

# Vancouver Centre of Excellence



## Research on Immigration and Integration in the Metropolis

Working Paper Series

#99-13

**Where do immigrants work?  
Tracking industrial location propensities of 1960s immigrants**

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**May 1999**

## RIIM

### Research on Immigration and Integration in the Metropolis

The Vancouver Centre is funded by grants from the Social Sciences and Humanities Research Council of Canada, Citizenship & Immigration Canada, Simon Fraser University, the University of British Columbia and the University of Victoria. We also wish to acknowledge the financial support of the Metropolis partner agencies:

- Health Canada
- Human Resources Development Canada
- Department of Canadian Heritage
- Department of the Solicitor General of Canada
- Status of Women Canada
- Canada Mortgage and Housing Corporation
- Correctional Service of Canada
- Immigration & Refugee Board

Views expressed in this manuscript are those of the author(s) alone. For more information contact the Co-Directors of the Centre, Dr. Don DeVoretz, Department of Economics, SFU (e-mail: [devoretz@sfu.ca](mailto:devoretz@sfu.ca)) or Dr. David Ley, Department of Geography, UBC (e-mail: [davidley@unixg.ubc.ca](mailto:davidley@unixg.ubc.ca)).

**Where do immigrants work?  
Tracking industrial location propensities of 1960s immigrants**

by

Ravi Pendakur and Fernando Mata<sup>1</sup>

[Ravi\\_Pendakur@pch.gc.ca](mailto:Ravi_Pendakur@pch.gc.ca)

[Fernando\\_Mata@pch.gc.ca](mailto:Fernando_Mata@pch.gc.ca)

Department of Canadian Heritage<sup>2</sup>

This paper has been reviewed by Don DeVoretz and copyedited by Sydney Preston.

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<sup>1</sup> The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the Department of Canadian Heritage or Statistics Canada.

<sup>2</sup> Ravi Pendakur and Fernando Mata are researchers in the Department of Canadian Heritage and are also affiliated with the Vancouver Centre of Excellence for Research on Immigration and Integration in the Metropolis.

## I. Introduction

Canada's immigration policy in the 1960s marked a profound departure from that which had been in force during the previous decade. Where previously policy had emphasized family reunification, the new regulations also stressed skills and schooling. While during the late 1940s through the 1950s immigrants had been primarily from Europe, changes to policy and regulations in 1960 meant that immigrants would gradually begin coming from countries outside Europe and North America. The changes in intake which followed as a result of this policy transformation occurred while the Canadian economy was shifting away from manufacturing toward service industries. Thus the labour force roles newly arrived immigrants would play would likely be very different from those of previous generations.

Our goal is to look at the impact this policy shift had on the work this new group of immigrants engaged in after arrival. In order to do so, we use correspondence analysis (CA) to look at where cohorts of immigrants living in Montreal, Toronto and Vancouver worked. CA is a descriptive technique with an interpretation similar to factor analysis in that it provides information on the underlying relationships between categorical variables. The relationships are expressed as distances between points across a two-dimensional plane. By examining the relative locations of immigrant cohorts (defined by age, education and place of birth) and sectors in 1971, 1981 and 1991, we are able to show how the labour force role of this new wave of immigrants changed over time, both in response to changes in the regulations which governed their entrance to Canada, and in response to their length of time in Canada.

An understanding of immigration policy process and its eventual impact upon intake is not trivial. The immigration policies, regulations and practices which govern intake reflect not only the interests of political players, but are also a product of an historically rooted negotiation process with a broad range of actors both within and outside government. These complex social processes contribute to the formulation of immigration policies which in turn shape the immigrant population. Ignoring these processes can result in a misconception of the links between organizations such as the state, immigration and the labour force. For this reason, we first provide an overview of the immigrant intake system in operation during the

1960s, examining the changes to the act and the political processes which precipitated the changes. We then look at the impact of these regulations on the nature of the immigrant population. With this understanding in hand, we then go on to look at how the work of different cohorts of immigrant and Canadian-born workers changed from one census period to another.

## **II. Historical Context**

In 1960, two years after John Diefenbaker's Progressive Conservative government took power, Ellen Fairclough, the Minister of Citizenship and Immigration, reviewed the state of immigration policy. She argued that Canada required a steady flow of immigrants to balance and offset emigration. She further asserted that, counter to popular belief, immigrants brought productive capital to Canada and established businesses which employed Canadian as well as immigrant workers. She went on to say that her government had made several significant changes concerning immigration. First, the regulation which formerly prevented Canadian residents of Asian origin from sponsoring their spouses and children until they became Canadian citizens was changed. Second, the immigration appeal board was strengthened and its scope expanded. Third, a new policy governing temporary residents of Canada was announced in August 1958 which made it possible to regularize the status of several thousand persons who had previously entered the country on a non-immigration basis (Canada 1960: 4711–12).

On January 24, 1962, Minister Fairclough introduced regulatory changes which essentially rewrote Canada's immigration system (although not the Act itself) stressing, in large part, selection based on skills and qualifications (Citizenship and Immigration 1962). Sponsorship was maintained, but sponsorship of extended relatives required that prospective immigrants possessed skills deemed necessary for Canada. References to either geographic area or ethnicity were, to a large degree, removed. In principle, all visitors and immigrants to Canada (with the exception of Americans) now had to be in possession of a visa. However, there were some vestiges of previous policies. The minister retained the right to make regulations on the grounds of ethnicity and other cultural attributes, and intake agreements

were still in place with countries in the Indian subcontinent. Further, the range of relatives eligible for sponsorship from outside Europe was narrower than was the case for Europeans.

Intake was divided into three categories. Independent class immigrants (and accompanying family) were admitted based on education, training, skills or other qualifications. Family class, sponsored immigration remained essentially intact, with immigration from the Americas and Europe allowing a broader range of possible relatives than was possible from Asia and Africa. The nominated class represented a hybrid of the two previous classes. Immigrants in this class were deemed to have qualifications of benefit to the Canadian economy and were sponsored by a relative living in Canada who promised to provide some degree of support. Because they had family support, they were evaluated against lower criteria in terms of labour-market requirements.

The changes were sweeping and necessary, for a number of reasons. First, the supply of European immigrants was starting to slow down. Despite advertising campaigns abroad, the number of skilled European immigrants had slowed dramatically. Even sponsored immigration had fallen off, and total intake had dropped to almost one-quarter of what it was during its peak in 1957. The range of eligible immigrants, therefore, had to be broadened. Second, there was Canada's international reputation to be upheld. In the summer of 1961, the World Council of Churches had laid down several principles regarding immigration, one of which was the need to avoid any exclusion of migrants on the basis of race, nationality or religion. The new regulations would allow Canada to argue that it was attempting to follow those guidelines. Finally, and perhaps not entirely coincidentally given Canada's commonwealth ties, Britain had, just a few months earlier, changed its Immigration Act to concentrate on skills rather than on sponsorship.<sup>3</sup>

In October of 1966, the Liberals, under Lester Pearson, released the White Paper on Immigration. The document laid out a somewhat revised schema for immigration which, for the most part, just tinkered with the 1962 regulations. It also, however, explicitly linked

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<sup>3</sup> Granted, Britain's Conservative government had done so to reduce the intake of what was seen as low skill, Commonwealth immigration from the Caribbean, but the principle was still there and the rationale was not common knowledge (see Dean 1993). In Canada's case however, the restrictions against non-white immigration were, for the most part, lifted, and the range of eligible immigrants was broadened across the board.

immigration to economic requirements, stating that immigration policy must be consistent with national economic policy in general and with national manpower and social policies in particular as well as demographic requirements (Manpower and Immigration 1966, 7). As well, it identified a nondiscriminatory policy as a goal, if for no other reason than “any discrimination in the selection of immigrants creates strong resentments in international relations” (Ibid. 17).

The White Paper outlined a system of immigration which built on the 1962 regulations — a rigorous recruitment of educated and skilled unsponsored immigrants — and controlled intake within two classes of sponsored relatives, who were assumed to be (rightly or wrongly) unskilled and poorly educated — family and sponsored relatives (Manpower and Immigration 1966, 13). Control of sponsorship was seen as necessary because:

“Such sponsorship has a potential for explosive growth. One skilled immigrant comes to Canada and quickly establishes himself. Very soon, he can sponsor the immigration of his brothers and sisters and his wife’s brothers and sisters. They do not have to meet any standards of education or skill. They bring their wives and husbands . . .” (ibid., 14).

Nevertheless, the authors of the report recognized that “we cannot expect to bring workers in, without also welcoming their dependants” (ibid., 14)

In December of 1965, Pearson announced that authority for immigration was to be transferred to a new department of Manpower and Immigration. This move ostensibly allowed immigration to be much more tightly aligned with labour force requirements. In August of 1967, the minister, Jean Marchand, announced that they had again revised immigration regulations (P.C. 1967–1616). The same basic classes were maintained, but the schema for evaluating the skills and training of independent class applicants was formalized under a system awarding points for socio-economic and demographic attributes. Further, the same sponsorship privileges were granted to all groups, making Canada’s immigration policy (on the surface at least) “colour blind.”

The “points system” was both elaborate and flexible, requiring prospective immigrants to gain a specified number of points depending on the class under which they wished to enter. The points system was heavily weighted in terms of occupation and skills with up to forty assessment units based on industrial demand, skill and employment. Next in importance was

education and training, worth up to twenty points, followed by the personal assessment at fifteen points. Finally, attributes such as age and official language were worth up to ten points each.

### III. Impact of the Regulatory Changes

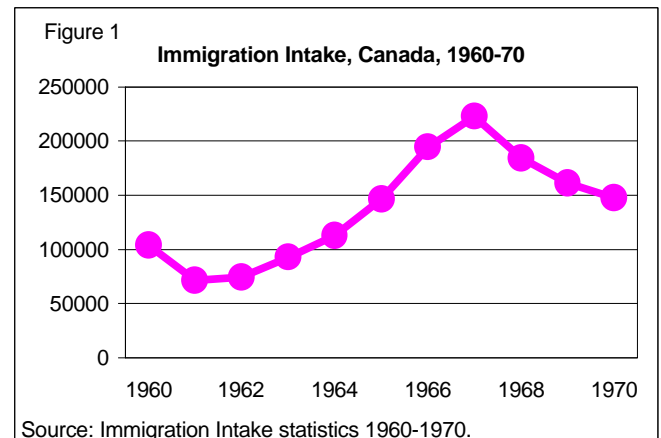
The regulatory changes had their effect. At only 71,000 immigrants, intake in 1961 was the lowest it had been since 1947, a time when there were similar changes occurring to immigration regulations and procedures. In 1966 intake had increased by more than two and a half fold to just short of two hundred thousand (see Figure 1). The mix also changed, for although sponsored immigration continued, the new regulations allowed increased (and skilled) immigration from outside Europe. Thus, immigration from Asia gradually increased through the 1960s from about 2,000 in 1961 to 23,000 by 1970.

Immigration from Southern Europe, which was primarily sponsored, remained constant through most of the period, but started to decline by the early 1970s. Immigration from Italy in particular reached a high of 31,000 in 1966, but had fallen to less than 6,000 by 1971. In the same way, while immigration from the UK remained relatively strong and was generally the highest source country in the early

1960s, there was a slow decline from the mid-1960s.

Where one-third of all immigrants were from the UK in 1966, this was true of only one in seven by 1971 (Manpower and Immigration: 1965 through 1971).

The intake pattern for European countries was one which followed a kind of rise and fall, but was primarily based on sponsored intake. As the supply of sponsored immigrants ran dry, so did the intake from a particular country. Intake from Asia and outside Europe rose however, because the new regulations allowed a new supply of skilled entrants who established roots in Canada and then called for their relatives. The pattern for Asian intake was thus similar to that of Italian immigration a decade earlier





when changes to regulations allowed a broader range of relatives, thereby encouraging immigration from Southern Europe.

Overall, the changes in regulations served to alter the intake which in turn changed the shape of the immigrant population. Given that the new regulations were more economically focused, and that immigration was dynamically linked to labour force requirements, new immigrants had to closely match the new demands for labour in Canada. This was particularly the case given Canada's changing economic base at the time.

Immigrants arriving in Canada during the 1960s came during a time of tremendous change. Manufacturing, although experiencing a slight increase in overall jobs, was in decline, accounting for one-quarter of all jobs, as opposed to almost 30 percent ten years earlier. The service sector, on the other hand was growing. This was particularly the case in the major urban centres. In the three Census Metropolitan Areas (CMAs) examined here, the number of jobs in consumer services alone had doubled since 1961, business services had increased by almost 80 percent and social services (health, education and welfare) went up by 1.5 times, accounting for 13 percent of all jobs. The real growth was in the service sector, with relatively little growth in manufacturing, construction, or distributive services such as communication, transportation and utilities.

The transformation of the labour force was in some sense mirrored by a dramatic rise in the number of women who entered the labour force. Between 1971 and 1991, the proportion of native-born women active in the labour force rose from under 60 percent to 80 percent. These women gravitated toward the newly opened positions in the service sector, suggesting that, to a degree, the new shape of the labour market was a product of women in the labour force.

By splitting intake into independent and sponsored streams, the changes to immigration intake regulations acted to create an immigrant population with a bipolar schooling distribution as compared to the Canadian-born population. Looking at immigrants living in Montreal, Toronto or Vancouver in 1971, it is possible to see that this distribution was a by-product of the new place-of-birth distribution. Immigrants from new source countries in Asia and Latin America often had high levels of schooling (see Table 1). For example, while nine percent of Canadian-born males, and five percent of Canadian-born

females had university degrees, almost one-third of South Asian males and 14 percent of South Asian females had university degrees. Immigrant males from the United States also tended to have higher levels of schooling with over one-quarter having university degrees. The same was true for 19 percent of males from Latin America and the Caribbean. At the opposite end of the spectrum, over 90 percent of immigrants (both men and women) from Italy and Portugal had less than twelve years of schooling. Immigrants from other European countries were more likely to have 12 to 13 years of schooling than was the case for Canadian-born males and females, and were about as likely to have university degrees.

The level of schooling constrained the choices immigrants could make in terms of entry into industry sectors. Jobs in certain sectors of the labour force such as social services or public administration were more likely to require higher levels of formal schooling. This was not so for jobs in consumer services or the construction sector. The sector demands were thereby reflected back in the work of immigrants because different groups had different schooling backgrounds. These differences were “re-reflected” by employment status, because different sectors of the labour force had both different rates of self-employment and of growth from one census period to another.

#### **IV. Examining Industrial Location Propensities**

There are a number of theories which may explain the propensity of immigrant groups to concentrate in different sectors of the labour market (see: Beaujot 1986; Bonacich 1973; England et al. 1988; Campbell et al. 1991). Reitz (1982; Reitz et al. 1981) for example has shown how immigrants from Southern Europe work in different sectors of the economy as compared to immigrants from other areas such as Central and Eastern Europe as well as from the U.K. or USA. Part of this divergence can be attributed to the different schooling characteristics of immigrant/place-of-birth groups. However, academics have also suggested that immigrants experience various kinds of disadvantages in the labour market in North America (see for example: Satzewich and Li 1987). Often, employers in the host country may not recognize the academic credentials or foreign work experience held by immigrants. Such barriers can mean that immigrants face difficulty in attaining employment or in getting ahead

once in a job. However, Sanders and Nee (1996) suggest that employers within the enclave may recognize the value of human capital earned in their home country better thereby reducing the impact of non-recognition of credentials. In these instances, industry sectors tied to institutions and networks such as business, welfare organizations, churches and schools can be used as channels for initial and subsequent occupational mobility within certain segments of the labour market.

