	$\left(\frac{M}{L}\right)_{g\,t}$	0.93 (0.12) [7.67] .1620	7.05 (0.63) [11.16] -1.6805	8.14 (0.64) [12.69] 2.3605	8.10 (0.76) [10.61] .7350	7.47 (0.70) [10.75] -1.0615	.1833 (0.073) [2.51] .1143	-1.000 (.1200) [8.34] .2294	-.003 (.082) [0.04] -.0003	.1650 (.0373) [4.42] .1442		.1418 (.1322) [1.07] -.0030			.984 2.09
B.9.7	$\left(\frac{M}{L}\right)_{g\,t}$	0.93 (0.12) [7.65] .1609	7.22 (0.61) [11.92] -1.7217	8.32 (0.61) [13.66] 2.4123	8.30 (0.72) [11.49] .7531	7.65 (0.66) [11.56] -1.0876	.1790 (0.072) [2.47] .1116	-1.016 (.1145) [8.88] .2332	-.014 (.079) [0.18] -.0016	.1655 (.0376) [4.40] .1447			-.3282 (.3241) [1.01] -.0047		.984 2.12
B.9.8	$\left(\frac{M}{L}\right)_{g\,t}$	0.93 (0.12) [7.74] .1611	7.07 (0.62) [11.49] -1.6849	8.16 (0.62) [13.12] 2.3657	8.13 (0.74) [11.02] .7374	7.49 (0.67) [11.10] -1.0644	.1806 (0.071) [2.53] .1611	-0.990 (.1180) [8.39] .2271	-.005 (.082) [0.06] .0006	.1660 (.0369) [4.50] .1451				.1760 (.1351) [1.30] -.0003	.984 2.15

[1] For definitions of Y, see footnote 1 of Table B.3.

Table B.10

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, LOG FORM, MIGRATION UNADJUSTED
AND ADJUSTED, MIXED DISCRETE LAGS, BRITISH QUARTERLY DATA, 1953-IV TO 1965-IV

ln (Exogenous Variable) $= \alpha_0 \ln X_0 + \alpha_1 \ln X_1 + \alpha_2 \ln X_2 + \alpha_3 \ln X_3 + \alpha_4 \ln X_4 + \beta_1 \ln U^C_{t-3} + \beta_2 \ln U^B_{t-3} + \beta_3 \ln V_{t-2} + \beta_4 \ln (Y)^1_{t-3} + E_t$

Equation Number	Exogenous Var.	α_0	α_1	α_2	α_3	α_4	$\ln U^C_{t-3}$	$\ln U^B_{t-3}$	$\ln V_{t-2}$	$\ln(Y)^1_{t-3}$ #1	#2	#3	#4	$\bar{R}$ DW	ρ
B.10.1	M	1.26 (0.14) [9.22] .1511	9.76 (0.35) [27.65] -5.9464	10.17 (0.34) [30.07] 7.6745	10.12 (0.36) [27.97] .6229	10.38 (0.40) [26.09] -2.1934	-1.168 (.1380) [8.46] .5761	-.003 (.1168) [0.02] .0004	0.1109 (.0420) [2.64] .1112	-0.8526 (.4574) [1.86] .0036				.976 1.95	.373
B.10.2	M	1.27 (0.13) [9.65] .1587	9.30 (0.29) [31.66] -5.3832	9.76 (0.29) [33.85] 7.0052	9.68 (0.32) [30.51] .6275	9.8t (0.36) [27.46] -2.0637	-1.085 (.1415) [7.67] .5366	-.059 (.1168) [0.51] .0106	0.1214 (.0413) [9.94] .1204		0.4251 (.1768) [2.40] -.0122			.978 1.93	.346
B.10.3	M	1.26 (0.13) [9.68] .1598	9.81 (0.33) [29.97] -5.5647	10.25 (0.32) [31.76] 7.2227	10.19 (0.34) [29.75] .6734	10.43 (0.37) [28.04] -2.1696	-1.130 (.1338) [6.45] .5599	-.024 (.1113) [0.21] .0043	0.1167 (.0405) [2.88] .1153			-1.075 (.4437) [2.42] -.0011		.978 1.93	.336
B.10.4	M	1.25 (0.13) [9.62] .1525	9.31 (0.29) [31.79] -5.4738	9.77 (0.29) [34.03] 7.1156	9.70 (0.32) [30.73] .6060	9.91 (0.36) [27.80] -2.0598	-1.053 (.1462) [7.21] .5195	-.080 (.1197) [0.66] .0141	0.1167 (.0403) [2.90] .1162				.5027 (.2015) [2.49] .0096	.978 1.96	.360
B.10.5	$\frac{M}{L_s}$	1.25 (0.13) [9.56] .1548	9.30 (0.29) [31.52] -4.2070	9.74 (0.29) [33.64] 5.5392	9.67 (0.32) [30.42] .4831	9.91 (0.36) [27.62] -1.6482	-1.096 (.1469) [7.46] .5387	-.088 (.1202) [0.73] .0160	0.1193 (.0407) [2.93] .1184				.3497 (.2019) [1.73] .0050	.978 1.94	.35?
B.10.6	$\frac{M}{L_p}$	1.23 (0.14) [8.88] .1498	9.33 (0.36) [26.23] -4.1213	9.73 (0.34) [28.52] 5.4410	9.70 (0.37) [26.55] .4614	9.99 (0.40) [24.89] -1.6492	-1.208 (.1394) [8.66] .5852	-.096 (.1178) [0.82] .0179	0.1167 (.0429) [2.72] .1153	-0.0231 (.4605) [0.05] -.0001				.977 1.88	.362
B.10.7	$\frac{M}{L_p}$	1.25 (0.14) [9.06] .1524	9.29 (0.31) [30.21] -4.0739	9.70 (0.30) [32.17] 5.3842	9.66 (0.33) [29.10] .4629	9.94 (0.38) [26.38] -1.6373	-1.176 (.1486) [7.91] .5700	-.119 (.1229) [0.97] .0222	0.1254 (.0430) [2.92] .1237		.1033 (.1861) [0.55] -.0043			.977 1.88	.358
B.10.8	$\frac{M}{L_p}$	1.24 (0.14) [9.04] .1518	9.38 (0.35) [26.91] -4.0981	9.78 (0.34) [28.50] 5.4128	9.75 (0.36) [26.77] .4689	10.04 (0.40) [25.37] -1.6534	-1.197 (.1421) [8.42] .5802	-.104 (.1186) [0.88] .0195	0.1212 (.0423) [2.87] .1194			-0.1570 (.4745) [0.33] -.0010		.977 1.88	.356
B.10.9	$\frac{M}{L_p}$	1.24 (0.14) [9.09] .1507	9.31 (0.31) [30.24] -4.1018	9.71 (0.30) [32.19] 5.4183	9.67 (0.33) [29.18] .4608	9.96 (0.37) [26.60] -1.6425	-1.182 (.1536) [7.69] .5728	-.114 (.1258) [0.91] .0212	0.1215 (.0423) [2.87] .1199				.0811 (.2119) [0.38] .0005	.977 1.88	.361

[1] For definitions of Y, see footnote 1 of Table B.3.

