

A LONGITUDINAL PERSPECTIVE ON THE UNEMPLOYMENT EXPERIENCE OF PRINCIPAL APPLICANT IMMIGRANTS TO CANADA: 1977-1981

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Résumé — Nous faisons ici une analyse longitudinale du chômage parmi les immigrants au Canada (applicants principaux) pour la période 1977-1981. L'analyse se base sur les données d'assurance chômage et du processus d'immigration. Les résultats indiquent que les immigrants ont une expérience de chômage semblable, à l'exception de ceux qui arrivent avec un emploi déjà établi pour qui la durée de sans emploi est réduite. Un modèle de régression Weibull confirme le fait que les immigrants ont une expérience de chômage semblable à celle de la main d'oeuvre dans son ensemble.

Abstract — This paper presents a longitudinal analysis of the unemployment experience of immigrants to Canada (principal applicants) for the 1977-1981 period. The analysis is based on longitudinal labour force (unemployment insurance) data and operational data relating to the immigration process overseas. The results indicate that immigrants have a structurally similar distribution of post-entry unemployment experience, with the exception of those immigrants with an arranged job who tend to have lower expected unemployment duration. A Weibull regression model is specified and estimated which also confirms the structural similarity of unemployment behaviour of principal applicant immigrants and the domestic workforce.

Key Words — immigration, unemployment, longitudinal, Weibull regression model

Introduction

This paper examines the incidence, frequency and duration of unemployment of a random sample of immigrants to Canada, focussing on the longitudinal unemployment behaviour of principal applicants over the 1977-1983 period. To control for observed and unobserved characteristics of principal applicants and the domestic workforce as it affects differences between the immigrant cohort and the established domestic workforce, a Weibull regression model is specified and estimated which incorporates both state dependence and population heterogeneity. Utilizing administrative micro panel data, the purpose of the paper is to present a new perspective on the unemployment experience of immigrants to Canada.¹ Using weekly unemployment insurance (UI) panel data, the paper presents a comparative analysis of the longitudinal unemployment experience of immigrants to Canada and the domestic labour force. Information gathered when immigrants are processed abroad is combined with the data on the domestic labour force to yield a longitudinal profile of immigrants after arriving in Canada. Owing to the universal nature of the UI program in Canada, one is able to generate representative unemployment histories of immigrants as well as the domestic labour force.

Data System and Sample Characteristics

The immigration data consist of approximately 50,000 individuals who came to Canada in the 1975-1982 period. The sample was selected by combining the Immigration Data System Overseas (IDSO) with the Longitudinal Labour Force File (LLFF) of the Department of Employment and Immigration. The labour force file is a comprehensive data system which covers all insured workers in Canada and contains detailed information on individual's unemployment insurance history.² IDSO contains information on immigrants obtained at the paper-screening, interview and final disposition stages of processing applications abroad.³ The sample characteristics are shown in Table 1 for those who entered under the Old (1952) Act (regulations) and the New (1976) Act. The sample contains a representative selection of the various immigration categories: independent, sponsored, nominated (Old Act) and the corresponding categories under the New Act.⁴ The profile of immigration from the sample longitudinal file is shown in Tables 1 and 2.

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TABLE 1. PROFILE OF IMMIGRANTS TO CANADA:
1975-1981, LONGITUDINAL SAMPLE