“Entrance status” theory predicts that one’s industry location is a function of one’s original entrance status or position in the labour force. Thus, people who start in a particular industry sector remain in that sector because skill-sets are not readily transferable. Limited occupational choices for immigrant cohorts lead to the stratification of the labour force and concentration of workers in particular occupations, branches of industry and earning brackets (Darroch 1979; Reitz et al. 1981; Porter 1985; Lautard and Guppy 1990).

The role played by ethnic networks in urban economies has also been identified as an explanatory factor in defining why immigrants choose to work in a particular economic niche (Breton 1984; Driedger 1989). Large minority communities offer a greater variety of both occupational and service opportunities for group members which may, in turn, buffer the impact of non-recognition of credentials on the part of the majority community. This is particularly the case in Canada’s major cities where some immigrant communities have attained a high degree of “institutional completeness.”

Despite the relative rigidity which may be present, the labour force and an individual’s attachments and role within it do not remain static. Rather, these roles change over time with experience and changing demands within the labour force. Further, as has been pointed out above, there are differences in these roles between groups. This may be particularly the case for immigrants who often face a loss of contacts and human capital in the host country. Beaujot et al. (1994) argue that such losses can lead immigrants to search out opportunities outside the employed labour force, and results in immigrants having higher propensities to enter self-employment than is the case for native-born workers (see also Marger and Hoffman 1992; Maxim 1992; Pendakur 1996).

Entrance theory, recognition of qualifications, the impact of ethnic enclave economies and mobility over time thus offer a number of avenues for research. However, from a

longitudinal perspective, five central questions needed answering with regard to the choice of industrial location made by immigrant cohorts of the 1960s in Canada:

- a) within which industrial niches did immigrants choose to work on entry?
- b) did the choice of niches remain stable over the 30-year period?
- c) to what extent does education in combination with age and birthplace determine these choices?
- d) to what extent did choice of industrial location differ between males and females? and;
- e) to what extent were there differences or similarities between the wage labour and self-employment sides of any given industry sector?

To address these research questions with appropriate longitudinal data, we hypothesized that, in general, the industry choices were directly related to the schooling requirements of the industry sectors, the levels of human capital brought to the country by immigrants and the degree to which the Canadian-born are treated by particular sectors of the economy. Industry niches were also expected to vary substantially in terms of their ethnic concentrations. Jobs related to manufacturing, construction and consumer services were expected to be *loci* of concentration of a few immigrant groups while other sectors were expected to be more ethnically diversified given the universality of the post-secondary degree requirements.

## V. Data and Methods

The ideal dataset for exploring these hypotheses is one that contains labour force data for a representative sample of immigrant and Canadian-born workers at several points in time. Such a longitudinal dataset would provide the individual work histories and could be used to measure both location in the labour force and change over time. The problem is that such a database does not yet exist in Canada.<sup>4</sup> An alternative lies in examining like groups or cohorts of individuals which can be followed from one census period to another. In this way it is possible to study the same group of individuals using snapshot data. Although this approach

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<sup>4</sup> There is a longitudinal database in Canada which links tax records to immigration intake records (the immigration database – IMDB). Unfortunately, this database is limited to immigrants who came to Canada from 1980 to the present.

does not tell us precisely how any given individual fared from one census to another, it is possible to determine the degree to which an entire cohort of individuals has changed over the period and identify relative changes in the size of the cohort itself with respect to particular industry/labour force positions.

We have chosen to use a “quasi-longitudinal” cohort approach in order to look at the same group of individuals at several points in time. Using information from three census periods, we describe the employment patterns of immigrant workers born in different countries who came to Canada during the 1960s, comparing them to similar education-age cohorts of Canadian-born workers.<sup>5</sup> As suggested in the policy review above, this group of immigrants came when there were radical shifts in the nature of immigration policy and in the nature of the labour force itself.

Our data were drawn from the 1971, 1981 and 1991 Canadian census database and contains information on the active immigrant and non-immigrant labour force whose members lived in three Census Metropolitan Areas: Toronto, Montreal, Vancouver.<sup>6</sup> Information on respondents’ age, schooling and place of birth were used to create cohorts of individuals which could be tracked from one census period to another. The position of these cohorts relative to industry-employment niches was then examined in each census period. The labour force position of males and females are examined separately. Thus, the industry location of Canadian-born males relative to immigrant males is analyzed separately from Canadian-born females and immigrant females.

Based on the combinations of age, education and place of birth, we created a total of 192 cohorts of men and 192 cohorts of women (including those born in Canada) comprising approximately 1.8 million individuals. Using these three components, we tracked a group such as males from China with a degree who were 25 to 34 years old in 1971, across the three

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<sup>5</sup> The major disadvantage to using Census data over immigration records (such as are found in the IMDB) is that intake class of individual immigrants is not available. It is thus impossible to link the class to the labour force outcomes. However, it is possible to see gross trends from changes in immigration regulations, particularly regarding place of birth and schooling. Thus, as compared to earlier groups of immigrants, the changes to the regulations which were initiated in the early sixties, resulted in shifts in intake from Europe, toward countries outside Europe and an increase in the proportion of immigrants with university education.

<sup>6</sup> In 1971, these three CMAs were home to 59 percent of all immigrants to Canada who arrived between 1961 and 1971 (1971 Census of Canada).

census periods. It was therefore possible to examine the location of this cohort in relation to the seventeen industry-employment niches across the three census periods. The shift across industries and the way in which the labour force position of immigrants differs from that of Canadian-born cohorts could then be compared.

Box 1 describes the age-education-place of birth cohorts and industry-employment niches.

Box 1:

Cohort	Age in 1971 (3 categories)	15-24 25-34 35-44
	Education (4 categories)	Less than high school High school certificate <sup>7</sup> Post-Secondary schooling University degree
	Place of Birth (16 categories)	Canada, USA, United Kingdom/Ireland, Germany/Austria, Poland, Czechoslovakia/Hungary, Portugal, Greece, Italy, Yugoslavia, Other Europe, South Asia, China/Hong Kong, Other Asia, Latin America/Caribbean, Other.
Industry-employment sector	(17 categories)	Wage labour Sectors: - manufacturing (other than needle trades) - construction - distributive services - restaurants - consumer services (other than restaurants) - business services - health services - public administration Self-employed sectors: - manufacturing (other than needle trades) - construction - distributive services - restaurants - consumer services (other than restaurants) - business services - health services - Combined sectors (wage labour and self-employed) - needle trades - education
Sex	(2 categories)	Males Females

Correspondence analysis (CA) was used to study the propensities of the different

<sup>7</sup> For 1971, high school is estimated using years of schooling (12 years in British Columbia, 12 or 13 years in Ontario and 11 years in Quebec). Post Secondary includes all post-secondary schooling including trades and university.

cohorts to concentrate around specific industry niches.<sup>8</sup> CA is a multivariate analysis technique based on dual scaling procedures which allow examination of the relationships between two nominally scaled variables in a multidimensional space. By determining departures from the independence model through the  $c^2$  statistic, CA expresses relationships between variables and groups as points in a bi-plot (Weller and Romney 1990). It partitions the unexplained deviations from independence into orthogonal dimensions (components) of descending order of explanatory power. One major advantage that correspondence analysis has over other traditional cross-tabular analytical techniques is its ability to describe associations between variables in a graphical fashion in accordance with a measure of statistical independence such as the  $X^2$  statistic. In doing so, it illustrates the underlying relationships between variable categories.

To reduce the complexity of the data and increase their interpretability, the original five-way tables were compressed into two-way tables (six in total, one for each gender–census period). The rows of the new tables represent age-birthplace-schooling cohorts while columns represent the type of industrial niche within which cohort members worked (employment status and industry sector). The basic structure of the two-variable tables allowed statistical manipulation as quasi-proximity matrices. By calculating row and column profiles of the table and breaking down the  $c^2$  statistic, points corresponding to cohorts and sectors could be plotted in a plane spanned by the two major principal components (dimensions).<sup>9</sup> Given the property of orthogonality between dimensions, industrial preferences (expressed in over-representation of workers in particular economic niches) can be measured by the relative distance between cohort and sector points in the CA bi-plots. A total of 3,264 coordinate points (192 cohorts by seventeen sectors) were computed for each gender in each census period.<sup>10</sup>

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<sup>8</sup> See appendix for further information on the application of correspondence analysis in examining cross-tabular data.

<sup>9</sup> Principal Components Axes have a similar interpretation to those in the factor analytic literature.

<sup>10</sup> A total of 43,681 points were obtained from the procedure  $(192 \text{ cohorts} + 17 \text{ sectors})^2$ . Of these, we selected points that crossed cohorts with industry sectors (3,264 points) for each gender in each of the three census periods.

Summary statistics of correspondence analysis inertia statistics for each of the census tables are presented in Table 2. The total inertia statistic (which ranges from 0 to 1) is the proportion representing the magnitude of departure from the independence model which is left unexplained. Overall, total inertia represented no less than .40 or 40% of the data variation across the three census tables

Table 2:

Correspondence Analysis: Inertia Statistics			
Group	Dimension	Inertia	% Inertia
<b>Males</b>			
1971	All	0.416	100.00%
N=900,578	1: Human capital	0.224	53.80%
	2: blue vs white collar	0.065	15.60%
1981	All	0.418	100.00%
N=1,083,648	1: Human capital	0.255	48.10%
	2: blue vs white collar	0.078	14.70%
1991	All	0.466	100.00%
N=936,122	1: Human capital	0.23	49.40%
	2: blue vs white collar	0.061	13.00%
<b>Females</b>			
1971	All	0.47	100.00%
N=517,317	1: Human capital	0.258	54.90%
	2: blue vs white collar	0.106	22.50%
1981	All	0.436	100.00%
N=848,833	1: Human capital	0.234	53.70%
	2: blue vs white collar	0.104	23.70%
1991	All	0.394	100.00%
N=812,243	1: Human capital	0.217	55.00%
	2: blue vs white collar	0.09	22.90%

The first dimension present in the data, the more important one, explained approximately about half of the total inertia across the male and female cohorts while the second dimension explained about a fifth or less. The two dimensions combined accounted for the bulk of the total deviations from the independence model. Bi-plots reveal that the first dimension captures human capital related attributes (age and education) while the second



dimension, a industry-class related variable, captured differences in white and blue collar work. Dimensions present in the data have been identified accordingly.

CA provides coordinates for each sector and cohort defined within a two dimensional plane with a general limit of three standard deviations on each dimension. Comparing the location of coordinates for different sectors and cohorts in the bi-plot it is possible to define the propensity of any given cohort to work in a given sector. However, with 209 points on the bi-plot, comparing distances can get somewhat confusing. For this reason, we transformed the coordinates into Euclidean distances between cohorts and sectors. In this form, the propensity of any given cohort to choose and remain in any given economic niche is measured by the Euclidean distance between points representing cohorts and industry sectors. Shorter distances between cohort and sector points are good proxies for strong industrial propensities of cohorts while larger distances reflect the opposite.<sup>11</sup> Given the wealth of information contained in the bi-plots, we concentrated our efforts on identifying the twenty cohorts that were closest to each industry sector. We therefore sorted the cohorts by distance from each sector in order to identify the cohorts that were most attracted to the industry sectors (the cohort to sector distances are found in the Appendix). A minimal threshold of an Euclidean distance less than or equal to 0.5 was used to identify a strong industrial preference for any given sector.<sup>12</sup>

#### A. *Data Analysis*

As previously discussed, different sectors of the labour force have different schooling profiles because each sector has a unique set of job-skill requirements. Jobs in construction, and consumer services tend to have lower schooling level requirements as compared to those in business services, education and health services (see Myles and Fawcett 1990). Distributive

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<sup>11</sup> In order to give an overall understanding of the relationship between sectors and cohorts we have also provided bi-plots which show the industry sectors and a random selection of up to 40 cohorts. However, because of the density of points and sector locations, some sectors (most often needle trades and restaurants) are not displayed in the bi-plots. Relationships are however, fully detailed in the text.

<sup>12</sup>  $X^2$  distances in CA are expressed in a standardized form similar to that of principal components metric. An Euclidean distance less or equal to half a unit was estimated as the most adequate measure of over-representation of cohorts in particular industry-employment sectors.

services, manufacturing and public administration have schooling profiles that are more moderate. In the same way, we have shown that different immigrant cohorts have unique schooling profiles because of the schooling system present in the source country. Because of this, we expected that immigrant groups from different countries would gravitate toward different sectors of the labour market; however, this attraction would be mediated by the schooling profile of the group. High levels of attraction on the part of one place of birth group in any given industrial sector could be taken as evidence of ethnic-specific enclaves. Lower levels of attraction suggest that no dominant pattern of ethnic enclaves exists. We also expected that even within a given cohort, men and women could exhibit different patterns of industry sector attraction and could therefore be concentrated in different enclaves.

These assumptions caused us to order our findings. First, in order to study the nature of the gender differences in enclave attraction and formation, we examined the industrial location propensities of men separately from that of women. Second, in recognition of the industry-schooling attributes, we organized our discussion into sectors with low, medium and high schooling requirements.

## *B. Findings*

### 1. Males<sup>13</sup>

#### a. Industry Sectors with Low Schooling Requirements

Needle trades, restaurants and the construction sector are examples of three strong ethnic-industry enclaves, having low entry requirements. The needle trades, which is part of the manufacturing sector, is a declining sector, characterized by high turnover and low entry requirements. It is a sector which has been strongly over-represented by immigrant workers and in a very large sense, it is “propped up” by a constant immigrant inflow. Surprisingly, we observed that for men, the needle trades were a magnet for Southern European immigrants with moderate rather than low levels of schooling across all three census periods. Immigrants from Italy and Yugoslavia were among the most noticeable groups (distances ranged from .1 to .22). Twenty years later, there was a general move away from the sector (the closest point

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<sup>13</sup> Figures 2 through 4 are bi-plots for males in 1971, 1981 and 1991 showing industry and cohort locations for selected cohorts.

was .12 units away held by young men born in Portugal with high school). Immigrant men born in Italy were still well represented (eight of the twenty closest groups were from Italy with distances ranging from .17 to .53 units) as well as Portugal-born males (four of the twenty groups). However, there was a broadening of the groups. Young and old males from China/Hong Kong with post-secondary schooling had moved toward the sector (distances of .43 or less).

In comparison to the other sectors, the manufacturing sector was in decline over the three census periods. However, unlike jobs in the needle trades, a large number of manufacturing jobs offered the potential of relatively high wages while at the same time requiring relatively low entry requirements. In 1971, Canadian-born workers who were attracted to the wage labour side of the sector in general had low levels of schooling (distances of between .15 and .17 units). Young and mid-aged immigrants from the UK either had low or post-secondary schooling and were located a little further from the manufacturing sector (.14 to .21 units away). Immigrant workers from other countries had relatively higher levels of schooling. Old and mid-age USA-born males for example had high school (distance of .20 and .13 units respectively). Young South Asian-born men with high school or post-secondary schooling showed high levels of attraction (distances of only .08 and .05 respectively). Canadian-born workers dominated self-employed manufacturing (seven of the closest twenty groups were Canadian with distances of .30 units or less). However, immigrant males from South Asia and the UK were also attracted to the sector (with distances ranging from .19 to .33).