Table B.11

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, ANNUAL MIGRATION
OF BRITISH WORKERS INTO CANADA, 1953-1965

$$\left(\frac{M}{L_p}\right)_t^{B:C} = \alpha + \alpha_0 X_0 + \beta_1\left(\frac{1}{U^C}\right)_t + \beta_2\left(\frac{1}{U^B}\right)_t + \beta_3 U_t + \beta_4 (Y)_t^1 + E_t$$

Equation Number	α	α_0	$(1/U^C)_t$	$(1/U^B)_t$	V_t	$(Y)_t^1$ #1	$(Y)_t^1$ #2	d.f.	$\bar{R}$ / DW
B.11.1	-4423	44800	105100					9	.947
	(4924)	(4977)	(22880)						1.58
	[0.89]	[9.00]	[4.59]						
		.7821	.2179						
B.11.2	-6643	39890	80840		26.08			8	.970
	(3784)	(4128)	(19240)		(9.26)				2.24
	[1.76]	[9.66]	[4.20]		[2.81]				
		.6681	.1608		.1710				
B.11.3	-5772	39750	82900	-2702	27.65			7	.966
	(5332)	(4429)	(22080)	(10840)	(11.71)				2.26
	[1.08]	[8.97]	[3.75]	[0.25]	[2.36]				
		.6656	.1649	-.0117	.1813				
B.11.4	-30930	39310	86400		16.84	14540		7	.972
	(19181)	(4019)	(19130)		(11.62)	(11653)			2.65
	[1.56]	[9.78]	[4.52]		[1.45]	[1.25]			
		.6536	.1706		.1096	.0661			
B.11.5	-30860	39300	86460	-103	16.92	14515		6	.967
	(22870)	(4364)	(21900)	(10880)	(14.92)	(12880)			2.65
	[1.35]	[9.01]	[3.95]	[0.01]	[1.13]	[1.13]			
		.6535	.1708	-.0004	.1101	.0660			
B.11.6	8477	39560	94750		12.85		-21412	7	.979
	(8100)	(3503)	(17680)		(10.19)		(10534)		2.76
	[1.05]	[11.29]	[5.36]		[1.26]		[2.03]		
		.6529	.1857		.0830		.0784		
B.11.7	9187	39440	96490	-2332	14.25		-21350	6	.975
	(9150)	(3794)	(20220)	(9276)	(12.28)		(11320)		2.77
	[1.00]	[10.40]	[4.77]	[0.25]	[1.16]		[1.89]		
		.6507	.1891	-.0100	.0920		.0781		
B.11.8	-48060	40760	99820			25310		8	.968
	(16960)	(4150)	(17850)			(9582)			2.59
	[2.83]	[9.82]	[5.59]			[2.64]			
		.6846	.1991			.1163			
B.11.9	15110	40870	107300				-29880	8	.977
	(6383)	(3467)	(15120)				(8403)		2.62
	[2.37]	[11.79]	[7.10]				[3.56]		
		.6784	.2116				.1100		

[1] For definitions of Y, please see footnote 1 of Table B.3.

Table B.12

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, ANNUAL MIGRATION OF BRITISH WORKERS INTO CANADA, 1953-1965

$$M_t^{B:C} = \alpha + \alpha_o X_0 + \beta_1(1/U^C)_t + \beta_2(1/U^B)_t + \beta_3 V_t + \beta_4(Y)_t^1 + E_t$$

Equation Number	α	α_0	$(1/U^C)_t$	$(1/U^B)_t$	V_t	$(Y)_t^1$ #1	$(Y)_t^1$ #2	d.f.	$\bar{R}$ / DW
B.12.1	-1602 (3655) [0.44]	42470 (3694) [11.50] .8119	90350 (16980) [5.32] .1881					9	.965 2.32
B.12.2	-3062 (3094) [0.99]	39240 (3376) [11.62] .7346	74400 (15730) [4.73] .1517		17.14 (7.57) [2.26] .1136			8	.976 2.82
B.12.3	-2625 (4372) [0.60]	39170 (3632) [10.79] .7333	75430 (18110) [4.17] .1538	-1356 (8886) [0.15] -.0059	17.93 (9.60) [1.87] .1189			7	.973 2.82
B.12.4	-11840 (17590) [0.67]	39030 (3568) [10.94] .7299	76400 (16980) [4.50] .1556		13.80 (10.31) [1.34] .0914	5256 (10349) [0.51] .0231		7	.974 2.90
B.12.5	-11520 (20300) [0.57]	39010 (3874) [10.07] .7295	76690 (19440) [3.95] .1562	-435 (9659) [0.05] -.0019	14.13 (12.25) [1.07] .0935	5146 (11435) [0.45] .0226		6	.969 2.90
B.12.6	3583 (7893) [0.45]	39100 (3413) [11.45] .7295	80510 (17230) [4.67] .1636		11.33 (9.93) [1.14] .0749		-9408 (10262) [0.92] .0321	7	.976 2.85
B.12.7	3946 (8949) [0.44]	39040 (3711) [10.52] .7283	81400 (19780) [4.12] .1654	-1194 (9073) [0.13] -.0052	12.04 (12.01) [1.00] .0796		-9377 (11071) [0.85] .0320	6	.972 2.85
B.12.8	-25880 (14800) [1.75]	40230 (3621) [11.11] .7582	87410 (15580) [5.61] .1795			14080 (8361) [1.68] .0623		8	.972 2.84
B.12.9	9429 (5114) [1.54]	40250 (3321) [12.12] .7550	91610 (14480) [6.32] .1872				-16880 (8049) [2.10] .0578	8	.975 2.72

[1]For definitions of Y , see footnote 1 of Table B.3.