	(1978 - 81) New Act		(1975 - 77) Old Act	
	Number	Percent	Number	Percent
<u>Sample Size</u>				
Independent (Independent *)	(6,418)	(48.4)	10,314	37.5
Sponsored (Family Class)	(5,529)	(41.7)	9,105	33.1
Nominated (Assisted Relatives)	(1,302)	(9.8)	8,059	29.4
Total	(13,250)	(100.0)	27,478	100.0
<u>Marital Status</u>				
Single	4,673	35.3	10,632	38.7
Married	7,734	58.4	15,232	55.4
Other	843	6.4	1,614	5.9
<u>Age</u>				
Under 18	1,142	8.6	3,528	12.8
18-24	3,089	23.3	6,404	23.3
25-44	6,041	45.6	13,080	47.6
45+	2,978	22.5	4,466	16.3
<u>Sex</u>				
Male	7,224	54.5	14,274	52.0
Female	6,026	45.5	13,204	48.0
<u>Country of Birth</u>				
England	1,730	13.1	3,300	12.0
U.S.A.	1,029	7.8	2,193	8.0
Vietnam	789	6.0	-	-
Philippines	773	5.8	1,359	4.9
India	597	4.5	1,824	6.6
Hong Kong	561	4.2	1,153	4.2
China (mainland)	547	4.1	1,338	4.9
Scotland	447	3.4	829	3.0
Jamaica	369	2.8	1,327	4.8
U.S.S.R.	316	2.4	267	1.0
Guyana	289	2.2	607	2.2
Italy	267	2.0	626	2.3
Other Countries	5,527	41.7	12,667	46.1
<u>Destination in Canada</u>				
Atlantic Region	813	6.1	749	2.7
Québec	1,922	14.5	4,223	15.4
Ontario	6,219	46.9	13,659	49.7
Manitoba	650	4.9	1,140	4.2
Saskatchewan	235	1.8	527	1.9
Alberta	1,785	13.5	2,979	10.8
British Columbia	2,065	15.5	4,201	15.3

* Excluding assisted relatives.

Source: Sample drawn from the following merged administrative data files;
Longitudinal Labour Force File (LLFF), Landed Immigration Data System
(LIDS) and Immigration Data System Overseas (IDS0); Department of
Employment and Immigration, Ottawa.

TABLE 2. SAMPLE CHARACTERISTICS OF INDEPENDENT
IMMIGRANTS WHO ARRIVED IN CANADA IN 1975 AND 1979
(PERCENT DISTRIBUTION)

	1975 sample	1979 sample
<u>Sex</u>		
Male	72.9	81.7
Female	27.1	18.3
<u>Age</u>		
Under 25	23.1	15.5
25-49	74.4	79.5
50+	2.5	5.0
<u>Occupation</u>		
Professional/technical	44.3	46.6
Clerical, Sales	21.8	17.1
Primary	1.9	2.8
Processing	1.2	1.5
Construction	12.2	13.3
Transportation	0.9	0.7
Material Handling and Other	17.7	18.0
<u>Birthplace</u>		
Great Britain	30.6	30.6
Continental Europe	13.2	21.7
Africa	7.1	7.2
Asia	20.6	15.7
U.S.A.	11.3	10.7
South America	4.0	2.2
Caribbean	4.0	2.4
Other	9.2	9.2
<u>Discretionary Entry</u>	5.1	18.0

Sample Size = 2,523 (1975)
 = 885 (1979).

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From the longitudinal immigration file one can also estimate post-entry mobility patterns. Table 3 shows the proportion of independent immigrants (principal applicants) who entered Canada in 1975 and their province of residence in 1979. A considerable number of immigrants who arrive in Canada subsequently leave the area of their intended destination. For example, of those 1975 immigrants who intended to live in the Atlantic region, about 60 per cent were no longer living in that region in 1979. About half of that 60 per cent represents moves to other regions in Canada, while the rest largely represents return migration.

TABLE 3. INTER-REGIONAL MIGRATION OF INDEPENDENT IMMIGRANTS WHO ENTERED CANADA IN 1975:
PER CENT AS OF 1979

From (1975) To (1979)	Atlantic	Québec	Ontario	Prairies	British Columbia	Attrition
Atlantic	39.6	2.2	15.4	5.5	8.4	28.6
Québec	0.7	49.4	8.2	6.2	2.5	33.0
Ontario	0.8	2.2	59.2	4.0	4.0	29.6
Prairies	0.9	1.8	9.3	50.3	7.9	27.9
British Columbia	1.0	1.3	6.4	4.7	50.8	35.7

Source: See Table 1. Sample size = 2,286.

Post-Entry Distribution of Unemployment

Combining the IDSO with the LLFF data enables one to observe directly the post-entry unemployment experience of immigrants. The focus is on independent immigrants (principal applicants) who landed in 1975 and who were assessed against the demand points rating system.⁵ In addition, immigrants were identified according to whether they had arranged employment or not. Unemployment is considered in its incidence,

frequency and duration. Specifically, we look at the years 1977-1981, thus allowing for an initial adjustment period in Canada. Allowance for an adjustment period is of particular relevance for individuals who did not have arranged employment before coming to Canada. As indicated previously, unemployment is measured by weeks drawing regular unemployment insurance benefits.⁶ For comparative purposes, we drew a random sample of about 6,800 individuals from the LLFF for the domestic insured population for the 1977-1981 period. The overall characteristics of the distributions are shown in Table 4.