Over time, two trends are noticeable. First, Canadian-born workers become less attracted to the sector, and second, the schooling profiles of manufacturing workers were observed to improve on both the wage labour and self-employed side of the sector. Overall, by 1991, there was a broadening of representation with young and old immigrants from Germany and Poland as well as other cohorts showing increased attraction to the sector. In particular, immigrants born in Latin America and the Caribbean of all age groups with moderate levels of schooling were strongly attracted to both wage labour and self-employed sides of the sector (distances of between .02 and .16 units).

Construction, the restaurant sector and consumer services also represent sectors with

relatively low entrance requirements. However, as opposed to the manufacturing sector, the construction sector was fairly stable over time and both restaurants and consumer services were growth sectors.

In 1971, Canadian-born workers with low levels of schooling from all age groups were attracted to the self-employed construction sector (distances between .08 and .34 units). By 1991, only Canadian-born workers with moderate and low levels of schooling flocked to both wage labour and self-employed construction. Immigrants, however, were less likely to move out of the sector. Further, the schooling profiles of immigrants in the construction sector tended to be higher than was the case for Canadian-born males, particularly in the self-employed side of the sector. Among immigrant cohorts, inspection of the locational propensities of these sectors among wage labour males suggests, for instance, that immigrants born in Yugoslavia, in particular with low and mid levels of schooling, have been consistently attracted to this sector in the last 30 years (distances of between .06 and .25 in 1971; .08 and .25 in 1991). Further, where in 1971 Yugoslavia-born males were attracted only to the wage labour side, in 1991 they were strongly represented on both sides of the sector suggesting a move from wage labour to self-employed construction over the 20-year period.

The restaurant sector displayed a different pattern. First, the distances tended to be farther than was the case for construction, and second, the distances increased dramatically over time. In 1971, only mid-age men born in Greece with moderate and low levels of schooling, young immigrants from Greece with high school and men born in China/Hong Kong with high school showed high levels of attraction to the wage labour restaurant sector (distances were between .16 and .24 units). On the self-employed side of the sector, there was a greater degree of attraction. Immigrants from Southern Europe and China/Hong Kong, particularly those with low schooling were attracted to the self-employed side of the sector (distances were between .11 and .42 units). By 1991, only older men born in Greece with high school or less and young men born in China/Hong Kong with low levels of schooling were strongly attracted to wage labour restaurant work. On the self-employed side, only mid-age men born in Greece with low levels of schooling were strongly attracted. The restaurant sector is interesting because it is a growth sector and it has traditionally been identified as being an integral part of an ethnic enclave. However, our findings indicate that the immigrants

from the 1960s were not strongly attracted to the sector. Rather it may be that immigrants working in restaurants may be more recently arrived.

The consumer services sector, attracted workers with somewhat higher levels of schooling. In wage labour consumer services sector cohorts with low through post-secondary schooling of a wide variety of nationalities were present and strongly attracted to the sector. In 1971 distances for the closest twenty cohorts ranged from .08 to .26. On the self-employed side of the sector, Canadian, UK., USA and South Asian cohorts were attracted (distances of between .07 and .22). There was a shift over time however because by 1991, both the self-employed and employed side of the sector were more ethnically diversified with cohorts born in Poland and Germany/Austria with low and moderate levels of schooling joining the top twenty groups.

#### b. Industry Sectors with Moderate Schooling Requirements

Distributive services are those related to transportation, storage, communications and wholesale trade. Both distributive services and public administration are sectors demanding moderate levels of schooling. As such, cohorts attracted to this sector were more likely to have high school or post-secondary schooling than was the case for consumer services or construction, where low schooling cohorts were common.

As with consumer services, distributive services is a growth sector; however jobs in this sector are a mixed bag with a range of both skills and wages. In 1971, Canadian-born cohorts gravitated to both sides of this sector — eight of the top twenty groups on the wage labour side and nine on the self-employed side were Canadian. Four cohorts from the UK were also well represented in self-employed distributive services (young and mid age with either high school or post-secondary schooling). This was also true of mid- and older-age cohorts from South Asia with low and moderate levels of schooling (distances ranged from .12 to .31 units). Twenty years later, Canadian-born cohorts had retreated from the self-employed side of the sector resulting in greater diversification. Immigrant cohorts from South Asia, Latin American and the Caribbean, Poland and German/Austria (generally with post-secondary schooling) gravitated to this sector. However, the wage labour side remained more homogenous. Cohorts from the UK were particularly well represented with seven of the top

twenty groups being from the UK (distances ranged from .04 to .18) as were Canadian-born and Latin American/Caribbean cohorts (five groups and five groups respectively).

The public administration sector comprises jobs in the federal (including military), provincial and municipal governments.<sup>14</sup> Jobs in this sector have traditionally offered relatively high rates of job security and pay. We observed that in 1971 six of the closest cohorts were Canadian-born. These cohorts were characterized by either having high school or post-secondary schooling and came from all three age groups. This was partially a result of a public service policy which encouraged citizenship. Non-immigrants were generally ineligible to work in the public service. This meant that in 1971, Canadian-born males formed a tight ethnic enclave with the public service niche. However, cohorts from the UK and South Asia were also well represented (five and four cohorts respectively of the most attracted groups) all with similar schooling credentials to Canadian-born workers. Over time, the public administration sector opened up somewhat to other groups. Canadian-born cohorts became less attracted to the sector and those from the UK became more attracted (five and eight groups respectively).

### c. Industry Sectors with High Schooling Requirements

Similar to consumer services, the business, education, and health services are growth sectors. However, unlike consumer services, these sectors have far higher schooling requirements and there is lower evidence of ethnic niches. In these sectors, the post-secondary degree was dominant as an educational credential. We saw that between 1971 and 1991, this niche was occupied by workers with post-secondary degrees and a wide variety of age and place-of-birth cohorts. On both the wage labour and self-employed side of the sector, the possession of a post-graduate degree rather than the origin of the worker seems to have greater explanatory power in defining industrial location. In fact, ethnic diversity increased over time as immigrants with higher schooling moved into the sector.

The broad representation of ethnic and age groups meant that as compared to other

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<sup>14</sup> Toronto, being a provincial capital, has a mix of provincial and local public administration. In Montreal and Vancouver, local level public administration dominates.

sectors, the level of attraction to these sectors was lower. For example in 1971, the average distance from the wage consumer services sector to the top twenty cohorts was .17, and .14 for wage manufacturing. It was .58 to the wage business services sector and .47 to the education sector. The average distance increased over time for health and education sectors, although the schooling requirement did not, suggesting that representation in the sectors became even broader.

There were some groups which were particularly attracted to these high education sectors. In 1971, cohorts from China/Hong Kong with degrees from all age groups were attracted to wage labour health services (distances ranged from .20 to .53 units). Mid-aged immigrants with degrees born in Yugoslavia were located only .12 units away from the sector. Immigrant cohorts from the UK and USA were strongly attracted to the education cohort. By 1991, the self-employed side of business services was proving more attractive to a wide variety of immigrant cohorts with degrees. With distances ranging from .08 to .52, immigrant cohorts from the UK, Germany/Austria, Italy, Czechoslovakia/Hungary and China with degrees all showed a high propensity to work in self-employed business services. As well, self-employed health services, which exhibited very low attraction in 1971, were beginning to show some attraction by 1991. Older immigrant cohorts born in Latin America/Caribbean with degrees, for example, were only .32 units from the sector.

Canadian and UK cohorts of all ages with degrees as well as young and mid-age USA-born immigrants were attracted to the education sector in 1971 (distances ranged from .10 to .41 units). By 1991, although these groups were still represented, the sector had broadened ethnically to include groups from Italy and Latin America/Caribbean.

## 2. Females

In 1971, about two-thirds of women of labour force age were active in the labour force. This proportion grew over time and the proportion of immigrant women active in the labour force was higher than that for the Canadian-born population (67 versus 59 percent respectively). However, as was the case among men, immigrant women, particularly those with low levels of schooling, were expected to be attracted to different sectors of the labour

force than was the case for Canadian-born women. Further, it was also expected that women would gravitate toward the newly opening positions in the service economy.<sup>15</sup>

#### a. Industry Sectors with Low Schooling Requirements

As will be remembered, for men the needle trades were dominated by cohorts with either high school or post-secondary schooling. Among women, the needle trades were more likely to attract those with low schooling. In 1971, fifteen of the twenty closest female cohorts had less than high school. However on average, immigrant women were not strongly attracted to the needle trades — the average distance from the closest twenty cohorts to the sector was .71 units. Greek, Italian and Chinese women with low schooling of all ages did congregate around the sector in 1971 (distances were between .32 and .43 units). Over the twenty years that followed, attraction to the sector decreased suggesting a great deal of turnover. Immigrants from the 1960s who remained close to the sector were those with low levels of schooling. Mid-aged women born in Italy, Greece and China/Hong Kong with low schooling were closest to the sector (.02, .13 and .30 units away respectively). Canadian-born women were not represented among the twenty closest cohorts in any of the three census periods.

Canadian-born cohorts of women with low levels of schooling from all age groups were more likely to be attracted to wage labour manufacturing (distances ranged from .11 to .25 units). Often, immigrant women with moderate levels of schooling were attracted to the manufacturing sector. Mid-aged women born in Germany/Austria with low and moderate levels of schooling were very close to wage labour manufacturing (distances ranged from .08 to .28 units respectively). Canadian-born cohorts were not represented on the self-employed side of the sector and schooling tended to be somewhat higher. Half of the twenty closest cohorts attracted to self-employed manufacturing had high school. In 1971, for example, young women born in China/Hong Kong with high school were located only .11 units away from self-employed manufacturing while young Latin American/Caribbean women with low

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<sup>15</sup> Figures 5 through 7 are bi-plots for women showing industry and cohort locations for a selection of cohorts.



levels of schooling were .11 units away. Women born in Czechoslovakia were also located close to the self-employed manufacturing sector (.07 to .16 units away).

As was the case for men, restaurants constituted another industry sector with relatively low entrance requirements. Canadian, Czechoslovakia and Germany/Austria born cohorts with lower schooling levels were attracted to this niche in 1971. Most had “retreated” to other sectors by 1991 leaving a more diversified niche comprised of the above groups as well as cohorts born in China/Hong Kong, South Asia, Latin America/Caribbean and Yugoslavia. Of interest is the fact that the pattern of attraction for women was different than that for men. Where cohorts from Southern Europe clearly formed a strong niche among men, among women, cohorts from Eastern Europe as well as the newer, non-European groups were as likely to be part of this industry niche.

In 1971, the consumer services sector was highly ethnically diversified and growing. However there were definite differences between the self-employed and wage labour sides of the sector. We observed that women from all ages with low schooling, born in Canada and the UK were attracted to the wage labour side (distances ranged from .10 to .26 units). However, these groups were absent from the twenty closest groups on the self-employed side of the sector. Rather, self-employed workers in consumer services attracted a diverse group of immigrant workers, many cohorts of which had high-school or post-secondary schooling. This sector points to the different demands between the wage labour and self-employed of any given sector. By 1981, among self-employed consumer services women workers, the schooling requirements became even higher. Fifteen of the twenty closest groups had post-secondary schooling. By 1991, mid-aged women with a degree born in South Asia were within the top twenty groups (.43 units away from the sector).

#### b. Sectors with moderate levels of schooling

Being a growth sector, the distributive services sector attracted a broad range of women, both immigrant and Canadian-born. The dominant cohorts in 1971 were those with high school certificates, particularly on the wage labour side of the sector (sixteen of the twenty closest groups were characterized by high school education). There was a notable split between the wage labour and self-employed side of the sector because self-employed

cohorts were more likely to have post-secondary schooling. Further, where Canadian-born cohorts as well as those from the UK and USA were well represented on the wage labour side, among the self-employed other immigrant groups were more prevalent. Canadian-born women with high school from all three age groups were attracted to the wage labour side of the sector, but only older Canadian-born women were attracted to the self-employed side. In 1991, Canadian-born women with high school education were strongly attracted to both sides of the sector. Immigrant cohorts were more likely to have post-secondary schooling. Young women born in China/Hong Kong with post-secondary schooling for example were strongly attracted to the self-employed side of the sector (.10 units away).

In 1971, the public administration sector was a strong magnet for women born in Canada, the UK and the USA, generally with post-secondary schooling (distances ranged from .01 to .25 units). In 1981, the sector was beginning to diversify. This process continued through the 1980s so that by 1991, it was fully ethnically diversified. However, schooling requirements were tightening, so that post-secondary schooling or better became the norm for the closest cohorts. For example, new cohorts of well-educated women such as those born in China/Hong Kong and South Asia, some with degrees, were strongly attracted to the sector (distances ranged from .01 to .32).

#### c. Sectors with high levels of schooling requirements

As was seen for men, sectors with high schooling requirements tended to be more “universal” and less ethnically defined. The business and social services sectors (health and education) were characterized by a broad representation of groups, both immigrant and Canadian-born. Over time, the closest cohorts to this sector were increasingly those with degrees or at least post-secondary schooling. In wage labour business services, for example, by 1991, 14 of the 20 closest groups had post-secondary schooling, whereas this was the case for only six groups in 1971. On the self-employed side, schooling levels tended to be higher. By 1991, 13 of the 20 closest groups were those with degrees.

In 1971 wage labour business services were very attractive to Canadian-born and immigrant women born in the UK and the USA (distances ranged from .09 to .32 units). Cohorts from South Asia and Latin America/Caribbean with moderate levels of schooling

were also represented (.08 to .32 units away). Twenty years later, these groups were joined by European and non-European immigrant groups such as cohorts born in Germany/Austria, China/Hong Kong and additional cohorts born in South Asia. Young women born in Germany/Austria, for example, were located only .06 units away from the sector and mid-aged South-Asia-born women were only .09 units away.

Self-employed business services continued to attract cohorts with higher levels of schooling than was the case for the wage labour side. However in most cases, distances tended to be farther than was the case for the wage labour side of the sector suggesting a lower level of attraction. In 1971, for example, the average distance to self-employed business services for the closest twenty groups was .26 units (.21 units for wage labour business services). In 1991, the average distance had increased to .42 units for self-employed business services and decreased to .16 units for wage labour business services. This suggests increasing attraction for groups on the wage labour side, but increasing diversity, or lower attraction on the wage labour side of the sector.

Wage labour health services displayed a similar pattern to that seen in business services. In 1971, the Canadian cohorts with post-secondary schooling along with immigrant women born in the UK and Latin America/Caribbean gravitated toward the sector (distances ranged from .02 to .32 units). Women were less attracted to the self-employed side of the sector. Save for women with degrees born in Latin America/Caribbean, which were only .04 units from the sector, most cohorts were beyond the .50 limit. Over time, schooling requirements appear to have increased, particularly among self-employed health workers. In fact, by 1991, with only one exception the cohorts closest to the self-employed health services sector all had degrees.

With respect to the education services sector, we observed highly educated women from many regions. All the cohorts attracted to this sector had degrees. However the level of attraction was relatively low in comparison with other sectors. The average distance in 1971, was .54 units suggesting that group members did not congregate in this sector. By 1991, the average distance had decreased somewhat to .40 units. As well, the sector became more diversified with cohorts born in Italy and Latin America/Caribbean gradually moving to these

niches. The closest groups remained those born in Canada and the USA (distances ranged from .05 .32 units).