Table B.13

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, ANNUAL MIGRATION
OF BRITISH WORKERS INTO CANADA, 1953-1965

$$\ln\left(\frac{U}{L_p}\right)^{B:C}_t = \alpha + \alpha_0 \ln X_0 + \beta_1 \ln U^C_t + \beta_2 \ln U^B_t + \beta_3 \ln V_t + \beta_4 \ln (Y)^1_t + E_t$$

Equation Number	α	α_0	$\ln U^C_t$	$\ln U^B_t$	$\ln V_t$	$\ln(Y)^1_t$ #1	$\ln(Y)^1_t$ #2	d.f.	$\bar{R}$ / DW	ρ
			— β Coefficients for —							
B.13.1	11.69 (0.488) [23.94]	1.276 (.302) [4.23] .5018	-1.252 (0.297) [4.21] .4982					9	.866 1.52	
B.13.2	10.63 (0.469) [22.66]	0.968 (0.229) [4.22] .3365	-0.890 (0.234) [3.80] .3130		0.00171 (0.0052) [3.27] .3505			8	.938 2.05	
B.13.3	10.62 (0.507) [20.96]	0.965 (0.245) [3.93] .3355	-0.907 (0.271) [2.81] .3186	-0.056 (0.361) [0.15] -.0132	0.00176 (0.0006) [2.81] .3592			7	.929 2.06	
B.13.4	10.07 (0.602) [16.73]	0.938 (0.219) [4.28] .3203	-0.997 (0.236) [4.23] .3443		0.00110 (0.00067) [1.64] .2210	1.581 (1.156) [1.37] .1144		7	.944 2.59	
B.13.5	10.07 (0.651) [15.46]	0.938 (0.237) [3.96] .3201	-1.002 (0.271) [3.70] .3458	-0.017 (0.349) [0.05] -.0039	0.00112 (0.00079) [1.41] .2240	1.576 (1.254) [1.26] .1140		6	.935 2.60	
B.13.6	10.90 (0.413) [26.38]	0.938 (0.193) [4.87] .3154	-1.134 (0.228) [4.98] .3857		0.00083 (0.00061) [1.37] .1646		-0.895 (0.426) [2.10] .1343	7	.957 2.57	
B.13.7	10.88 (0.045) [24.40]	0.933 (0.207) [4.51] .3135	-1.165 (0.262) [4.44] .3960	-0.098 (0.304) [0.32] -.0225	0.00090 (0.00068) [1.32] .1774		-0.905 (0.458) [1.98] .1357	6	.950 2.62	
B.13.8	10.00 (0.661) [15.13]	1.024 (.234) [4.37] .3587	-1.211 (0.216) [5.60] .4294			2.853 (0.945) [3.02] .2120		8	.932 2.76	
B.13.9	11.29 (0.315) [35.79]	1.002 (0.197) [5.09] .3418	-1.336 (0.183) [7.29] .4607				-1.299 (0.324) [4.00] .1976	8	.952 2.64	
B.13.1a	11.20 (0.705) [15.87]	1.132 (.282) [4.12] .7337	-0.955 (0.416) [2.30] .2663					8	.820 1.70	.304
B.13.3a	10.19 (0.649) [15.70]	0.960 (0.240) [4.01] .4280	-0.651 (0.359) [1.81] .1759	-0.384 (0.375) [0.10] .0089	0.00186 (0.00067) [2.80] .3872			6	.917 2.59	.130

[1] For definitions of Y , see footnote 1 of Table B.3

<u>Table B.14</u>

<u>ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, ANNUAL MIGRATION</u>
<u>OF BRITISH WORKERS INTO CANADA, 1953-1965</u>

$$\ln (M^{B:C})_t = \alpha + \alpha_0 \ln X_0 + \beta_1 \ln U^C_t + \beta_2 \ln U^B_t + \beta_3 \ln V_t + \beta_4 \ln(Y)^1_t + E_t$$

Equation Number	α	α_0	$\ln U^C_t$	$\ln U^B_t$	$\ln V_t$	$\ln(Y)^1_t$ #1	$\ln(Y)^1_t$ #2	d.f.	$\bar{R}$ DW	ρ
B.14.1	11.51 (.389) [29.62]	1.231 (.240) [5.13] .5311	-1.134 (.237) [4.79] .4689					9	.900 2.12	
B.14.2	19.80 (.439) [24.61]	1.024 (.215) [4.77] .4136	-0.890 (.219) [4.07] .3447		0.00115 (0.00049) [2.35] .2417			8	.935 2.35	
B.14.3	10.78 (.453) [22.78]	1.021 (.229) [4.51] .4121	-0.910 (.253) [3.60] .3521	0.068 (.337) [0.20] -.0167	0.00121 (0.00058) [2.06] .2525			7	.925 2.37	
B.14.4	10.56 (.620) [17.02]	1.012 (.226) [4.48] .4070	-0.936 (.243) [3.85] .3608		0.00090 (0.00069) [1.30] .1867	0.667 (1.191) [0.56] .0456		7	.928 2.49	
B.14.5	10.56 (.670) [15.76]	1.010 (.244) [4.14] .4060	-0.949 (.279) [3.41] .3660	0.052 (.358) [0.14] -.0127	0.00094 (0.00081) [1.16] .1963	0.651 (1.290) [0.50] .0444		6	.916 2.50	
B.14.6	10.93 (.463) [23.60]	1.009 (.216) [4.67] .4030	-1.016 (.256) [3.97] .3892		0.00070 (0.00068) [1.03] .1448		-0.461 (.478) [0.96] .0630	7	.934 2.41	
B.14.7	10.92 (.502) [21.76]	1.004 (.233) [4.31] .4008	-1.045 (.295) [3.54] .3997	0.090 (.342) [0.26] -.0219	0.00076 (0.00076) [0.99] .1571		-0.471 (.515) [0.91] .0643	6	.924 2.44	
B.14.8	10.50 (.645) [16.30]	1.081 (.228) [4.73] .4442	-1.110 (.211) [5.27] .4371			1.701 (.921) [1.85] .1187		8	.922 2.69	
B.14.9	11.26 (.337) [33.43]	1.063 (.210) [5.05] .4298	-1.185 (.196) [6.06] .4596				-0.801 (.346) [2.31] .1107	8	.934 2.50	
B.14.5a	10.60 (.714) [14.84]	1.016 (.267) [3.81] .4276	-1.022 (.460) [2.22] .3463	0.071 (.392) [0.18] .0184	0.00082 (0.00103) [0.79] .1861	0.835 (1.660) [0.50] .0584		5	.910 2.26	-.056
B.14.7a	11.24 (.838) [13.42] .4271	0.992 (.251) [3.96] .4271	-1.262 (.536) [2.35] .4148	0.156 (.388) [0.40] -.0395	0.00045 (0.00102) [0.44] .0996		-0.704 (.726) [0.97] .0980	5	.916 2.28	-.015