About one-half of independent immigrants who landed in Canada in 1975 experienced at least one spell of unemployment in the subsequent 1977-1981 period. Those who did experience post-entry unemployment had about two spells and spent about 36 weeks unemployed, on average. For the total 1975 sample, the estimated spell frequency is 1.0 with a mean duration of unemployment of about 18 weeks (over a five year period).

With regard to the distribution by spell frequency, it was found that about 48 per cent of those who did experience unemployment had only one spell. About 12 per cent had four or more spells. A substantial proportion of the latter was concentrated in seasonally-oriented occupations and low-skilled jobs. There would also appear to be a relatively small sub-group of the immigrant population who spend a very disproportionate amount of time unemployed. For example, of those who did experience some unemployment, about 23 per cent spent in excess of one year unemployed, while approximately 5 per cent in excess of two years. The latter group accounted for about 20 per cent of all unemployment. Those individuals with more than one year of unemployment over the 1977-1981 period accounted for approximately 60 per cent of total unemployment. The distribution of unemployment duration would thus appear to be significantly concentrated — an empirical observation characteristic of the domestic labour force. It is interesting to observe that those who had arranged employment (about 25 per cent of the sample) had a similar distribution of unemployment.

It should be noted that the characteristics of the post-entry distribution of unemployment reflect, among other factors, the nature of the initial migrant flow. As an example, for workers in the construction, primary and other seasonally-oriented sectors, a relatively high incidence of unemployment and multiple spells over relatively long periods of time may not be unexpected, given the significant seasonal variations in the

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TABLE 4. UNEMPLOYMENT INCIDENCE, FREQUENCY AND DURATION OVER THE 1977-1981 PERIOD FOR A SAMPLE OF INDEPENDENT IMMIGRANTS WHO LANDED IN CANADA IN 1975 (PRINCIPAL APPLICANTS)

	1975		Domestic Labour Force
	(1) Independent Total	(2) Immigrants Arranged Employment	
Percent of sample who had at least one spell of unemployment:	43.8	41.1	36.6
Distribution by spell frequency for those with at least one spell (percent):			
Mean	2.0	1.9	2.0
1	48.0	52.0	46.3
2	27.1	27.1	25.5
3	13.3	12.2	15.2
4 or more	11.6	8.6	13.1
Distribution by weeks unemployed for those who experienced unemployment (percent):			
Mean	36.5	29.5	36.8
1 - 10	25.1	35.7	22.2
11 - 30	30.6	30.3	29.3
31 - 52	21.6	17.2	24.8
1 - 2 yrs.	17.5	12.2	19.1
more than 2 yrs.	5.1	4.5	4.6

Notes:

(1) = all independent immigrants in sample (n = 2,589); (2) = those independent immigrants with Arranged Employment (n = 611). The sample size for those immigrants with arranged employment was 23.6 percent of total independent flows in 1975. Independent group excludes refugees. Under the Old Act, refugees were included in the independent and other groups for classification purposes. Unemployment is proxied by weeks drawing regular unemployment insurance benefits. For the domestic labour force, a random sample of the insured domestic population for the 1977-81 period was chosen. The sample selection criterion required that an individual have some labour market attachment in 1977 and 1981, specifically, filed an income tax return in both years. The domestic labour force refers to the workforce insured under the unemployment insurance program which covers about 90 percent of the labour force in Canada.

output and employment levels in these industries. In the next section a regression model is specified and estimated to control for such factors.