## **VI. Conclusions**

In this paper we looked at how the industry propensities of immigrant and Canadian-born workers who lived in the three largest Census Metropolitan Areas in Canada changed over time. Specifically, using correspondence analysis, we looked at where immigrants who arrived in Canada during the 1960s worked over time in the labour force, controlling for age and schooling. Further, we looked at how this labour force role changed over the course of a twenty-year period (1971–1991). This cohort of immigrants was of particular interest because changes to immigration intake regulations caused a substantial shift in the type of intake. Rather than being primarily focused upon family reunification, immigrant intake during the 1960s was split into two streams — a sponsored stream based on family reunification and an independent stream based on labour force requirements. The two streams created a bipolar schooling profile which had an underlying national composition. Immigrants with low levels of schooling tended to be from Southern Europe and Asia. Those with high levels of schooling came from the USA, Eastern Europe and South Asia. Each of these groups displayed specific patterns of labour force participation and industrial location.

Overall, we found that the picture of labour force integration is one of substantial change both in response to shifts in the labour market itself and to the social integration of immigrants themselves. However the opportunities for changing labour force position were far more prevalent at the higher end of the labour market than at the lower end. Central to our findings is that high levels of schooling overrode ethnicity and attractiveness of the ethnic enclave. Thus, while we found tight ethnic enclaves at the lower end of the education/industry market, we did not find such enclaves in industries requiring higher levels of schooling. In these “low human capital” niches, among immigrants, low levels of schooling appeared to override age in determining industry position and resulted in concentration in an enclave. We found that over the twenty-year period, Canadian-born workers slowly moved away from areas which could be considered dying sectors, as the economy shifted toward one based on

services rather than manufacturing. Often, their place was filled by immigrants with low levels of schooling. Thus ethnic niches were formed around the needle trades, construction and manufacturing. This pattern was observable in self-employment and wage labour niches. Industrial niches requiring higher levels of education became more and more ethnically diversified over time.

We also witnessed substantial moves toward self-employment on the part of immigrants working in these high education industries. The motivation for entering self-employment has been explored by a number of sociologists (see Yoon 1995; Portes 1987; Portes and Zhou 1996; Beaujot et al. 1994; Mata and Pendakur 1999). These scholars have attempted to explain self-employment in terms of looking at structural barriers that force immigrants to seek alternatives to wage labour. These barriers may include lost human capital as a product of the migration process. Such losses can take a number of forms such as inability to speak the dominant language, non-recognition of foreign-earned credentials or losing a network of contacts and other business associates, as well as discrimination. In addition, workers with low levels of schooling may have a limited set of occupational choices available to them. Bleak social mobility prospects in combination with feelings of disappointment with a society that does not recognize their abilities may therefore make self-employment a desirable option. Within this theoretical framework, the shifts we saw from wage labour to self-employment could be evidence that immigrants are using self-employment as a path to upward mobility, rather than staying in a wage labour sector where opportunities may be more limited. Within this framework of analysis, our research provides preliminary evidence in support of theories pointing to blocked mobility.

Finally, we found substantial differences between industrial propensities of immigrant women versus immigrant men. Where immigrant men with low levels of schooling worked in sectors which were in decline, such as construction or manufacturing, immigrant women, despite being concentrated in the needle trades, were also likely to work in growth sectors such as restaurants or consumer services. Immigrant men and women with higher levels of schooling found greater opportunities in the growing social services sectors such as health and education.

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## Appendices

## CORRESPONDENCE ANALYSIS IN CROSS-TABULAR ANALYSIS

Correspondence analysis allows to examine the relationships between two nominal variables in a multidimensional space. A major advantage that correspondence analysis has over other cross-tabular analytical techniques is that it describes these associations in a graphical fashion in accordance with a measure of statistical independence such as the  $\chi^2$  statistic. In doing so it illustrates the underlying relationships between variable categories. The Euclidean distances in the bi-plots of correspondence analysis approximate the  $\chi^2$  distances present in the data table. Points that are together in the plot are more alike than those that are far apart.

The example below illustrates the relationship between a variable expressing group membership of individuals in categories  $g_1, g_2, g_3, g_4$  and  $g_5$  (rows) and in sectors  $s_1$  and  $s_2$  (columns). These categories are represented by stars and squares in the bi-plot. By calculating row and column profiles and breaking down the  $\chi^2$  statistic, points corresponding to groups and sectors may be plotted in a plane spanned by two major principal components. Rays (vectors) could be drawn from the origin to each column point (sectors).

The orthogonal projection (perpendicular line) from the row points (groups) to the rays provides an indication of how categories of these two variables are related to each other. In this case, points  $g_1$  and  $g_2$  are close to each other and located close to the  $s_1$  ray while  $g_3$  and  $g_4$  are closest to the  $s_2$  ray despite being located at different sides of it. In other words, individuals belonging to categories  $g_1$  and  $g_2$  will tend to be over-represented in sector 1 while those in  $g_3$  and  $g_4$  in sector 2. The point  $g_5$  is far away from the rays and equidistant suggesting there is no apparent association of this row category to the any column category.

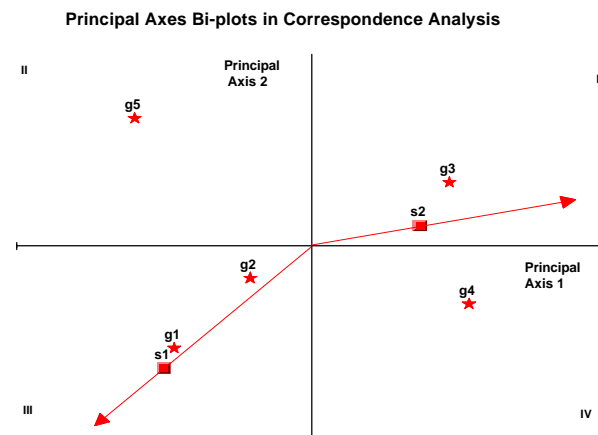
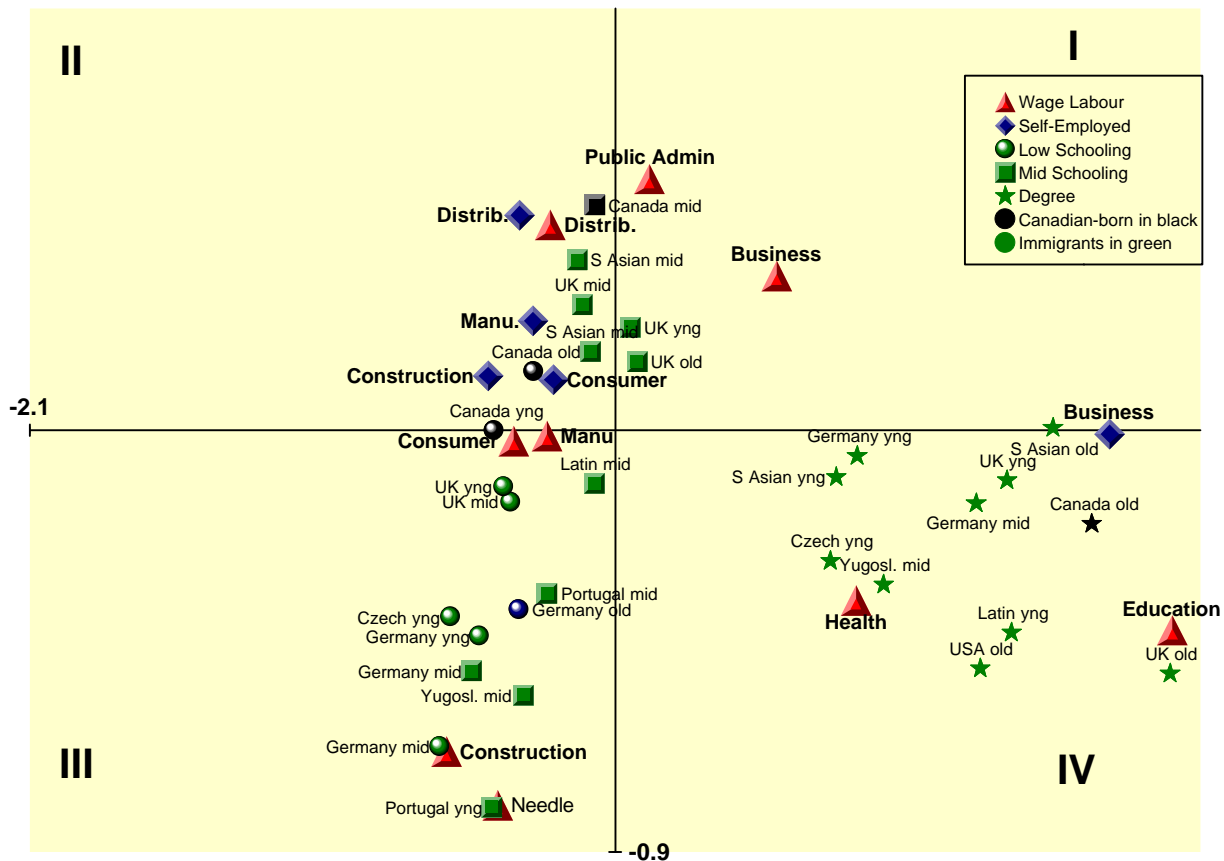


Figure 2

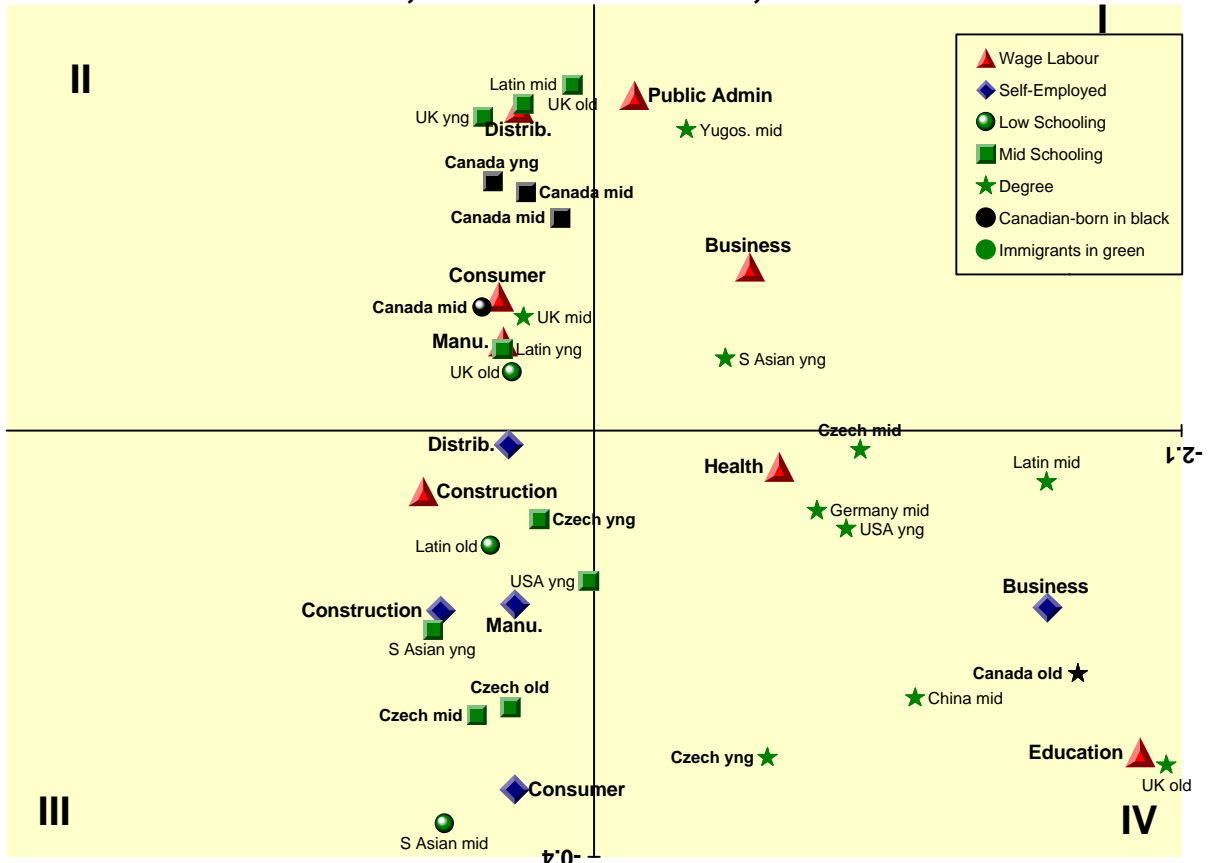
## Males, Selected Cohorts, 1971



Source: 1971 Census of Canada. Population not in school full time, living in Montreal, Toronto and Vancouver.

Figure 3

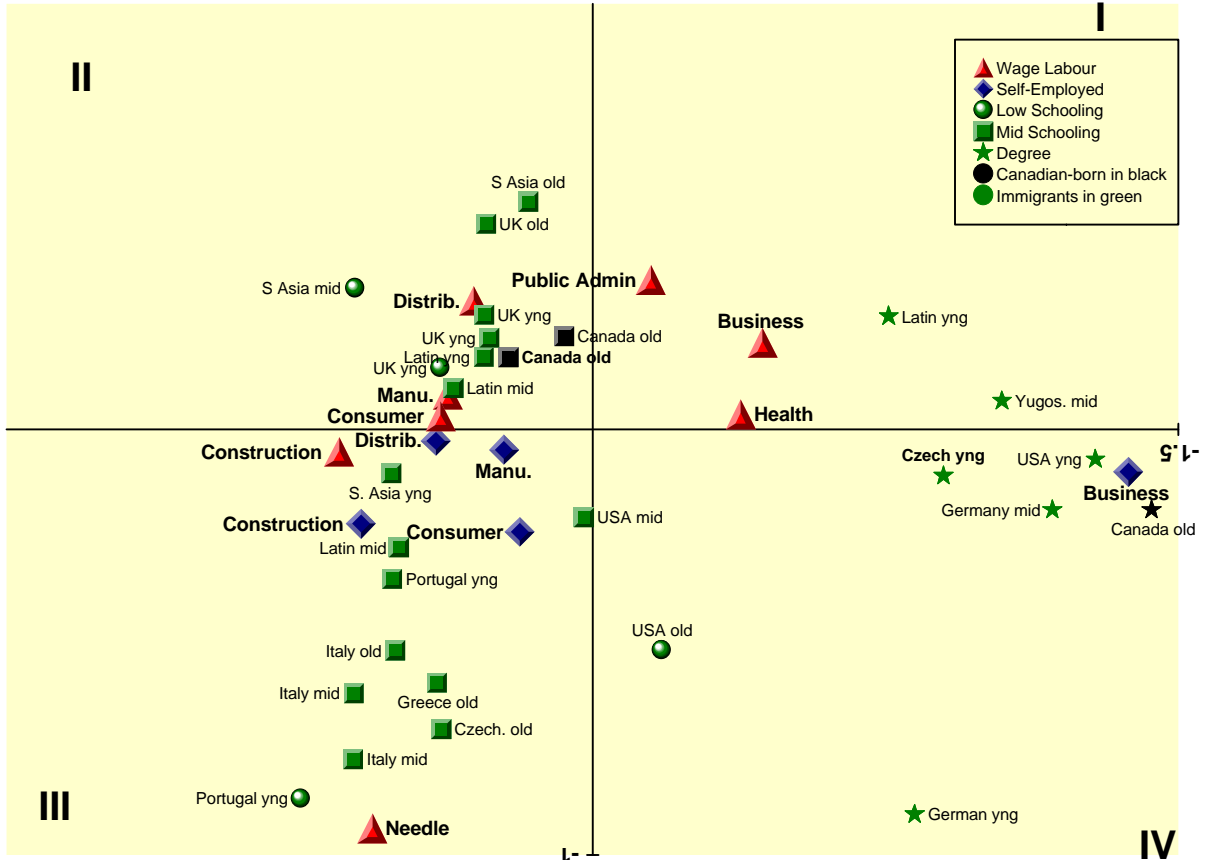
### Males, Selected Cohorts, 1981



Source: 1981 Census of Canada. Population not in school full time, living in Montreal, Toronto and Vancouver.