[1] For definitions of Y, see footnote 1 of Table B.3.

Table B.15

ESTIMATES OF β, SIMPLE REGRESSION EQUATIONS WITH VARIOUS DISCRETE
LAGS, ITALIAN QUARTERLY IMMIGRATION DATA, 1953-I to 1965-IV

$$\left(\frac{M}{I_p}\right)^{I:C}_t = \text{Dummy Variables} + \beta \ (\text{Exog. Var.})_{lagged} + E_t$$

	— β Coefficient for lags of —							$\overline{R}$	
0	1	2	3	4	5		d.f.	DW	ρ
A. Canadian Unemployment ($1/U^C$)									
1936							44	.667	.579
(2691)								2.02	
[0.72]									
	7784						43	.726	.540
	(2488)							2.02	
	[3.13]								
		7100					42	.688	.367
		(2403)						1.69	
		[2.96]							
			3205				41	.765	.463
			(2136)					1.85	
			[1.50]						
				7107			40	.831	.537
				(1941)				1.99	
				[3.66]					
					4938		39	.768	.392
					(2005)			1.65	
					[2.46]				
B. Proxy Policy Variable (V)									
2.023							44	.627	.440
(3.630)								1.65	
[0.56]									
	3.622						43	.638	.465
	(3.703)							1.71	
	[0.99]								
		9.179					42	.723	.576
		(3.428)						1.75	
		[2.68]							
			0.360				41	.781	.611
			(2.970)					2.07	
			[0.12]						
				0.747			40	.765	.528
				(2.857)				1.86	
				[0.26]					
					5.733		39	.780	.492
					(3.010)			1.60	
					[1.90]				

Table B.16

ESTIMATES OF β, SIMPLE REGRESSION EQUATIONS WITH VARIOUS DISCRETE LAGS, "COMMON MARKET" QUARTERLY IMMIGRATION DATA, 1953-I TO 1965-IV

$$\left(\frac{M}{I_p}\right)_t^{CM:C} = \text{Dummy Variables} + \beta \ (\text{Exog. Var.})_{lagged} + E_t$$

| | — β Coefficient for lags of — | | | | | | | $\bar{R}$ | |
	0	1	2	3	4	5	d.f.	DW	ρ
A. Canadian Unemployment ($1/U^C$)									
	15210 (5381) [2.83]						44	.838 1.93	.736
		3000 (5451) [0.55]					43	.788 1.82	.616
			4966 (4927) [1.01]				42	.763 1.58	.437
				21810 (3919) [5.56]			41	.870 1.84	.421
					22420 (3737) [6.00]		40	.882 1.72	.440
						3958 (3982) [0.99]	39	.807 1.81	.442
B. Proxy Policy Variable ($\bar{V}$)									
	-12.06 (6.97) [1.73]						44	.807 1.44	.675
		-1.952 (6.328) [0.31]					43	.811 2.07	.724
			21.72 (5.31) [4.09]				42	.877 2.22	.750
				8.727 (6.376) [1.37]			41	.810 1.98	.607
					-8.324 (6.556) [1.27]		40	.804 1.26	.588
						-0.294 (5.681) [0.05]	39	.839 2.09	.656

Table B.17

ESTIMATES OF β, SIMPLE REGRESSION EQUATIONS WITH VARIOUS DISCRETE
LAGS, UNITED STATES QUARTERLY IMMIGRATION DATA, 1953-I to 1965-IV

$$\left(\frac{M}{I_p}\right)^{US:C}_t = \text{Dummy Variables} + \beta \text{ (Exog. Var.)}_{\text{lagged}} + E_t$$

	— β Coefficients for lags of —					$\overline{R}$		
	0	1	2	3	4	d.f.	DW	ρ
A. Canadian Unemployment ($1/U^C$)								
	-463 (347) [1.33]					44	.830 1.73	.389
		608 (353) [1.72]				43	.834 1.89	.281
			1101 (320) [3.44]			42	.875 2.17	.402
				630 (325) [1.94]		41	.860 2.01	.360
					229 (330) [0.69]	40	.854 1.93	.342
B. Proxy Policy Variable (V)								
	1.019 (.494) [2.06]					44	.844 2.09	.441
		1.296 (.475) [2.73]				43	.845 2.04	.325
			0.480 (.507) [0.95]			42	.844 1.81	.432
				-1.368 (.455) [3.00]		41	.892 1.93	.554
					0.726 (.485) [1.50]	40	.877 2.23	.526

Table B.18

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION ADJUSTED BY L_p, ITALIAN QUARTERLY DATA, 1954-II TO 1965-IV

$$\left(\frac{M}{L_p}\right)_t^{I:C} = \alpha_0 X_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \lambda \left(\frac{M}{L_p}\right)_{t-1}^{I:C} + \beta_1 \left(\frac{1}{U}\right)_{t-5}^C + \beta_2 \left(\frac{1}{U}\right)_{t-5}^I + \beta_3 V_{t-5} + \beta_4 N_{t-5} + \beta_5 \frac{Y^C}{Y} G_{t-5} + E_t$$