The relationship between the incidence(I_i) frequency (S_i) and duration (D_i) of unemployment and the unemployment rate for group i when viewed over a five-year longitudinal period (that is, 260 weeks) can be expressed as

$$UR_i = (I_i * S_i * D_i)/260 \quad (1)$$

where:

I_i is the percentage of the sample i who experienced a spell of unemployment in the 1977-1981 period,

S_i is the average number of spells experienced by those who had a least one spell of unemployment, and

D_i is the average duration (in weeks) per spell.⁷

Using the estimated values for I_i , S_i and D_i in Table 4, the average unemployment rate for 1975 independent immigrations for the 1977-1981 period was 6.1 per cent while the rate for the domestic insured population was 5.2 per cent.⁸ The lower rate for the domestic labour force reflects a lower incidence of unemployment. The duration and frequency distribution of unemployment for the two groups is essentially the same. However, the unemployment rate for independent immigrants with arranged employment is 4.7 per cent, which is notably lower than that for all independent immigrants and the domestic workforce. In Table 5, the distribution of unemployment duration by age, sex, occupation and continent/country of birth is presented and compared with respective sample percentages. In general, there does not appear to be any significant disproportionate distribution of unemployment on the basis of these characteristics.

Weibull Regression Model

To assess the relative unemployment experience of immigrants and the domestic workforce more formally and to control for factors influencing unemployment duration, a continuous time model of UI histories is estimated using a Weibull regression model.⁹ Letting T be a random

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TABLE 5. THE DISTRIBUTION OF UNEMPLOYMENT FOR 1975
INDEPENDENT IMMIGRANTS BY AGE, SEX, OCCUPATION
AND COUNTRY OF BIRTH: 1977-1981

		Per cent of Unemployment	
	Percent of Sample	Total	More than One Year
<u>Age</u>			
Under 25 years	31.0	30.5	31.7
25-49 years	66.6	67.5	65.7
50 years and over	2.4	2.0	2.6
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
<u>Sex</u>			
Male	61.1	65.1	67.8
Female	38.9	34.9	32.2
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
<u>Occupation</u>			
Professional/Managerial/ Technical	43.3	25.0	20.4
Clerical/Sales	12.7	17.3	18.3
Primary	2.0	1.2	0.9
Processing	1.5	0.9	1.3
Construction	15.1	14.6	15.7
Transportation	1.0	0.9	1.7
Arts/Music/Sports	1.4	1.1	0.4
Fabricating/Assembling and Repairing	14.9	12.4	15.7
Other	8.1	26.8	25.6
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
<u>Birthplace</u>			
Great Britain	31.2	26.9	19.6
Europe (Western)	12.9	13.3	16.5
Africa	6.6	7.8	7.8
Asia	20.0	24.4	21.7
U.S.A.	11.4	7.0	9.6
South America	4.7	6.4	10.0
Caribbean	3.9	4.6	5.2
Other	9.3	9.6	9.6
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: See Table 1.

variable representing the duration of unemployment in weeks (waiting time), the probability density function (p.d.f.) can be written as follows by the law of conditional probability:

$$f(t) = h(t) \exp(-\int_0^t h(u) du) \quad (2)$$

where the hazard function $h(t)$ specifies the instantaneous rate of failure at $T = t$ conditional upon surviving time t . The hazard function for both immigrants and the domestic workforce is assumed to be a member of the proportional hazards model:

$$h(t) = \lambda(t) \exp(\beta z) \quad (3)$$

where z is a vector of covariates and β corresponding parameters. The density of t is

$$f(t) = \lambda(t) \exp(\beta z - \Lambda(t) e^{\beta z}) \quad (4)$$

with $\Lambda(t) = \int_0^t \lambda(u) du$. $S(t) = \exp(-\Lambda(t) e^{\beta z})$ is the survivor function.

In the empirical work in this paper, we focus on a variant of the above model which also incorporates unobserved person-specific heterogeneity (Flinn and Heckman, 1982).¹⁰ The hazard generating the density of unemployment spell durations is specified as

$$\begin{aligned} h(t; z, v) &= \exp[z\beta + (\ln t)\gamma + v] \\ &= t^\gamma \exp(z\beta + v). \end{aligned} \quad (5)$$

where v is an unobserved heterogeneity component. Taking the expectation of $\ln t = t$ we have the following regression model:

$$T^* = \alpha - z\bar{\beta} - v + w. \quad (6)$$

where:

$$\begin{aligned} \alpha &= (1/(1+\gamma))[\Gamma'(1) + \ln(1+\gamma)] \\ v &= C\phi/(1+\gamma) \\ \bar{\beta} &= -\beta/(1+\gamma) \end{aligned}$$