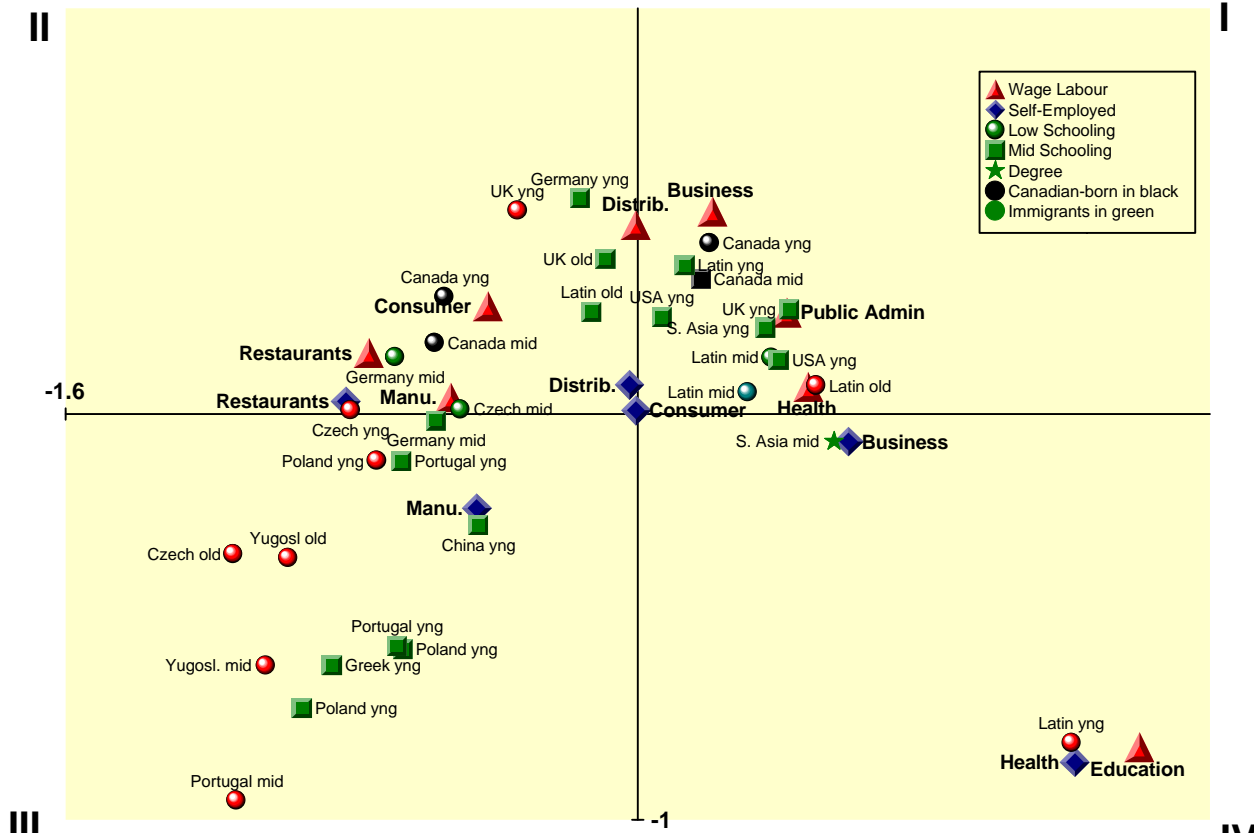
Figure 4

# Males, Selected Cohorts, 1991



Source: 1991 Census of Canada. Population not in school full time, living in Montreal, Toronto and Vancouver.

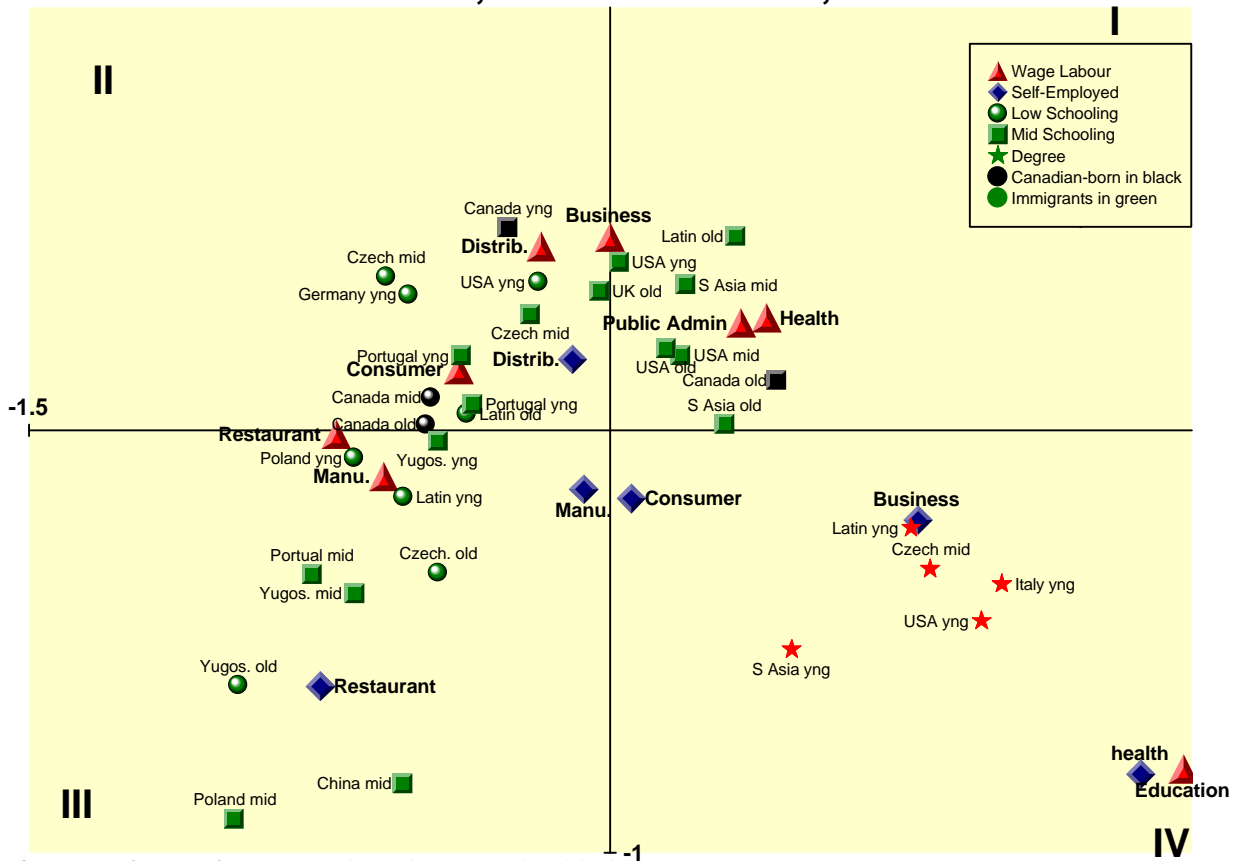
**Figure 5** **Females, Selected Cohorts, 1971**



Source: 1971 Census of Canada. Population not in school full time, living in Montreal, Toronto and Vancouver.

Figure 6

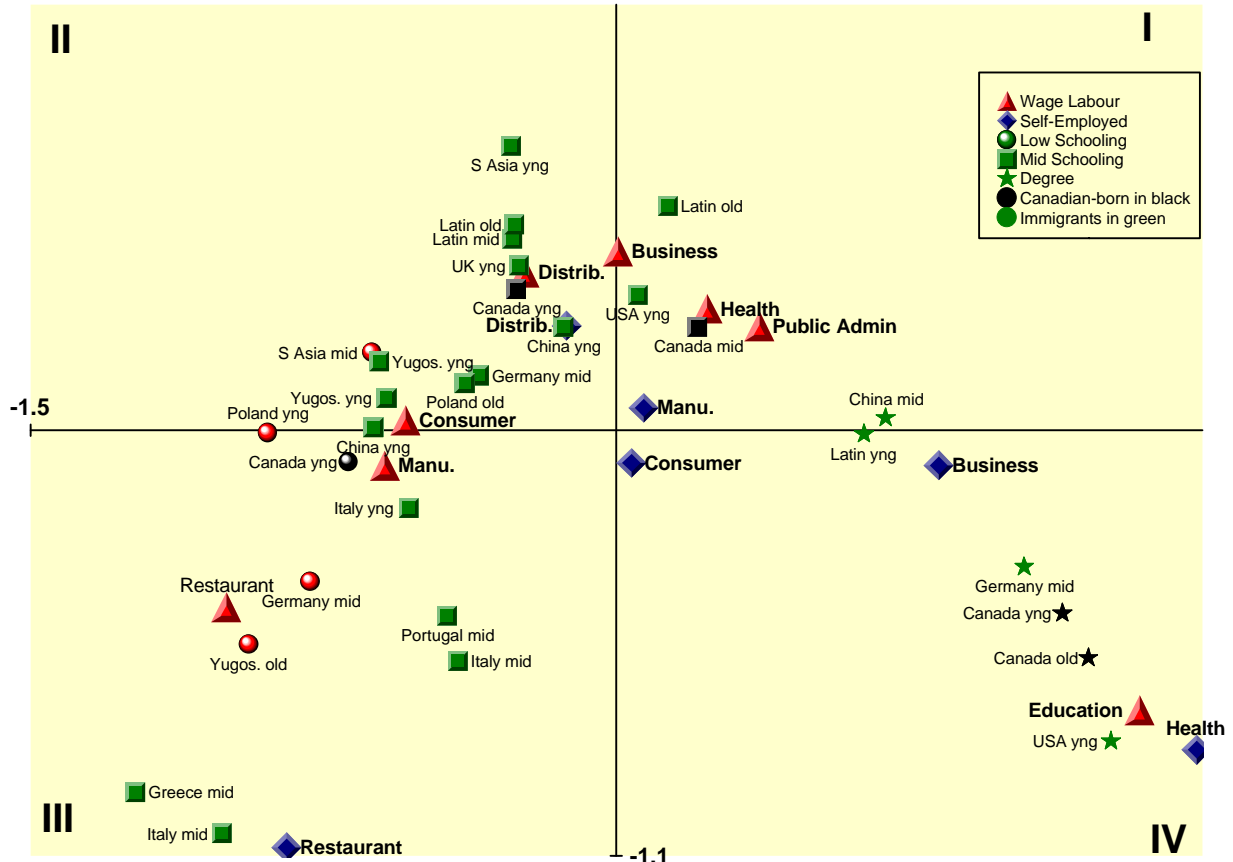
## Females, Selected Cohorts, 1981



Source: 1981 Census of Canada. Population not in school full time, living in Montreal, Toronto and Vancouver.

Figure 7

## Females, Selected Cohorts, 1991



Source: 1981 Census of Canada. Population not in school full time, living in Montreal, Toronto and Vancouver.



TABLE 1

**Highest Level of Schooling for Canadian-born and Immigrant (1961-1970) Males  
and Females, Living in Montreal, Toronto and Vancouver, 1971**

	Total	LT Gr 9	Gr 9-11	Gr. 12-13	Some Univ	University Degree
<b>MALES</b>						
Total	1,861,855	35%	31%	19%	5%	10%
Canada	1,239,505	33%	36%	17%	5%	9%
Immigrants 1961-70	622,345	41%	22%	22%	5%	10%
USA	27,080	23%	19%	18%	14%	26%
UK Ireland	162,685	22%	26%	37%	7%	7%
Austria Germany	37,790	24%	29%	32%	8%	7%
Poland	33,350	54%	20%	14%	5%	6%
Czech. / Hungary	23,490	30%	19%	26%	11%	14%
Portugal	16,445	76%	16%	6%	2%	1%
Greece	28,070	64%	16%	14%	4%	2%
Italy	117,215	76%	15%	6%	2%	1%
Yugoslavia	16,485	48%	21%	18%	8%	5%
Other Europe	84,135	36%	24%	23%	8%	10%
S. Asia	9,195	11%	18%	22%	17%	31%
China/Hong Kong	14,175	49%	19%	16%	6%	10%
Other Asia	12,495	20%	17%	22%	15%	26%
Latin Amer./Carib.	19,195	16%	32%	33%	9%	10%
Other	20,510	19%	22%	29%	12%	19%
<b>FEMALES</b>						
Total	2,076,905	35%	34%	22%	3%	5%
Canada	1,420,620	31%	39%	21%	3%	5%
Immigrants 1961-70	656,275	44%	24%	24%	3%	5%
USA	37,255	24%	23%	26%	19%	8%
UK Ireland	201,555	27%	32%	36%	4%	2%
Austria Germany	41,005	28%	33%	31%	5%	3%
Poland	30,165	58%	21%	14%	4%	3%
Czech. / Hungary	20,005	36%	23%	29%	7%	5%
Portugal	16,375	83%	11%	4%	1%	0%
Greece	26,570	78%	11%	9%	2%	1%
Italy	105,005	84%	10%	4%	1%	0%
Yugoslavia	14,080	61%	17%	15%	5%	2%
Other Europe	80,600	40%	25%	24%	6%	4%
S. Asia	7,875	23%	20%	27%	16%	14%
China / Hong Kong	13,475	60%	14%	17%	6%	3%
Other Asia	14,445	25%	18%	20%	23%	13%
Latin Amer./Carib.	26,245	19%	35%	36%	7%	4%
Other	21,645	24%	27%	35%	8%	6%

Source: 1971 census of Canada.

Note: population age 15-64 not in school full time.