Equation Number	α_0	α_1	α_2	α_3	α_4	λ	$\left(\frac{1}{U}\right)^C_{t-5}$	$\left(\frac{1}{U}\right)^I_{t-5}$	V_{t-5}	N_{t-5}	$\frac{Y^C}{Y}G_{t-5}$	$\overline{R}$ / DW	ρ
B.18.1	2988	206	1912	518	-77	0.3713	4466					.827	
	(575)	(381)	(306)	(413)	(471)	(.1148)	(1695)					1.89	
	[5.20]	[0.54]	[6.24]	[1.25]	[0.16]	[3.23]	[2.63]						
	.3427	-.0238	.4089	.0012	.0077	.2419	.0213						
B.18.2	2741	-274	1500	609	158	0.3326	3196		6.894			.854	
	(539)	(394)	(321)	(384)	(444)	(.1072)	(1635)		(2.508)			2.08	
	[5.08]	[0.70]	[4.68]	[1.59]	[0.36]	[3.10]	[1.95]		[2.75]				
	.2964	.0299	.3025	.0014	-.0150	.2043	.0144		.1662				
B.18.3	2719	-809	1042	87	-379	0.3538	3372	285	7.594			.852	
	(544)	(848)	(719)	(827)	(876)	(.1119)	(1664)	(401)	(2.709)			2.17	
	[5.00]	[0.95]	[1.45]	[0.11]	[0.43]	[3.16]	[2.03]	[0.71]	[2.80]				
	.2929	.0877	.2093	.0002	.0358	.2165	.0151	-.0399	.1823				
B.18.4	2654	1551	3241	2553	2179	0.3245	2832	-565	8.042	-0.0336		.850	
	(553)	(3207)	(2971)	(3335)	(3465)	(.1189)	(1817)	(1186)	(2.787)	(.0440)		2.18	
	[4.80]	[0.48]	[1.09]	[0.77]	[0.63]	[2.73]	[1.56]	[0.48]	[2.89]	[0.76]			
	.2846	-.1674	.6480	.0057	-.2053	.1977	.0126	.0784	.1922	-.0466			
B.18.5	2772	-5586	-3846	-4973	-5435	0.3303	2397	1802	5.900		1487	.860	
	(532)	(2966)	(2998)	(3123)	(3134)	(.1101)	(1726)	(985)	(2.832)		(886)	2.03	
	[5.21]	[1.88]	[1.28]	[1.59]	[1.73]	[3.00]	[1.40]	[1.83]	[2.08]		[1.68]		
	.2926	.5934	-.7569	-.0109	.5041	.1981	.0105	-.2461	.1388		.2763		
B.18.6	2607	-3248	-2175	-2669	-2858	0.1684	-452	634	4.246	-0.1283	3599	.867	.107
	(497)	(3329)	(3232)	(3499)	(3573)	(.1158)	(2046)	(1162)	(2.829)	(.0504)	(1097)	1.61	
	[5.24]	[0.98]	[0.67]	[0.76]	[0.80]	[1.45]	[0.22]	[0.55]	[1.50]	[2.55]	[3.28]		
	.2916	.3990	-.4637	.0131	.2442	.6756	.0016	-.0761	.0902	-.1434	.5679		

β Coefficients for ——

Table B.19

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION ADJUSTED BY L_P,
ITALIAN QUARTERLY DATA, 1954-II TO 1965-IV

$$\ln\left(\frac{M}{L_P}\right)_t^{I:C} = \alpha_0 \ln X_0 + \alpha_1 \ln X_1 + \alpha_2 \ln X_2 + \alpha_3 \ln X_3 + \alpha_4 \ln X_4 + \ln\left(\frac{M}{L_P}\right)_{t-1}^{I:C} + \beta_1 \ln U_{t-5}^C + \beta_2 \ln U_{t-5}^I + \beta_3 \ln V_{t-5} + \beta_4 \ln N_{t-5}$$

$$+ \beta_5 \ln\left(\frac{Y^C}{Y^G}\right)_{t-5} + E_t$$

Equation Number	α_0	α_1	α_2	α_3	α_4	λ	$\ln U_{t-5}^C$	$\ln U_{t-5}^I$	$\ln V_{t-5}$	$\ln N_{t-5}$	$\ln\left(\frac{Y^C}{Y^G}\right)_{t-5}$	$\bar{R}$ / DW	ρ
B.19.1	0.462	4.94	5.76	5.05	4.80	0.4585	-0.5664					.866	.146
	(.097)	(0.95)	(1.01)	(1.02)	(0.95)	(.1053)	(.1523)					1.78	
	[4.74]	[5.18]	[5.70]	[4.97]	[5.08]	[4.35]	[3.72]						
	.1966	-2.0704	3.7927	.0612	-1.2104	.2742	-.0440						
B.19.2	0.450	4.46	5.21	4.69	4.53	0.4159	-0.4304		0.1301			.883	.114
	(.093)	(.91)	(.97)	(.96)	(.89)	(.1030)	(.1528)		(.0602)			1.77	
	[4.83]	[4.90]	[5.39]	[4.88]	[5.08]	[4.04]	[2.82]		[2.16]				
	.1796	-1.6902	3.1223	.1024	-1.0951	.2544	-.0173		.1440				
B.19.3	0.441	4.05	4.83	4.27	4.12	0.4564	-0.4327	-0.1528	0.1440			.889	.067
	(.093)	(.93)	(.97)	(.98)	(.91)	(.1043)	(.1487)	(.1711)	(.0615)			1.77	
	[4.73]	[4.38]	[4.97]	[4.38]	[4.51]	[4.38]	[2.91]	[0.89]	[2.34]				
	.1670	-1.3806	2.6180	.1498	-.9751	.2964	.0030	-.0400	.1614				
B.19.4	0.441	7.75	8.45	8.01	7.89	0.4120	-0.3756	-0.2551	0.1497	-0.3253		.885	.086
	(.094)	(5.22)	(5.12)	(5.28)	(5.31)	(.1177)	(.1763)	(.5988)	(.0629)	(.4608)		1.80	
	[4.69]	[1.48]	[1.65]	[1.52]	[1.48]	[3.50]	[2.13]	[0.43]	[2.38]	[0.71]			
	.1695	-2.7382	4.7375	.2402	-1.8717	.2605	-.0040	.0663	.1662	-.0264			
B.19.5	0.452	12.74	13.32	12.92	12.81	0.3366	-0.2262	-0.3242	0.1061	-0.9012	1.811	.880	.162
	(.092)	(5.80)	(5.68)	(5.83)	(5.87)	(.1190)	(.2068)	(.6939)	(.0676)	(.5608)	(1.032)	1.74	
	[4.89]	[2.19]	[2.34]	[2.22]	[2.18]	[2.83]	[1.09]	[0.47]	[1.57]	[1.61]	[1.75]		
	.1856	-5.2521	8.6128	.0822	-3.0856	.1859	-.0207	-.0819	.1124	-.0650	.3245		
B.19.6	0.447	3.41	4.20	3.57	3.40	0.4543	-0.4138	-0.7097	0.1199		0.781	.885	.094
	(.094)	(1.24)	(1.27)	(1.33)	(1.29)	(.1061)	(.1554)	(.6348)	(.0673)		(.847)		
	[4.77]	[2.75]	[3.30]	[2.69]	[2.63]	[4.28]	[2.66]	[1.12]	[1.78]		[0.92]		
	.1730	-1.2267	2.3909	.0987	-.8032	.2837	-.0077	-.1840	.1325		.1479		