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C is a one-factor loading on heterogeneity component ϕ with $E(\phi) = 0$, $E(\phi^2) = \sigma_\phi^2$; C are parameters and $E(v) = 0$. The mean of the residual w is zero with variance $\pi^2/6(1+\gamma)^2$. It is assumed that v is constant within a given spell but is permitted to vary across spells. Estimates of γ are generally not identifiable for single spells. However, the availability of data on multiple unemployment episodes permits one to consistently estimate the duration dependence parameter.¹¹

The vector of covariates (z) in the regression model was specified as follows:

$$z = (COB, OCC, LUR, AGE, TENURE, EXHAUST, REPEATER, B, B/W, ARRANGE, SEASON) \quad (7)$$

where:

COB = country of birth (dummy variables)

OCC = occupation (dummy variables)

LUR = local unemployment rate

AGE = age of individual

TENURE = weeks of employment on previous job

EXHAUST = shift variable for exhaustion of unemployment insurance benefits

ARRANGE = 1, if individual had an arranged job before immigrating to Canada; 0 otherwise

REPEATER = 1, if individual received unemployment insurance benefits on the 52 week UI qualifying period

B = average weekly employment insurance benefits (benefit rate)

B/W = wage replacement ratio: average weekly UI benefits as a percentage of average weekly earnings

SEASON = dummy variable for winter months (December-March)

COB and *ARRANGE* are exogenous variables specific to immigrants. The theoretical rationale for the above specification of the covariates is discussed briefly here. A vector of dummy variables for occupation (*OCC*) and country of birth (*COB*) were included to isolate possible differences among immigrants in post-entry unemployment experience. The unemployment rate in the UI region where an individual experienced a spell of unemployment was included to control for differences in job opportunities at the local level. Since younger and older workers tend to have different unemployment experiences, the age of the worker in years was also included in *z*. Variables representing aspects of the UI system were also included. Of particular note are benefit rates (*B*) and UI replacement ratios (*B/W*) which theoretically affect the costs of job search and could alter search intensity, reservation wages and unemployment duration. A large number of individuals tend to experience multiple spells over time and account for a great deal of total unemployment experience. Thus *REPEATER* was included as a regressor and expected to be positively related to unemployment duration. *ARRANGE* is a dummy variable indicating whether a principal applicant had a job before coming to Canada.

The regression results are presented in Table 6 for all first observed spells in the period for both 1975 principal applicants and the 1975 domestic workforce. Estimates for all first-two observed spells in the sample period are shown in Tables 7 and 8 for both the domestic workforce and immigrant cohorts. Overall, the results indicate that principal applicant immigrants and the domestic workforce possess a structurally similar distribution of unemployment, after controlling for occupation and country of birth. For the individual who had an arranged job before coming to Canada, the expected duration of unemployment is lower than that for the domestic labour force. With respect to country of birth, principal applicants from the United States tend to have an expected lower unemployment duration relative to Europeans, while Third World immigrants tend to have a higher duration than other immigrants. This is for all first observed spells. For those with at least two spells, the results are not consistent. The coefficients for other regressors in the model are in agreement with theoretical work on the determinants of unemployment duration. Higher UI benefit rates and replacement rates for both principal applicant immigrants and the domestic workforce tend

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TABLE 6. ESTIMATES OF WEIBULL REGRESSION MODEL FOR
ln t: 1975 PRINCIPAL APPLICANTS
 AND THE DOMESTIC WORKFORCE
 (ALL FIRST OBSERVED SPELLS IN 1977-1981 SAMPLE PERIOD)