Euclidean Distance Males 1971

Needle trades		Total
group		
czemps		0.25
germlo		0.29
itamhs		0.18
itamps		0.15
itaops		0.20
itayhs		0.05
itayps		0.22
oasolo		0.26
oasvlo		0.24
otemhs		0.18
otemlo		0.16
oteyps		0.19
othmlo		0.22
otholo		0.28
othvlo		0.17
pololo		0.03
poryps		0.06
yugmlo		0.22
yugops		0.10
yugvlo		0.23

SE Manufacturing		Total
group		
canmlo		0.15
canmps		0.18
canohs		0.30
canolo		0.10
canops		0.23
canylo		0.25
canyps		0.20
oasmps		0.27
oasops		0.31
othops		0.26
polmps		0.28
sasmhs		0.24
sasmlo		0.25
sasmps		0.21
sasohs		0.33
sasyhs		0.29
sasyps		0.27
ukimhs		0.19
ukimps		0.23
ukiyps		0.22

SE Construction		Total
group		
canmlo		0.08
canmps		0.34
canolo		0.16
canylo		0.12
canyps		0.33
czemhs		0.28
czemlo		0.28
latyps		0.37
oasmps		0.34
oasops		0.32
polmps		0.31
pormps		0.35
sasmlo		0.09
sasyhs		0.33
sasylo		0.37
sasyps		0.30
ukimlo		0.31
ukimps		0.33
ukivlo		0.25
ukiyps		0.28

SE Distributive Services		Total
group		
canmhs		0.32
canmlo		0.35
canmps		0.34
canohs		0.26
canolo		0.32
canops		0.31
canyhs		0.33
canylo		0.44
oasops		0.39
othops		0.48
othmps		0.45
sasmhs		0.38
sasmlo		0.42
sasmps		0.23
sasohs		0.27
sasops		0.42
ukimhs		0.28
ukimps		0.44
ukiyps		0.46
ukiyps		0.44

SE Consumer Services		Total
group		
canmlo		0.15
canmps		0.15
canolo		0.07
canylo		0.21
canyps		0.12
latyps		0.19
oasmps		0.12
oasops		0.17
othops		0.15
polmps		0.13
pormps		0.21
sasmhs		0.19
sasyhs		0.14
sasyps		0.12
ukimhs		0.22
ukimps		0.10
ukiops		0.23
ukiyps		0.07
usamhs		0.22
usayps		0.22

WL Manufacturing		Total
group		
canmlo		0.17
canolo		0.15
canylo		0.18
canyps		0.19
czemlo		0.19
latmps		0.20
latyps		0.12
oasmps		0.12
oasops		0.07
othops		0.20
polmps		0.06
pormps		0.11
sasyhs		0.08
sasyps		0.05
ukimlo		0.21
ukimps		0.14
ukivlo		0.17
ukiyps		0.08
usamhs		0.13
usaohs		0.20

WL Construction		Total
group		
germlo		0.03
germps		0.18
itamps		0.23
itayhs		0.21
itayps		0.16
oasolo		0.22
oasylo		0.10
othmlo		0.24
otholo		0.15
othvlo		0.17
polops		0.16
polylo		0.23
pormps		0.24
poryps		0.21
yugmlo		0.06
yugmps		0.21
yugops		0.22
yugyhs		0.25
yugvlo		0.17
yugyps		0.07

WL Distributive Services		Total
group		
canmhs		0.22
canmlo		0.36
canmps		0.27
canohs		0.15
canolo		0.31
canops		0.21
canyhs		0.22
canyps		0.32
oasmps		0.42
oasops		0.37
othops		0.29
sasmhs		0.12
sasmps		0.16
sasohs		0.31
sasops		0.19
ukimhs		0.38
ukimps		0.40
ukiohs		0.35
ukiyps		0.39
usayps		0.43

WL Consumer Services		Total
group		
canmlo		0.13
canolo		0.18
canylo		0.08
czemhs		0.15
czemlo		0.10
czeops		0.26
latyps		0.21
oasmps		0.25
oasops		0.17
polmps		0.19
pormps		0.18
sasmlo		0.13
sasyhs		0.20
sasylo		0.21
sasyps		0.17
ukimlo		0.13
ukimps		0.26
ukivlo		0.07
ukiyps		0.20
usamhs		0.20

**NOTE:**

cohorts are divided into 3 attributes  
 - place of birth, age and schooling

The first 3 characters represent  
 place of birth:

- Can=Canadian-born, USA=USA
- UKI=UK/Ireland, Ger=Germany/
- Austria; Pol=Poland; Cze=Hungary
- Czechoslovakia; Por=Portugal
- Gre=Greece; Ita=Italy; Yug=Yugo-
- slavia; Ote=Other Europe; SAS=
- South Asia' Chi=China/Hong Kong;
- Oas=Other Asia; Lat=Latin America
- Caribbean; Oth=Other

Character 4 represents age in 1971  
 y=25-34 m=35-44 and o=45-54

Characters 5-6 refer to schooling  
 lo=L than highschool,

hs=highschool

ps=post secondary, dg=degree

Euclidean Distance Males 1971

SE Restaurants		Total
group		
chimps		0.35
chiyps		0.42
gremps		0.12
greyys		0.19
itamhs		0.57
itamlo		0.37
itamps		0.60
itaolo		0.26
itayhs		0.68
itaylo		0.37
oternhs		0.68
otemlo		0.52
oteolo		0.32
oteylo		0.17
pololo		0.68
pormlo		0.26
porolo		0.11
porylo		0.22
yugolo		0.39
yugops		0.65

SE Business Services		Total
group		
canmdg		0.31
canodg		0.21
canydg		0.18
czemdg		0.69
germdg		0.50
latydg		0.55
oasmdg		0.65
oteodg		0.56
oteydg		0.56
othmdg		0.58
othodg		0.36
othydg		0.45
polmdg		0.40
sasmdg		0.67
sasodg		0.21
ukimdg		0.48
ukiodg		0.55
ukiydg		0.38
usamdg		0.64
usaodg		0.68

SE Health Services		Total
group		
canmdg		1.63
canodg		1.87
canydg		1.90
itaydg		2.20
latmdg		0.93
latydg		2.08
otemdg		1.99
oteodg		1.85
oteydg		1.96
othmdg		1.62
othodg		2.05
othydg		2.06
polmdg		2.13
sasodg		2.07
ukimdg		1.68
ukiodg		1.51
ukiydg		2.18
usamdg		1.52
usaodg		2.18
usaydg		1.21

Education		Total
group		
canmdg		0.16
canodg		0.37
canydg		0.41
germdg		0.76
latmdg		0.76
latydg		0.59
otemdg		0.51
oteodg		0.48
oteydg		0.49
othmdg		0.22
othodg		0.54
othydg		0.55
polmdg		0.62
sasodg		0.61
ukimdg		0.20
ukiodg		0.10
ukiydg		0.68
usamdg		0.21
usaodg		0.70
usaydg		0.40

WL Restaurants		Total
group		
chimhs		0.24
chimps		1.07
chiohs		0.45
chiyhs		0.21
chiyps		0.71
gremls		0.17
gremlg		0.29
gremps		0.76
greolo		0.77
greyhs		0.16
greylo		0.90
greyys		0.62
itamlo		1.06
itaolo		0.98
itaylo		1.02
oteolo		1.13
oteylo		0.92
pormlo		1.05
porolo		0.84
porylo		0.92

WL Business Services		Total
group		
canmhs		0.64
canops		0.66
canyhs		0.62
chimdg		0.57
chiodg		0.51
czeodg		0.54
czyeydg		0.64
gerydg		0.48
oasydg		0.45
othohs		0.60
sasmdg		0.67
sasmhs		0.67
sasohs		0.68
sasops		0.54
sasydg		0.48
ukiohs		0.52
ukiyhs		0.55
usamps		0.67
usayps		0.65
yugydg		0.44

WL Health Services		Total
group		
chimdg		0.20
chiodg		0.53
chiydg		0.36
czemdg		0.30
czeodg		0.23
czyeydg		0.13
germdg		0.49
gerydg		0.32
itaydg		0.51
latydg		0.56
oasmdg		0.34
oasodg		0.27
oasydg		0.33
othydg		0.60
polmdg		0.59
sasmdg		0.39
sasydg		0.28
usaodg		0.47
yugmdg		0.12
yugydg		0.45

Public Administration		Total
group		
canmhs		0.15
canmps		0.41
canohs		0.23
canops		0.30
canyhs		0.15
canyps		0.45
othohs		0.50
othops		0.47
sasmhs		0.38
sasmps		0.30
sasohs		0.21
sasops		0.23
ukimhs		0.34
ukimps		0.52
ukiohs		0.34
ukiops		0.54
ukiyhs		0.31
usamps		0.56
usayhs		0.55
usayps		0.47

Euclidean Distance Females 1971

Needle trades		Total
group		
chimlo		0.43
chiylo		0.74
gremhs		0.58
gremlo		0.34
grollo		0.25
greyhs		1.23
greylo		0.45
greyps		1.32
itamlo		0.54
itaolo		0.32
itaylo		0.43
itayps		0.64
oasmlo		1.20
othmlo		1.34
otholo		0.96
pololo		0.79
pormllo		0.91
porolo		0.54
porvlo		0.67
yugmlo		1.24

SE Manufacturing		Total
group		
chiyhs		0.11
czemhs		0.07
czemlo		0.13
czeohs		0.16
germhs		0.24
itayhs		0.23
latolo		0.27
latvlo		0.11
oasylo		0.13
otemlo		0.34
otemps		0.35
oteohs		0.24
oteolo		0.33
oteops		0.12
otevlo		0.36
othohs		0.38
othvlo		0.17
polylo		0.32
porvhs		0.24
yugvhs		0.35

SE Construction		Total
group		
canohs		0.27
czemps		0.22
czeops		0.10
czyehs		0.05
czyeys		0.22
germps		0.27
gerops		0.18
gervhs		0.13
geryps		0.11
latohs		0.08
oasyhs		0.21
polyps		0.19
sasmhs		0.27
sasmlo		0.20
ukimhs		0.03
ukimlo		0.22
ukiohs		0.05
ukiollo		0.14
ukiylo		0.24
usayhs		0.24

SE Distributive Services		Total
group		
chiyhs		0.10
czyeys		0.18
germps		0.27
gerops		0.20
latmlo		0.18
latohs		0.27
latyps		0.24
oasmhs		0.21
oasmps		0.28
oasyhs		0.23
otemhs		0.13
otemps		0.27
otehs		0.27
otevhs		0.19
oteyps		0.28
othmps		0.22
othohs		0.13
othops		0.17
polyps		0.30
ukiollo		0.24
usayhs		0.22

SE Consumer Services		Total
group		
chiyhs		0.13
czyeys		0.23
germps		0.30
gerops		0.26
latmlo		0.20
latohs		0.32
latyps		0.26
oasmhs		0.16
oasmps		0.23
oasyhs		0.28
otemhs		0.10
otemps		0.22
otehs		0.33
otevhs		0.29
oteyps		0.17
othmps		0.27
othohs		0.18
othops		0.10
polyps		0.22
usayhs		0.27

WL Manufacturing		Total
group		
canmlo		0.14
canolo		0.11
canylo		0.25
chiyhs		0.25
czemhs		0.27
czemlo		0.27
czeohs		0.20
czyeylo		0.36
germhs		0.08
germlo		0.19
germps		0.27
gervlo		0.20
latmlo		0.31
latolo		0.11
latvlo		0.22
oteops		0.34
othvlo		0.20
porvhs		0.12
yugvhs		0.05
yugyps		0.19

WL Construction		Total
group		
canohs		0.19
czeops		0.20
czyehs		0.14
czyeys		0.29
gerops		0.25
gervhs		0.14
geryps		0.17
latohs		0.10
latvhs		0.22
oasyhs		0.17
othvhs		0.26
polyps		0.25
sasmhs		0.18
ukimhs		0.07
ukiohs		0.06
ukiollo		0.24
ukiyhs		0.23
usamhs		0.27
usamps		0.21
usayhs		0.20

WL Distributive Services		Total
group		
canmhs		0.29
canohs		0.18
canyhs		0.27
czyeops		0.25
czyehs		0.19
gervhs		0.16
geryps		0.20
latohs		0.14
latvhs		0.19
oasyhs		0.19
othvhs		0.23
polyps		0.29
sasmhs		0.16
ukimhs		0.11
ukiohs		0.11
ukiollo		0.29
ukiyhs		0.20
usamhs		0.24
usamps		0.18
usayhs		0.22

WL Consumer Services		Total
group		
canmlo		0.14
canolo		0.14
canylo		0.10
czyemps		0.20
czyeops		0.23
czyehs		0.28
germlo		0.27
germlo		0.28
germps		0.18
gerops		0.26
gervlo		0.28
geryps		0.30
latmlo		0.29
latolo		0.25
sasmlo		0.16
ukimlo		0.17
ukiollo		0.20
ukiylo		0.26
yugvhs		0.21
yugyps		0.05

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Euclidean Distance Females 1971

SE Restaurants		Total	SE Business Services		Total	SE Health Services		Total	Education		Total
group			group			group			group		
canmlo		0.33	canmps		0.19	canmdg		0.53	canmdg		0.42
canolo		0.34	canops		0.36	canodg		0.42	canodg		0.29
canylo		0.42	canyps		0.09	canydg		0.58	canydg		0.47
chiolo		0.30	czeydg		0.06	canyps		0.93	canyps		1.02
czemhs		0.39	gerydg		0.34	chiydg		0.59	chiydg		0.66
czemlo		0.34	latmhs		0.28	czeydg		0.95	czeydg		1.05
czeohs		0.30	latmps		0.31	gerydg		0.68	gerydg		0.77
czeylo		0.11	latops		0.17	latmdg		0.35	latmdg		0.50
germhs		0.27	oasmdg		0.28	latydg		0.04	latydg		0.20
germlo		0.19	oasydg		0.25	oasmdg		0.83	oasmdg		0.90
geryllo		0.20	oasyps		0.31	otemdg		0.23	otemdg		0.20
latolo		0.42	oteyps		0.45	oteydg		0.53	oteydg		0.44
oteolo		0.31	othmps		0.37	othmdg		0.58	othmdg		0.47
oteylo		0.32	othyps		0.07	othydg		0.47	othydg		0.36
othylo		0.28	sasmps		0.05	sasmdg		0.39	sasmdg		0.24
polmlo		0.31	sasyps		0.37	sasmps		1.03	sasyps		0.60
polylo		0.28	ukimps		0.32	sasydg		0.52	sasydg		0.94
poryhhs		0.24	ukiops		0.34	ukiydg		0.37	ukimdg		0.26
yugolo		0.39	ukiyps		0.36	usamdmg		0.76	ukiydg		0.64
yugyhs		0.30	usayps		0.28	usaydg		0.51	usamdmg		0.40
					0.26				usaydg		0.40
											0.54

WL Restaurants		Total	WL Business Services		Total	WL Health Services		Total	Public Administration		Total
group			group			group			group		
canmlo		0.22	canmhs		0.17	canmps		0.02	canmhs		0.19
canolo		0.25	canohs		0.17	canops		0.19	canmps		0.19
canylo		0.28	canops		0.35	canyps		0.26	canops		0.12
chiolo		0.43	canyhs		0.09	czeydg		0.23	canyhs		0.24
czemhs		0.44	latohs		0.32	latmhs		0.12	latmhs		0.08
czemlo		0.40	latyhs		0.08	latmps		0.17	latmps		0.23
czeohs		0.35	latyps		0.31	latops		0.02	latops		0.20
czeylo		0.26	oasyps		0.27	latyps		0.32	latyhs		0.30
germhs		0.27	oteyhs		0.31	oasydg		0.29	latyps		0.26
germlo		0.08	othyhs		0.07	oasyps		0.19	oasyps		0.12
geryllo		0.08	sasmps		0.12	oteyhs		0.30	oteyhs		0.22
latolo		0.37	sasyhs		0.08	oteyps		0.34	othmps		0.26
latylo		0.45	sasyps		0.32	othmps		0.23	othys		0.27
oteolo		0.43	ukimhs		0.32	othyps		0.11	sasyhs		0.29
othylo		0.33	ukiohs		0.31	sasmps		0.15	sasyps		0.08
polmlo		0.45	ukiyhs		0.05	sasyps		0.19	ukimps		0.09
polylo		0.41	ukiyps		0.32	ukimps		0.15	ukiops		0.03
poryhhs		0.26	usamhs		0.09	ukiops		0.18	ukiyps		0.01
yugyhs		0.23	usamps		0.09	ukiyps		0.20	usamhs		0.25
yugyhs		0.33	usayhs		0.27	usayps		0.11	usayps		0.12