Table B.20

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION ADJUSTED BY L_p,
"COMMON MARKET" QUARTERLY DATA, 1953-III - 1965-IV

$$\ln\left(\frac{M}{L_p}\right)^{CM:C}_t = \alpha_0\ln X_0 + \alpha_1\ln X_1 + \alpha_2\ln X_2 + \alpha_3\ln X_3 + \alpha_4\ln X_4 + \lambda\ln\left(\frac{M}{L_p}\right)^{CM:C}_{t-1} + \beta_1\ln U^C_{t-2} + \beta_2\ln U^G_{t-2} + \beta_3\ln V_{t-2} + \beta_4\ln N_{t-2} + \beta_5\ln\left(\frac{Y^C}{Y^G}\right)_{t-2} + \varepsilon_t$$

Each cell gives: coefficient, (standard error), [t-statistic], and elasticity/beta value.

Equation Number	α_0	α_1	α_2	α_3	α_4	λ	$\ln U^C_{t-2}$	$\ln U^G_{t-2}$	$\ln V_{t-2}$	$\ln N_{t-2}$	$\ln\left(\frac{Y^C}{Y^G}\right)_{t-2}$	$\bar{R}$ / DW

A. Period 1953-III to 1965-IV

B.20.1

	0.406	2.02	3.78	2.64	2.07	.7503	-.4537					.959
	(.227)	(0.71)	(0.73)	(0.91)	(0.81)	(.0713)	(.1848)					2.31
	[1.79]	[2.83]	[5.18]	[2.91]	[2.55]	[10.52]	[2.46]					
	.0302	-.4593	.8127	.3207	-.2265	.4757	.0466					

B.20.2

	0.424	2.06	3.68	2.60	2.10	0.6982	-0.4404		0.1011			.961
	(0.22)	(0.71)	(0.72)	(0.89)	(0.80)	(.0788)	(.1825)		(.0688)			2.23
	[1.89]	[2.92]	[5.08]	[2.91]	[2.62]	[8.86]	[2.41]		[1.47]			
	.0314	-.4659	.7874	.3154	-.2283	.4410	.0451		.0739			

B.20.3

	0.627	5.67	6.98	6.64	6.04	0.2788	-0.6527	0.3367	0.0248			.973
	(.192)	(1.02)	(.97)	(1.19)	(1.12)	(.1163)	(.1597)	(.0771)	(.0599)			2.10
	[3.26]	[5.59]	[7.22]	[5.59]	[5.38]	[2.40]	[4.09]	[4.37]	[0.41]			
	.0454	-1.2567	1.4614	.7867	-.6426	.1723	.0654	.3504	.0178			

B.20.4

	0.560	4.38	5.75	5.57	4.81	0.2202	-0.8308	0.2473	0.2565	0.1879		.973
	(.200)	(1.52)	(1.42)	(1.49)	(1.52)	(.1260)	(.2190)	(.1077)	(.0596)	(.1588)		2.15
	[2.80]	[2.86]	[4.06]	[3.74]	[3.16]	[1.75]	[3.79]	[2.30]	[0.43]	[0.18]		
	.0405	-.9585	1.2016	.6587	-.5116	.1358	.0831	.2569	.0183	.0751		

B.20.5

	0.505	6.14	7.59	7.48	6.68	0.1423	-0.8815	0.1996	0.0285		1.075	.975
	(.195)	(1.00)	(.98)	(1.21)	(1.13)	(.1304)	(.1902)	(.1001)	(.0577)		(.526)	2.18
	[2.60]	[6.11]	[7.76]	[6.16]	[5.94]	[1.09]	[4.64]	[1.99]	[0.49]		[2.04]	
	.0364	-1.3527	1.5830	.8825	-.7085	.0876	.0879	.2068	.0203		.1567	

B.20.6

	0.512	8.43	9.85	9.67	8.95	0.1274	-0.7900	0.2286	0.0301	-0.2749	1.872	.975
	(.195)	(2.62)	(2.57)	(2.60)	(2.64)	(.1315)	(.2132)	(.1048)	(.0578)	(.2891)	(.990)	2.16
	[2.63]	[3.22]	[3.84]	[3.71]	[3.39]	[0.97]	[3.71]	[2.18]	[0.52]	[0.95]	[1.89]	
	.0369	-1.8579	2.0510	1.1396	-.9477	.0783	.0787	.2366	.0214	-.1095	.2725	

B. Period 1955-I to 1965-IV

B.20.7

	0.700	2.15	3.59	2.46	2.11	.6170	-.2244		0.1706			.958
	(.252)	(0.73)	(0.73)	(0.90)	(0.81)	(.0920)	(.1952)		(.0728)			2.26
	[2.77]	[2.96]	[4.92]	[2.72]	[2.59]	[6.70]	[1.15]		[2.34]			
	.0787	-.5638	1.0232	.2658	-.2795	.3091	.0149		.1475			

B.20.8

	0.792	5.40	6.60	6.15	5.69	.2626	-.4832	.3072	0.0781			.971
	(.211)	(1.00)	(0.96)	(1.18)	(1.11)	(.1161)	(.1745)	(.0756)	(.0647)			2.22
	[3.75]	[5.38]	[6.89]	[5.21]	[5.12]	[2.26]	[2.77]	[4.06]	[1.21]			
	.0871	-1.3858	1.8403	.6605	-.7376	.1286	.0313	.3097	.0660			