	Domestic Work Force	Immigrants (Principal Applicants)
INTERCEPT	.8295 (18.1)	.4305 (2.3)
AGE	.0005 (0.5)	.0019 (0.5)
LUR	.0021 (6.6)	.0039 (3.8)
B	.0103 (39.8)	.0107 (17.6)
B/W	1.5919 (35.6)	1.6221 (13.9)
REPEATER	.0985 (3.7)	.1222 (1.4)
TENURE	-.0018 (-11.2)	-.0012 (-3.1)
SEASON	.0154 (0.8)	.0463 (0.9)
EMPLOY	-.0078 (-9.8)	-.0066 (-3.0)
EXHAUST	.3474 (14.0)	.2741 (4.0)
ARRANGE	n.a.	-.1895 (-3.4)
COB:	n.a.	
Great Britain (benchmark)	-	-
Europe (except Great Britain)	-	-.0388 (-0.3)
Africa	-	.0139 (0.1)
Asia	-	.5371 (1.5)
Central America	-	.4576 (1.7)
Caribbean	-	
South America	-	.3387 (1.3)
U.S.A.	-	-.4945 (-1.8)
OCC:		
Professional, Technical	-.1484 (-4.4)	.0106 (0.2)
Primary	-.0841 (-1.6)	.2140 (0.8)
Processing	-.0859 (-1.6)	.0674 (0.4)
Construction	-.1171 (-4.6)	.0427 (0.7)
Transportation		
Equipment	-.1128 (-2.2)	.0532 (0.3)
Material Handling	-.0026 (-.1)	.5111 (2.2)
Clerical, Sales, Services (benchmark)	-	-
R ²	.67	.75
Sample size	3,233	489

t-ratios in parentheses.

TABLE 7. WEIBULL REGRESSION RESULTS FOR $\ln t$ OF
1975-1976 PRINCIPAL APPLICANTS: FIRST TWO
UNEMPLOYMENT SPELLS FOR THOSE WHO HAD AT LEAST
TWO SPELLS OVER THE 1977-1981 PERIOD

	Spell 1	Spell 2
INTERCEPT	.8660 (7.9)	.7616 (4.3)
AGE	.0001 (0.1)	.0051 (1.9)
LUR	.0013 (1.9)	.0029 (4.5)
B	.0134 (25.6)	.0091 (17.6)
B/L	1.5974 (19.4)	1.4655 (14.2)
REPEATER	.0921 (1.1)	-.0501 (-1.0)
TENURE	-.0025 (-5.6)	-.0017 (-3.6)
SEASON	-.0068 (-0.2)	.0009 (0.0)
EMPLOY	-.0091 (-6.4)	.0096 (-5.6)
EXHAUST	.3425 (8.4)	.2095 (3.8)
ARRANGE	-.0676 (-1.3)	-.1061 (-1.6)
COB:		
Great Britain (benchmark)	-	-
Europe (except Great Britain)	-.1731 (-2.0)	.0951 (0.8)
Africa	-.0878 (-0.8)	.0472 (0.8)
Asia	-.0900 (-1.0)	.1300 (1.1)
Central America	-.5120 (-2.0)	-.1347 (-0.4)
Caribbean	-.1702 (-0.9)	.0447 (0.2)
South America	-.3819 (-1.9)	.0609 (0.2)
U.S.A.	.2374 (1.2)	.1618 (0.6)
OCC:		
Professional,		
Technical	-.1069 (-1.9)	-.1162 (-1.5)
Primary	.1375 (1.5)	.0564 (0.5)
Processing	-.0021 (0.0)	-.0784 (-0.7)
Construction	-.0834 (-2.0)	-.0954 (-1.7)
Transportation		
Equipment	-.1728 (-1.0)	-.0244 (0.1)
Material Handling	-.1019 (1.3)	.1175 (1.1)
Clerical, Sales,		
Services (benchmark)	-	-
$\bar{R}^2$	.78	.59
Sample size	3,233	489
$\gamma_1 = 2.95$		
$\gamma_2 = 2.60$		

TABLE 8. WEIBULL REGRESSION RESULTS FOR $\ln t$:
DOMESTIC WORKFORCE, FIRST TWO UNEMPLOYMENT
SPELLS FOR THOSE WHO HAD AT LEAST TWO
UNEMPLOYMENT SPELLS, 1977-1981