Euclidean Distance Males 1981

Needle trades		Total
group		
czemlo		0.20
greops		0.12
itamhs		0.31
itamlo		0.38
itaohs		0.19
itayhs		0.13
itaylo		0.37
oasyps		0.36
otemlo		0.24
oteolo		0.14
oteyhs		0.29
oteyps		0.26
othmhs		0.03
othmlo		0.32
othyhs		0.23
othylo		0.33
pormhs		0.15
pormps		0.22
yugmlo		0.20
yugylo		0.36

SE Manufacturing		Total
group		
czemps		0.17
czeops		0.10
czeyps		0.12
germps		0.16
latmhs		0.03
latmlo		0.10
latylo		0.14
otemps		0.20
oteops		0.15
othmps		0.10
othohs		0.10
othops		0.14
othyps		0.17
pololo		0.07
porops		0.07
poryps		0.20
ukiolo		0.22
usaops		0.18
usaylo		0.09
yugops		0.17

SE Construction		Total
group		
czemps		0.16
germlo		0.12
germps		0.11
gerops		0.17
itaops		0.16
latmlo		0.13
latolo		0.19
latylo		0.14
othohs		0.18
polylo		0.17
pormlo		0.15
porohs		0.04
poryps		0.08
sasmlo		0.20
sasyhs		0.03
sasylo		0.18
usaylo		0.20
yugmps		0.05
yugops		0.11
yugyps		0.14

SE Distributive Services		Total
group		
canmlo		0.16
canolo		0.13
canylo		0.19
czeyps		0.13
latmhs		0.17
latmlo		0.19
latylo		0.11
oasmps		0.16
otemps		0.09
othmps		0.20
othohs		0.14
polmps		0.15
porops		0.18
sasmps		0.14
sasops		0.11
ukimhs		0.15
ukimlo		0.13
ukiolo		0.07
usaops		0.15
usaylo		0.11

SE Consumer Services		Total
group		
czemps		0.15
czeops		0.08
germps		0.21
gerops		0.20
geryps		0.15
latmhs		0.16
latylo		0.24
oasmps		0.22
otemps		0.03
oteops		0.09
oteylo		0.23
othmps		0.19
othohs		0.23
othops		0.23
othyps		0.01
pololo		0.12
polops		0.16
porops		0.16
usaylo		0.24
yugops		0.20

WL Manufacturing		Total
group		
canmhs		0.16
canmlo		0.08
canohs		0.19
canolo		0.04
canyhs		0.15
canylo		0.12
canyps		0.17
latolo		0.20
latops		0.20
latyps		0.01
polmps		0.08
polyps		0.13
sasmhs		0.11
sasops		0.11
sasyhs		0.20
ukimhs		0.11
ukimlo		0.08
ukiolo		0.04
ukiyhs		0.19
usaylo		0.20

WL Construction		Total
group		
canylo		0.24
germlo		0.24
germps		0.22
itaolo		0.26
itaops		0.10
latmlo		0.12
latolo		0.25
latylo		0.21
othohs		0.24
polmlo		0.19
polyps		0.05
pormlo		0.24
porohs		0.15
poryps		0.14
sasolo		0.22
sasyhs		0.13
sasylo		0.07
yugmps		0.10
yugops		0.23
yugyps		0.24

WL Distributive Services		Total
group		
canmhs		0.08
canmps		0.18
canohs		0.12
canolo		0.21
canyhs		0.21
canylo		0.12
canyps		0.15
latmps		0.02
latops		0.05
latyps		0.20
polyps		0.10
sasmhs		0.21
sasyhs		0.04
ukimhs		0.20
ukimlo		0.20
ukimps		0.19
ukiohs		0.17
ukiops		0.19
ukiyhs		0.07
ukiylo		0.13

WL Consumer Services		Total
group		
canmhs		0.14
canmlo		0.06
canohs		0.18
canolo		0.02
canyhs		0.11
canylo		0.10
canyps		0.16
latops		0.18
latyps		0.19
latyps		0.05
polmps		0.06
polyps		0.11
sasmhs		0.13
sasops		0.15
sasyhs		0.16
ukimhs		0.12
ukimlo		0.09
ukiolo		0.09
ukiyhs		0.17
ukiylo		0.18

**NOTE:**

cohorts are divided into 3 attributes  
 - place of birth, age and schooling

The first 3 characters represent  
 place of birth:

- Can=Canadian-born, USA=USA
- UKI=UK/Ireland, Ger=Germany/Austria; Pol=Poland; Cze=Hungary
- Czechoslovakia; Por=Portugal
- Gre=Greece; Ita=Italy; Yug=Yugoslavia; Ote=Other Europe; SAS=South Asia' Chi=China/Hong Kong;
- Oas=Other Asia; Lat=Latin America
- Caribbean; Oth=Other

Character 4 represents age in 1971  
 y=25-34 m=35-44 and o=45-54

Characters 5-6 refer to schooling  
 lo=L than highschool,

hs=highschool

ps=post secondary, dg=degree

Euclidean Distance Males 1981

SE Restaurants		SE Business Services		SE Health Services		Education	
group	Total	group	Total	group	Total	group	Total
chimlo	0.25	canmdg	0.15	canmdg	1.14	canmdg	0.21
chimps	3.62	canodg	0.13	canodg	1.16	canodg	0.23
chiolo	1.00	canydg	0.57	chimdg	1.73	chimdg	0.81
chiylo	1.75	chiodg	0.48	chioldg	1.27	chioldg	0.43
chiyps	3.58	chiodg	0.34	czeodg	1.39	czeodg	0.54
grethhs	0.40	czeodg	0.40	itamdg	1.03	itamdg	0.21
gremlo	0.36	itamdg	0.36	itaydg	1.68	itaydg	0.77
gremps	2.62	itaydg	0.45	latmdg	1.33	latmdg	0.42
greths	0.85	latmdg	0.12	latodg	0.34	latodg	0.59
greolo	1.59	oasodg	0.61	otemdg	1.24	otemdg	0.33
greyhs	1.10	otemdg	0.20	oteodg	1.24	oteodg	0.34
greylo	0.45	oteodg	0.22	oteydg	1.66	oteydg	0.75
greyyps	2.23	oteydg	0.44	othmdg	1.19	othmdg	0.36
itamhs	3.58	othmdg	0.34	othodg	0.96	othodg	0.17
oasmlo	2.13	othodg	0.40	othydg	1.79	othydg	0.86
oasolo	0.56	othydg	0.51	sasodg	1.73	sasodg	0.80
oasylo	1.49	sasodg	0.44	ukimdg	1.40	ukimdg	0.48
otemhs	3.30	ukimdg	0.13	ukioldg	0.84	ukioldg	0.09
otemlo	3.63	ukioldg	0.45	usamdg	0.74	usamdg	0.27
poryhhs	3.50	usamdg	0.61	usaodg	0.59	usaodg	0.40

WL Restaurants		WL Business Services		WL Health Services		Public Administration	
group	Total	group	Total	group	Total	group	Total
chimps	1.11	canops	0.64	canydg	0.41	canmhs	0.40
chiylo	0.81	canydg	0.54	chimdg	0.53	canmps	0.29
chiyps	1.09	chiops	0.60	chiops	0.52	canohs	0.34
gremps	0.07	chiydg	0.38	chiydg	0.28	canops	0.25
grelo	0.97	czemdg	0.43	czemdg	0.29	canyps	0.36
greops	1.22	czeydg	0.47	czeydg	0.28	latmps	0.40
greyyps	0.35	germdg	0.33	germdg	0.14	latops	0.38
itamhs	1.03	latydg	0.46	itamdg	0.58	oasops	0.37
itaohs	1.31	oasmdg	0.35	latydg	0.33	polyps	0.43
itayhs	1.33	oasodg	0.54	oasmdg	0.14	sasmps	0.42
oasmlo	0.45	oasops	0.58	oasodg	0.36	sasydg	0.41
oasylo	1.08	oasydg	0.33	oasydg	0.27	ukimhs	0.42
otemhs	0.75	othydg	0.63	oteydg	0.60	ukimlo	0.45
otemlo	1.07	sasmdg	0.17	othydg	0.46	ukimps	0.27
othmhs	1.33	sasydg	0.12	sasmdg	0.16	ukiohs	0.26
pormhs	1.42	ukioldg	0.40	sasodg	0.55	ukiops	0.22
pormps	1.17	usamps	0.54	sasydg	0.22	ukiyhs	0.38
poryhhs	0.95	usaydg	0.42	ukioldg	0.32	ukiyps	0.31
yugmlo	1.41	usayps	0.65	usaydg	0.25	usamps	0.34
yugylo	1.11	yugmdg	0.26	yugmdg	0.46	yugmdg	0.19

Euclidean Distance Females 1981

Needle trades		Total
chimlo		0.24
chiolo		0.64
gremlo		0.15
gremps		1.13
greolo		0.29
greylo		0.18
itamhs		1.07
itamlo		0.39
itamps		1.15
itaolo		0.58
itaylo		0.05
oasmlo		0.85
oasolo		0.02
oasylo		1.29
polmlo		1.21
pololo		1.25
pormlo		0.51
porolo		0.46
porylo		0.78
yugmhs		1.30

SE Manufacturing		Total
chiops		0.39
chiyhs		0.40
czeops		0.21
gerolo		0.38
gerops		0.25
latmhs		0.32
latolo		0.35
oasmhs		0.35
otemps		0.36
oteohs		0.12
oteops		0.18
oteyps		0.38
othops		0.29
othyps		0.39
othylo		0.35
sasops		0.40
ukiolo		0.39
usaops		0.40
yugops		0.32
yugyps		0.39

SE Construction		Total
canmlo		0.19
canolo		0.19
chiyhs		0.16
czeops		0.09
czeyps		0.14
germps		0.24
gerolo		0.24
latmhs		0.24
latolo		0.09
oasmhs		0.24
otemhs		0.23
oteohs		0.22
oteops		0.24
othyps		0.23
othylo		0.16
poryps		0.21
poryps		0.09
ukiolo		0.22
yugops		0.16
yugyps		0.16

SE Distributive Services		Total
canmhs		0.21
canohs		0.11
chiyhs		0.15
chiyhs		0.25
czemps		0.15
germps		0.19
gerops		0.10
latmhs		0.03
oteohs		0.19
oteops		0.14
oteyps		0.08
othmhs		0.23
othyps		0.14
polmps		0.23
polyps		0.25
sasyps		0.20
ukiohs		0.18
ukiolo		0.15
usaops		0.24
usaylo		0.20

SE Consumer Services		Total
canops		0.47
chiops		0.40
czeops		0.34
gerops		0.28
latmhs		0.38
latolo		0.47
oasmhs		0.47
otemps		0.31
oteohs		0.19
oteops		0.22
oteyps		0.44
othmps		0.39
othops		0.18
othyps		0.40
poryps		0.47
sasops		0.30
usamps		0.36
usaops		0.37
usaysps		0.42
yugops		0.45

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Characters 5-6 refer to schooling  
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WL Distributive Services		Total
canmhs		0.08
canohs		0.17
canylo		0.10
chiyhs		0.20
czemps		0.16
geryps		0.18
latyhs		0.21
latyps		0.19
oasyps		0.20
oteyps		0.21
othmhs		0.13
othyhs		0.21
polimps		0.05
sasyps		0.18
ukimhs		0.18
ukiohs		0.18
ukiolo		0.20
ukiylo		0.19
usayhs		0.20
usaylo		0.08

WL Construction		Total
canmhs		0.19
canylo		0.14
chiyhs		0.16
czemlo		0.21
czemps		0.18
czeyps		0.20
germps		0.12
gerylo		0.14
geryps		0.16
latyhs		0.04
oasyhs		0.14
oteyhs		0.18
othmhs		0.13
othyhs		0.06
polyps		0.07
poryps		0.12
sasolo		0.12
ukimlo		0.05
ukiolo		0.17
ukiylo		0.19

WL Manufacturing		Total
canmlo		0.22
canolo		0.17
germlo		0.22
gerolo		0.15
greyps		0.02
itayhs		0.23
latmlo		0.08
latolo		0.26
latylo		0.07
oasmhs		0.21
otemhs		0.12
oteyhs		0.26
oteylo		0.15
othohs		0.08
othylo		0.22
polylo		0.09
sasmlo		0.18
yugops		0.19
yugyhs		0.18
yugyps		0.16

WL Consumer Services		Total
canmlo		0.10
canolo		0.16
canylo		0.13
chiyhs		0.04
czemps		0.23
czeyps		0.05
germlo		0.15
germps		0.15
gerylo		0.22
latolo		0.11
latyhs		0.17
oteyhs		0.08
othyhs		0.20
othylo		0.10
polyps		0.12
poryps		0.03
poryps		0.09
ukimlo		0.16
ukiolo		0.16
yugyps		0.18



Euclidean Distance Females 1981

SE Restaurants		Total
group		
chmhhs		0.31
chlylo		0.15
gremhs		0.14
greyhs		0.26
itayhs		0.29
itayps		0.19
oasylo		0.33
otemlo		0.22
oteolo		0.20
othmlo		0.21
otholo		0.23
pololo		0.34
pormhhs		0.27
pormps		0.18
sasylo		0.08
yugmhhs		0.35
yugmlo		0.32
yugmps		0.24
yugolo		0.21
yugylo		0.38

SE Business Services		Total
group		
canmhs		0.45
canohs		0.49
canyhdg		0.40
chimdgc		0.39
chlyhdg		0.33
czemdgc		0.12
itayhdg		0.26
latyhdg		0.03
oasmhdg		0.54
oasodgc		0.47
oasyhdg		0.54
oteyhdg		0.40
othmpsc		0.59
othopsc		0.60
sasmhdg		0.43
sasopsc		0.55
sasyhdg		0.45
ukimpsc		0.57
uklyhdg		0.20
usayhdg		0.29

SE Health Services		Total
group		
canmdgc		0.45
canodgc		0.32
canydgc		0.44
chimdgc		0.44
czemdgc		0.73
itaydgc		0.58
latmdgc		0.17
otemdgc		0.24
oteodgc		0.16
oteydgc		0.43
othmdgc		0.06
othydgc		0.13
sasmhdgc		0.40
sasodgc		0.24
ukimdgc		0.41
ukiodgc		0.57
uklydgc		0.64
usamdgc		0.09
usaodgc		0.27
usaydgc		0.55

Education		Total
group		
canmdg		0.37
canodg		0.23
canydg		0.50
chimdgc		0.51
itaydgc		0.64
latmdgc		0.08
latodgc		0.73
otemdgc		0.17
oteodgc		0.15
oteydgc		0.51
othmdgc		0.07
othydgc		0.03
sasmhdgc		0.47
sasodgc		0.23
ukimdgc		0.34
ukiodgc		0.50
uklydgc		0.71
usamdgc		0.05
usaodgc		0.31
usaydgc		0.63