B.20.9

	0.762	3.73	5.04	4.79	4.14	.1764	-.6774	.1869	0.0944	0.2351		.972
	(.209)	(1.51)	(1.43)	(1.49)	(1.52)	(.1287)	(.2173)	(.1111)	(.0647)	(.1613)		2.37
	[3.65]	[2.47]	[3.54]	[3.22]	[2.72]	[1.37]	[3.12]	[1.68]	[1.46]	[1.46]		
	.0856	-.9541	1.4017	.5132	-.5352	.0861	.0437	.1879	.0795	.0936		

B.20.10

	0.717	5.96	7.28	7.07	6.41	0.1224	-0.6972	0.1873	0.0867		0.9410	.972
	(.210)	(1.03)	(1.01)	(1.27)	(1.16)	(.1400)	(.2116)	(.1020)	(.0632)		(.554)	2.34
	[3.41]	[5.78]	[7.17]	[5.57]	[5.51]	[0.87]	[3.30]	[1.84]	[1.37]		[1.70]	
	.0785	-1.5223	2.0213	.7563	-.8283	.0597	.0450	.1881	.0730		.1288	

B.20.11

	0.714	6.19	7.50	7.29	6.64	0.1201	-0.6939	0.1903	0.0857	-0.0257	1.019	.972
	(.218)	(3.32)	(3.28)	(3.35)	(3.37)	(.1459)	(.2193)	(.1117)	(.0658)	(.3523)	(1.224)	2.34
	[3.28]	[1.87]	[2.29]	[2.18]	[1.97]	[0.82]	[3.16]	[1.70]	[1.30]	[0.07]	[0.83]	
	.0782	-1.5814	2.0848	.7806	-.8582	.0586	.0448	.1912	.0721	-.0102	.1395	

Table B.21

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION ADJUSTED BY L_p,
"COMMON MARKET QUARTERLY DATA, 1953-III - 1965-IV

$$\left(\frac{M}{L_p}\right)_t^{CM:C} = \alpha_0 X_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \lambda\left(\frac{M}{L_p}\right)_{t-1}^{CM:C} + \beta_1\left(\frac{1}{U^C}\right)_{t-2} + \beta_2\left(\frac{1}{U^G}\right)_{t-2} + \beta_3 V_{t-2} + \beta_4 N_{t-2} + \beta_5\left(\frac{Y^C}{Y^G}\right)_{t-2} + E_t$$

Equation Number	α_0	α_1	α_2	α_3	α_4	λ	$\left(\frac{1}{U^C}\right)_{t-2}$	$\left(\frac{1}{U^G}\right)_{t-2}$	V_{t-2}	N_{t-2}	$\left(\frac{Y^C}{Y^G}\right)_{t-2}$	$\bar{R}$ / DW
A. Period 1953-III - 1965-IV												
B.21.1	3329 (1213) [2.74] .1303	-1546 (1230) [1.26] .0949	3417 (957) [3.57] .2706	-103 (682) [0.15] -.0018	-1524 (815) [1.87] .0532	0.5577 (.1005) [5.55] .3957	5389 (4137) [1.30] .0570					.861 2.06
B 21.2	2300 (1167) [1.97] .0691	-1879 (1168) [1.61] .1010	1760 (1050) [1.68] .1023	-1269 (730) [1.74] .0363	-1999 (769) [2.60] .0661	0.5535 (.0933) [5.93] .4245	4560 (3930) [1.16] .0394		16.67 (5.425) [3.07] .2339			.894 2.00
B.21.3	2245 (1168) [1.92] .0672	-2714 (1426) [1.90] .1451	1213 (1179) [1.03] .0702	-2075 (1076) [1.93] -.0591	2898 (1170) [2.48] .0953	0.6111 (.1090) [5.60] .4663	4848 (3938) [1.23] .0417	437 (428) [1.02] -.0795	18.11 (5.605) [3.23] .2529			.894 2.03
B.21.4	2582 (1070) [2.41] .0744	-9176 (2501) [3.67] .4728	-2762 (1698) [1.63] -.1541	-5512 (1501) [3.67] -.1512	-8434 (2119) [3.98] .2672	0.5115 (.1047) [4.88] .3762	9197 (3867) [2.38] .0762	2171 (694) [3.13] -.3811	6.693 (6.353) [1.05] .0901	0.0697 (.0230) [3.02] .3294		.913 2.01
B.21.5	1823 (992) [1.84] .0514	-20870 (4554) [4.58] 1.0525	-13610 (4554) [3.66] -.7429	-16400 (3582) [4.58] -.4403	-19640 (4169) [4.71] .5090	0.3210 (.1158) [2.77] .2311	9753 (3531) [2.76] .0791	2845 (686) [4.15] -.4887	5.465 (5.636) [0.97] .0720		6561 (1587) [4.13] .5767	.925 2.04
B.21.6	1916 (1037) [1.85] .0541	-20220 (4950) [4.09] 1.0195	-12870 (4294) [3.00] -.7023	-15620 (4230) [3.69] -.4192	-18980 (4610) [4.12] .5882	0.3320 (.1210) [2.74] .2388	10000 (3637) [2.75] .0810	2901 (711) [4.08] -.4982	4.798 (5.999) [0.80] .0632	0.0113 (.0316) [0.36] .0521	5950 (2348) [2.53] .5228	.924 2.04
B. Period 1955-I - 1965-IV												
B.21.7	3858 (607) [6.36] .2123	-789 (612) [1.29] .0498	1268 (526) [2.41] .1086	-669 (387) [1.73] -.0106	-792 (418) [1.89] .0305	0.2807 (.0672) [4.17] .1405	2352 (2160) [1.09] .0206		22.68 (2.70) [8.41] .4483			.965 2.14
B.21.8	3890 (619) [6.28] .2140	-619 (740) [0.84] .0391	1365 (581) [2.35] .1170	-497 (569) [0.87] -.0079	-602 (621) [0.97] .0232	0.2626 (.0806) [3.26] .1315	2336 (2187) [1.07] .0205	-89 (213) [0.42] .0185	22.48 (2.77) [8.11] .4442			.964 2.16
B 21.9	4014 (560) [7.16] .2181	-4022 (1330) [3.02] .2506	-662 (863) [0.77] -.0560	-2337 (807) [2.90] -.0366	-3576 (1151) [3.11] .1358	0.2189 (.0742) [2.95] .1082	4491 (2104) [2.13] .0389	836 (367) [2.28] -.1726	16.68 (3.18) [5.24] .3255	0.0367 (.0124) [2.98] .1882		.971 2.44
B.21.10	3584 (556) [6.45] .1944	-8896 (2642) [3.37] .5533	-5279 (2118) [2.49] -.4459	-6877 (2036) [3.38] -.1074	-8235 (2424) [3.40] .3121	0.1344 (.0816) [1.65] .0663	5501 (2168) [2.54] .0476	993 (384) [2.59] -.2046	16.62 (3.05) [5.45] .3237		2885 (892) [3.23] .2605	.972 2.41
B.21.11	3717 (598) [6.21] .2015	-7809 (3162) [2.47] .4854	-4144 (2777) [1.49] -.3499	-5748 (2709) [2.12] -.0897	-7172 (2957) [2.43] .2717	0.1546 (.0882) [1.75] .0763	5403 (2193) [2.46] .0467	1030 (392) [2.63] -.2121	16.12 (3.17) [5.08] .3139	0.0137 (.0214) [0.64] .0699	2065 (1567) [1.32] .1863	.971 2.44