	Spell 1	Spell 2
INTERCEPT	.9156 (13.9)	.8862 (11.9)
AGE	.0010 (-0.9)	-.0015 (-1.2)
IUR	.0018 (3.9)	.0029 (6.9)
B	.0118 (30.8)	.0097 (28.0)
B/W	1.5061 (25.2)	1.6914 (24.2)
REPEAT	.0533 (1.8)	.0266 (0.8)
TENURE	-.0027 (-9.0)	-.0032 (-6.3)
SEASON	.0113 (0.4)	-.0473 (-1.6)
EMPLOY	0.0069 (-6.7)	-.0079 (-7.3)
EXHAUST	.3821 (12.5)	.2300 (6.8)
OCC:		
Professional,		
Technical	-.1831 (-3.7)	-.0891 (-1.6)
Primary	-.1105 (-1.7)	-.1242 (-1.7)
Processing	-.0333 (-0.6)	-.0647 (-1.0)
Construction	-.1667 (-5.0)	-.1011 (-2.7)
Transportation		
Equipment	-.1179 (-2.0)	-.1299 (-2.0)
Material Handling	-.0975 (-1.8)	.0377 (0.6)
Clerical, Sales,		
Services (benchmark)	-	-
$\bar{R}^2$	.68	.65
$\gamma_1 = 2.35$		
$\gamma_2 = 2.70$		

to increase unemployment duration. Also, unemployment behaviour is characterized by strong positive duration dependence, indicating that as unemployment duration continues, both groups intensify job search and lower reservation wages. The model also has high exploratory power, which limits the influence of unobserved person-specific heterogeneity. The results for the domestic workforce are discussed in greater detail in

Robertson (1984). The main point is that the post-entry unemployment is quite similar for the two groups.

Conclusion

In this paper, we have outlined the potential use of administrative longitudinal data systems for the analysis of the economic and labour market characteristics of immigration to Canada. Employing micro-longitudinal labour market information, combined with administrative immigration data, one is able to analyze a number of key issues in immigration policy, in particular, post-entry labour market adjustment.

The post-entry unemployment experience of principal applicants in the independent group who came to Canada in 1975 was analyzed for the 1977-1981 period. Unemployment was proxied by the time spent drawing UI benefits. It was found that independent immigrants tend to have a distribution of unemployment structurally similar to that of the domestic labour force in terms of incidence, frequency and duration. Applicants and those who came to Canada with arranged employment tend to have a lower unemployment rate than other immigrants and the domestic labour force. This is confirmed by the results of a regression analysis. The unemployment rate for all immigrants was found to be about one per cent higher than that of the domestic labour force, largely as a result of a moderately higher incidence of unemployment. That is, while principal applicant immigrants were found to be more prone to unemployment, once unemployed, they do not spend more time unemployed, on average, than the domestic labour force and do not have a higher frequency of unemployment spells over time. Finally, the distribution of unemployment duration for immigrants by continent/country of birth was found to be proportional to respective flows. In sum, immigrants (principal applicants) differ from those established in the domestic labour force with respect to incidence of spells of unemployment but not with respect to the frequency of the spells or their duration. The exception is immigrants who have arranged employment before coming to Canada. They tend to have significantly lower post-entry unemployment rates reflecting a significantly lower average unemployment duration.

Unemployment Experience of Applicant Immigrants to Canada

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Footnotes

1. Considerable research in Canada has focussed on the results from macro-econometric models. The suitability of using these models is discussed in Robertson and Roy (1982). In essence, macro models generally predetermine a negative impact of immigration (labour force) on domestic income, unemployment and other variables, and are thus not an appropriate vehicle for policy development, as currently constructed.
2. The data system is derived from the UI Status Vector. The status vector file is a derivative of the administrative "Benefits and Overpayments" (BNOP) file which is the master file for all administrative data pertaining to the UI system. The status vector file contains information pertaining to claims established by each claimant including detailed week-by-week information on the activities of claimants during the time they reported to Employment and Immigration. In addition, the LLFF contains information from the Record of Employment (ROE) file. Each time an individual separates from an employer, an ROE form is issued by the firm. This form must be presented to Employment and Immigration Canada in order to receive unemployment insurance benefits. The ROEs contain data on an individual's tenure with a particular employer (employment history), reason for separation and other information. Such information is valuable in analyzing the labour market adjustment of immigrants to Canada with arranged employment, and assessing re-employment profiles of workers.
3. The information from IDSO at each stage (forms IMM 1104 and 1343) is forwarded to CEIC headquarters in Ottawa and entered in the system. If an applicant fails paper screening, then the flow of information to headquarters ceases, although cases can be re-opened subsequently. IDSO contains data on all aspects of the immigration process overseas, including characteristics of applicants — such as education, work experience, skills, training and language — and information on the demand points (immigration assessment record) involved in the rating system for the selection, arranged employment and priority processing.
4. The New (1976) Act specifies three basic immigrant groups: family class; convention refugees; and independent and others. The independent group includes individuals who apply on their own initiative in addition to assisted relatives, retirees, entrepreneurs and the self-employed. Except for retirees, all applicants in the indepen-