Table B.22

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION ADJUSTED BY L_p,
UNITED STATES QUARTERLY DATA, 1953-II TO 1965-IV

$$\left(\frac{M}{L_p}\right)^{US:C}_t = \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \lambda \left(\frac{M}{L_p}\right)^{US:C}_{t-1} + \beta_1 \left(1/U^C\right)_{t-1} + \beta_2 \left(1/U^{US}\right)_{t-1} + \beta_3 V_{t-1} + \beta_4 \left(\frac{Y^C}{Y^{US}}\right)_{t-1} + E_t$$

| | | | | | | | β Coefficients for | | | | |
Equation Number	α_1	α_2	α_3	α_4	λ	$1/U^C_{t-1}$	$1/U^{US}_{t-1}$	V_{t-1}	$\left(\frac{Y^C}{Y^{US}}\right)_{t-1}$	$\bar{R}$ DW	σ
B.22.1	192 (144) [1.33] -.2570	563 (112) [4.80] -.2151	774 (134) [5.76] 1.2923	250 (181) [1.38] .0173	0.4317 (.1224) [3.52] .0883	812 (244) [3.32] .0742				.867 2.05	
B.22.2	241 (146) [1.65] -.3186	563 (112) [5.05] -.2227	860 (145) [5.93] 1.4173	390 (202) [1.93] .0265	0.3442 (.1345) [2.56] .0694	669 (260) [2.57] .0603		0.667 (.452) [1.48] -.0322		.871 1.91	
B.22.3	229 (312) [0.73] -.3022	551 (294) [1.87] -.2179	847 (325) [2.61] 1.3958	376 (356) [1.06] .0256	0.3439 (.1363) [2.52] .0693	670 (264) [2.53] .0604		0.658 (.503) [1.30] -.0318	51.65 (1146) [0.05] .0008	.867 1.91	
B.22.4	322 (349) [0.92] -.4248	626 (331) [1.89] -.2621	940 (359) [2.62] 1.6599	477 (385) [1.24] -.0128	0.3206 (.1536) [2.09] .0477	685 (507) [1.35] .0382	-335 (1025) [0.33] -.0022	0.804 (.528) [1.52] -.0438	-10.71 (1246) [0.01] -.0001	.861 2.08	.078

Table B.23

ESTIMATES OF MULTIPLE REGRESSION EQUATIONS, MIGRATION ADJUSTED BY L_p,
UNITED STATES QUARTERLY DATA, 1953-II TO 1965-IV

$$\ln\left(\frac{M}{L_p}\right)^{US:C}_t = \alpha_1 \ln X_1 + \alpha_2 \ln X_2 + \alpha_3 \ln X_3 + \alpha_4 \ln X_4 + \lambda \ln \left(\frac{M}{L_p}\right)^{US:C}_{t-1} + \beta_1 \ln U^C_{t-1} + \beta_2 \ln U^{US}_{t-1}$$
$$+ \beta_3 \ln V_{t-1} + \beta_4 \ln \left(\frac{Y^C}{Y^{US}}\right)_{t-1} + E_t$$

| | | | | | | | β Coefficients for | | | | |
Equation Number	α_1	α_2	α_3	α_4	λ	$\ln U^C_{t-1}$	$\ln U^{US}_{t-1}$	$\ln V_{t-1}$	$\ln\left(\frac{Y^C}{Y^{US}}\right)_{t-1}$	$\bar{R}$ DW	σ
B.23.1	3.70 (.86) [4.29] -5.7112	4.09 (.84) [4.85] -1.4054	4.24 (.86) [4.95] 7.1911	3.80 (.88) [4.29] .7290	0.4719 (.1203) [3.92] .1195	-0.174 (.057) [3.05] .0770				.880 1.92	
B.23.2	4.17 (.89) [4.69] -6.4547	4.48 (.87) [5.15] -1.5991	4.74 (.88) [5.36] 8.5874	4.39 (.92) [4.78] .4151	0.3434 (.1272) [2.70] .0593	-0.085 (.071) [1.20] .0234		0.065 (.027) [2.43] -.0313		.891 2.07	.127
B.23.3	4.72 (1.14) [4.15] -7.3586	5.04 (1.13) [4.47] -1.8368	5.29 (1.13) [4.68] 9.6919	4.94 (1.16) [4.27] .4486	0.3045 (.1333) [2.28] .0487	-0.098 (.075) [1.30] .0257		0.060 (.029) [2.05] -.0311	0.179 (.283) [0.63] .0116	.889 2.03	.150
B.23.4	4.64 (1.23) [3.79] -7.2413	4.96 (1.21) [4.09] -1.8133	5.21 (1.22) [4.27] 9.5560	4.86 (1.25) [3.57] .4390	0.3105 (.1395) [2.23] .0493	-0.119 (.122) [0.98] .0310	0.041 (.188) [0.22] -.0003	0.061 (.030) [2.03] -.0319	0.179 (.287) [0.62] .0116	.886 2.05	.152

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