dent and other group are selected according to the points system, although the selected factors considered differ among the component groups. The independent group corresponds to the independent and nominated categories under the Old Act, while the family class corresponds to the sponsored group. Convention refugees is a new group under the 1976 Act. They would have been classified under the independent, nominated and sponsored groups under the Old Act. However, for the period we are considering (1975) the number of these refugees is relatively small.

5. In this regard, the analysis in this paper does not cover all categories of immigrants to Canada nor adjustment issues pertinent to certain groups who may not fare as well as principal applicants (refugees and other non-economic immigrants).
6. The particular database used contains historical microdata for a 10 per cent sample of all insured workers in Canada. The analysis considers only regular unemployment benefits and fishing claims. Other claim types such as maternity, sickness and retirement were excluded since there are strong conceptual reasons for considering individuals who receive such benefits as being outside the labour force. It should be noted that the analysis refers to the UI eligible population, that is, it excludes unemployment not picked up on administrative records, preponderantly unemployment associated with those individuals who have exhausted their unemployment insurance benefits or those unemployed who are ineligible to receive unemployment compensation. From post-exhaustion surveys, the evidence indicates that unemployment reflecting UI exhaustion is small in relation to total unemployment. Those ineligible to receive regular benefits would include new entrants and re-entrants to the labour market, including young persons leaving the school system. Since we are looking at individuals over a five-year span, these effects would be of second-order magnitude, in the sense that unemployment due to ineligibility should be swamped when considering total unemployment over a five-year period.
7. The longitudinal unemployment rate is defined as the total weeks of unemployment divided by the total weeks of labour force activity for the five year period (that is, 260 weeks). Total weeks of unemployment is simply the product of the number of members of group i who experience unemployment and the average number of weeks of unemployment they experience. The latter in turn is simply the number of spells of unemployment experienced by group i multiplied by the average duration in weeks of these spells. Thus the expression in equation (1).
8. It is assumed that the individuals in the sample were in the labour force for the whole period, that is, either unemployed or employed. The sample selection criteria requires only that individuals have labour market activity in the beginning and end years for the longitudinal period. To the extent that individuals were not in the labour force, the unemployment rate is underestimated.
9. Close to 90 per cent of the labour force in Canada are in insured employment (paid workers). The remainder consists largely of self-employed workers, individuals over 65 and those who worked less than 20 hours per week.

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10. State dependence refers to a situation in which the amount of time spent in unemployment in current or previous periods affects the probability of leaving a state (unemployed, employed), while sorting refers to person-specific differences that are not observed for observationally identical individuals. If those individuals with the highest probability of escaping unemployment do so most rapidly, then the mean probability of leaving unemployment falls over time in the population remaining in unemployment. The unobserved individual differences which give rise to sorting are usually referred to as heterogeneity. Uncorrected heterogeneity leads to biased estimates of duration dependence. If there are two types of individuals, for example, one that is highly motivated, the other that is not, then the observed data will show the highly motivated individuals having lower unemployment durations. But if the two groups are observationally identical, the data can only be "explained" by declining duration dependence.
11. From the estimated residual variances and the interspell covariance for the two consecutive spells we have:

$$\gamma_1 = B/S_{11} (1/(1-r_{12}))^{1/2} - 1$$

$$\gamma_2 = B/S_{22} (1/(1-r_{12}))^{1/2} - 1$$

S_{11} and S_{22} are the estimated residual variances from the first and second duration intervals while r_{12} is the interspell residual correlation. $B = \pi^2/6$. From these expressions we can estimate the duration dependence parameters γ_1 , γ_2 .

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