WL Restaurants		Total
group		
canmlo		0.26
canolo		0.23
canylo		0.30
czeyps		0.33
germlo		0.20
gerolo		0.31
greyps		0.14
itayhs		0.32
latmlo		0.23
latylo		0.23
otemhs		0.27
oteyhs		0.27
oteylo		0.01
othohs		0.23
othylo		0.28
polylo		0.07
sasmlo		0.12
yugopsc		0.34
yugyhs		0.03
yugypsc		0.26

WL Business Services		Total
group		
canmhs		0.22
canohs		0.23
canyhs		0.27
canypsc		0.22
chiopsc		0.23
chiypsc		0.10
czempsc		0.28
latmpsc		0.24
latohs		0.23
latyps		0.08
oasypsc		0.16
oteypsc		0.28
othypsc		0.22
polimpsc		0.16
sasmpsc		0.22
sasypsc		0.11
ukiohsc		0.13
uklypsc		0.01
usayhsc		0.06
usaylo		0.21

WL Health Services		Total
group		
canmpsc		0.17
canopsc		0.15
canypsc		0.24
chimps		0.16
latmpsc		0.30
latopsc		0.21
oasmhdgc		0.22
oasmpsc		0.25
oasodgc		0.24
oasopsc		0.13
oasyhdgc		0.18
otempsc		0.28
othmpsc		0.16
sasmpsc		0.22
sasopsc		0.27
ukimpsc		0.06
ukiopsc		0.07
usampsc		0.24
usaopsc		0.27
usaypsc		0.15

Public Administration		Total
group		
canmps		0.20
canops		0.16
canypsc		0.19
chimps		0.11
chiopsc		0.30
latmpsc		0.28
latopsc		0.21
oasmhdgc		0.29
oasmpsc		0.26
oasopsc		0.07
oasyhdgc		0.25
otempsc		0.21
othmpsc		0.12
sasmpsc		0.17
sasopsc		0.24
ukimpsc		0.09
ukiopsc		0.13
usampsc		0.17
usaopsc		0.20
usaypsc		0.09

Euclidean Distance Males 1991

Needle trades		Total
chiops		0.32
czeops		0.29
gerops		0.42
greops		0.38
itamhs		0.17
itamps		0.32
itaops		0.42
itayhs		0.26
itaylo		0.30
oasmhs		0.37
oasmlo		0.25
otemhs		0.04
otemlo		0.29
oths		0.27
othmhs		0.26
othmlo		0.09
pormhs		0.31
porpys		0.12
porplo		0.20
yugmlo		0.38

SE Manufacturing		Total
canohs		0.22
canolo		0.20
czeyps		0.22
gerops		0.10
geryps		0.05
latmhs		0.19
latohs		0.17
oasmps		0.17
oasops		0.06
oasyps		0.15
oteops		0.15
oteyps		0.17
othohs		0.06
othyps		0.15
polops		0.21
polyps		0.18
pormps		0.16
porops		0.19
sasmps		0.22
ukiolo		0.12

SE Construction		Total
canylo		0.21
czemps		0.18
germlo		0.01
itaolo		0.23
itayps		0.10
latmlo		0.11
oasohs		0.02
oasolo		0.28
oasyps		0.26
oteylo		0.12
oteyps		0.23
otholo		0.24
porolo		0.25
poryps		0.15
sasylo		0.12
sasyps		0.14
yugmhs		0.11
yugmps		0.13
yugolo		0.10
yugops		0.16

SE Distributive Services		Total
canmlo		0.13
canolo		0.10
canylo		0.18
czemps		0.14
gerops		0.13
geryps		0.13
latmhs		0.13
latohs		0.21
latops		0.19
oasops		0.23
oasyps		0.06
oteops		0.21
oteyps		0.10
othohs		0.17
othyps		0.12
polmps		0.19
porops		0.23
sasyps		0.14
ukiylo		0.17
yugops		0.13

SE Consumer Services		Total
czemps		0.25
czeyps		0.12
gerops		0.29
geryps		0.20
latmlo		0.31
oasmps		0.05
oasops		0.16
oasyps		0.25
otemps		0.23
oteolo		0.16
oteops		0.10
oteyps		0.23
othmps		0.08
othohs		0.15
othyps		0.06
pormps		0.13
ukiolo		0.23
usamps		0.17
yugops		0.28
yugyps		0.30

**NOTE:**

cohorts are divided into 3 attributes  
 - place of birth, age and schooling

The first 3 characters represent  
 place of birth:

- Can=Canadian-born, USA=USA
- UKI=UK/Ireland, Ger=Germany/Austria; Pol=Poland; Cze=Hungary
- Czechoslovakia; Por=Portugal
- Gre=Greece; Ita=Italy; Yug=Yugoslavia; Ote=Other Europe; SAS=South Asia; Chi=China/Hong Kong; Oas=Other Asia; Lat=Latin America Caribbean; Oth=Other

Character 4 represents age in 1971  
 y=25-34 m=35-44 and o=45-54

Characters 5-6 refer to schooling

lo=LT than highschool,

hs=highschool

ps=post secondary, dg=degree

WL Construction		Total
canmlo		0.21
canolo		0.29
canylo		0.07
czemps		0.25
germlo		0.17
itayps		0.28
latmlo		0.27
latyhs		0.24
latylo		0.13
oasohs		0.18
oasyps		0.27
oteylo		0.24
oteyps		0.27
sasylo		0.15
sasyps		0.14
ukiylo		0.33
yugmhs		0.08
yugmps		0.09
yugolo		0.25
yugops		0.22

WL Distributive Services		Total
canmhs		0.03
canmps		0.17
canohs		0.16
canyhs		0.12
canyps		0.14
latmhs		0.21
latmps		0.09
latohs		0.19
latolo		0.09
latops		0.16
latyps		0.13
porops		0.17
sasmps		0.14
ukimhs		0.11
ukimlo		0.11
ukimps		0.13
ukiohs		0.18
ukiyhs		0.04
ukiylo		0.18
ukiyps		0.10

WL Consumer Services		Total
canmlo		0.11
canolo		0.04
czemps		0.19
gerops		0.10
geryps		0.15
latmhs		0.07
latmps		0.20
latohs		0.16
latops		0.13
latyps		0.18
oasyps		0.11
oteyps		0.15
othohs		0.19
polyps		0.07
porops		0.18
sasmps		0.18
sasyps		0.18
ukimlo		0.19
ukiylo		0.11
yugops		0.19

Euclidean Distance Males 1991

SE Restaurants		Total
group		
chimlo		1.16
chimps		2.62
chiolo		1.70
chiyhs		1.21
chiylo		0.78
gremhs		0.80
gremlo		0.27
gremps		2.29
greohs		1.28
greolo		0.90
greyhs		1.86
greylo		1.29
greyys		1.42
oasmhs		2.67
oteyhs		2.75
oifmhs		2.70
othyhs		2.47
othylo		1.96
poryhs		2.85
yugylo		2.25

SE Business Services		Total
group		
canmdg		0.22
canodg		0.11
canydg		0.33
czeodg		0.11
czeodg		0.08
germdg		0.21
itamdg		0.22
ityadg		0.44
latmdg		0.22
oasodg		0.35
oteodg		0.05
oteydg		0.12
othrmdg		0.44
othodg		0.33
sasodg		0.20
ukimdg		0.18
ukiodg		0.25
ukiydg		0.38
usaydg		0.09
yugmdg		0.36

SE Health Services		Total
group		
canmdg		0.89
canodg		1.00
czemdg		1.09
czeodg		1.16
germdg		1.25
itamdg		0.90
latmdg		1.28
latodg		0.32
oasodg		1.27
otemdg		0.80
oteodg		1.05
oteydg		1.10
othrmdg		0.68
othodg		0.77
sasodg		1.29
ukimdg		0.90
ukiodg		0.84
usamdg		0.47
usaodg		0.41
usaydg		1.17

Education		Total
group		
canmdg		0.23
canodg		0.35
czemdg		0.49
czeodg		0.53
germdg		0.58
itamdg		0.24
latmdg		0.66
latodg		0.34
oasodg		0.60
otemdg		0.26
oteodg		0.41
oteydg		0.44
othrmdg		0.02
othodg		0.11
sasodg		0.64
ukimdg		0.28
ukiodg		0.20
usamdg		0.35
usaodg		0.43
usaydg		0.53

WL Restaurants		Total
group		
chimps		1.37
chiops		1.79
chiyhs		0.11
chiylo		0.54
gremlo		1.49
gremps		0.99
greohs		0.10
greolo		0.43
greyys		0.30
ityalo		1.72
oasmhs		1.38
otemhs		1.66
oteyhs		1.45
othmhs		1.38
othmlo		1.63
othyhs		1.15
othylo		0.73
poryhs		1.54
porylo		1.70
yugylo		0.93

WL Business Services		Total
group		
canmps		0.59
canops		0.51
chimdg		0.53
chioldg		0.64
chiydg		0.57
czeydg		0.56
latydg		0.33
oasmdg		0.54
othydg		0.55
polops		0.51
sasmdg		0.20
sasydg		0.20
ukimhs		0.64
ukimps		0.62
ukiolo		0.59
ukiops		0.51
ukiydg		0.61
usamps		0.61
usaops		0.40
yugmdg		0.63

WL Health Services		Total
group		
canmps		0.56
canops		0.49
chimdg		0.57
chioldg		0.58
chiydg		0.52
czeydg		0.54
latydg		0.44
oasmdg		0.49
oasmps		0.59
oasops		0.57
ofhydg		0.53
ofhyys		0.58
polops		0.44
sasmdg		0.30
sasydg		0.29
ukiolo		0.49
ukiops		0.54
usamps		0.47
usaops		0.59
usayps		0.33

Public Administration		Total
group		
canmhs		0.43
canmps		0.33
canohs		0.41
canops		0.26
canyps		0.39
latohs		0.47
latyps		0.46
polops		0.34
porops		0.45
sasmps		0.45
sasops		0.36
ukimhs		0.35
ukimlo		0.46
ukimps		0.32
ukiohs		0.44
ukiolo		0.45
ukiops		0.20
ukiyhs		0.43
ukiyps		0.44
usayps		0.28

Euclidean Distance Females 1991

Needle trades		Total
group		
chirms		1.72
chimlo		0.30
chiolo		0.48
chiylo		0.88
gremhs		1.41
gremlo		0.13
gremps		1.23
greolo		0.40
greyhs		1.39
greylo		0.24
itamhs		1.39
itamlo		0.02
itaolo		0.50
itaylo		0.47
oasyhs		1.78
pormllo		1.24
porolo		1.02
ponylo		1.59
sasylo		1.66
yugmllo		1.84

SE Manufacturing		Total
group		
canmps		0.25
canohs		0.36
canops		0.23
canyhs		0.35
chirms		0.18
chiyps		0.23
chzyps		0.20
germps		0.08
gerops		0.27
oasops		0.24
oasydg		0.33
otemps		0.15
oteops		0.20
oteyps		0.25
othops		0.15
othyps		0.24
polmps		0.35
sasmps		0.34
ukimps		0.31
ukiops		0.27
usamps		0.10
usayps		0.29

SE Construction		Total
group		
canmhs		0.22
canohs		0.15
canyhs		0.27
chirms		0.18
chiyps		0.23
chzyps		0.20
germps		0.08
gerops		0.27
geryhs		0.27
latolo		0.27
otemps		0.27
oteyhs		0.14
oteyps		0.24
othmhs		0.28
othops		0.24
polmllo		0.26
polmps		0.12
polops		0.11
ukimlo		0.25
ukiolo		0.09
yugmps		0.23

SE Distributive Services		Total
group		
canmhs		0.13
canohs		0.12
canyhs		0.16
chirms		0.21
chiops		0.10
chiyps		0.01
chzyps		0.21
gerops		0.13
geryhs		0.14
geryps		0.19
latyhs		0.13
oasyhs		0.10
otemps		0.14
oteyps		0.04
othops		0.15
othyps		0.19
polimps		0.14
ukiohs		0.14
ukiyhs		0.20
usayps		0.20

SE Consumer Services		Total
group		
canmps		0.39
canohs		0.42
canops		0.37
chirms		0.21
chiyps		0.39
chzyps		0.35
gerops		0.41
itayps		0.26
oasops		0.38
oasydg		0.42
otemps		0.26
oteops		0.10
oteyps		0.35
othmps		0.41
othops		0.25
othyps		0.38
polimps		0.40
sasmdg		0.43
ukiops		0.41
usamps		0.23

**NOTE:**  
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Can=Canadian-born, USA=USA  
UKI=UK/Ireland, Ger=Germany/  
Austria; Pol=Poland; Cze=Hungary  
Czechoslovakia; Por=Portugal  
Gre=Greece; Ita=Italy; Yug=Yugo-  
slavia; Ote=Other Europe; SAS=  
South Asia' Chj=China/Hong Kong;  
Oas=Other Asia; Lat=Latin America  
Caribbean; Oth=Other  
Character 4 represents age in 1971  
y=25-34 m=35-44 and o=45-54  
Characters 5-6 refer to schooling  
lo=L than highschool,  
hs=highschool  
ps=post secondary, dg=degree

WL Manufacturing		Total
group		
canmlo		0.08
canolo		0.04
canylo		0.09
chiyhs		0.10
germhs		0.22
greyhs		0.21
itayhs		0.12
latmlo		0.08
latolo		0.10
oasmhs		0.28
otemhs		0.16
othmhs		0.08
othohs		0.26
othylo		0.24
polmlo		0.17
pormhs		0.11
ukimlo		0.28
yugmps		0.22
yugyhs		0.18
yugyps		0.27

WL Construction		Total
group		
canmhs		0.17
canohs		0.17
canyhs		0.20
czemps		0.02
czeyps		0.20
germps		0.12
geryhs		0.22
latyhs		0.24
oteyhs		0.06
othyhs		0.17
polmllo		0.22
polimps		0.17
polops		0.13
sasmlo		0.22
ukimlo		0.12
ukiolo		0.11
ukiyhs		0.24
yugmps		0.17
yugyhs		0.24
yugyps		0.21

WL Distributive Services		Total
group		
canmhs		0.10
canohs		0.17
canyhs		0.05
chiops		0.12
chzyps		0.17
czeyps		0.05
geryhs		0.05
geryps		0.19
latmhs		0.09
latohs		0.13
latyhs		0.04
oasyhs		0.12
polimps		0.21
polyps		0.07
poryhs		0.09
poryps		0.10
sasmhs		0.13
ukimhs		0.06
ukiohs		0.04
ukiyhs		0.02

WL Consumer Services		Total
group		
canmlo		0.20
canolo		0.09
canylo		0.18
chiyhs		0.08
czemps		0.23
germps		0.22
itayhs		0.23
latmlo		0.20
latolo		0.03
othmhs		0.06
othyhs		0.17
othylo		0.18
polmlo		0.04
polops		0.18
pormhs		0.24
sasmlo		0.20
ukimlo		0.16
yugmps		0.09
yugyhs		0.08
yugyps		0.17

Euclidean Distance Females 1991

SE Restaurants		Total
group		
chimhs		0.41
chiylo		0.61
gerolo		0.63
gremhs		0.41
gremps		0.29
greyhs		0.06
itamhs		0.17
itamps		0.65
oasyhs		0.43
otemlo		0.64
oteolo		0.55
otholo		0.47
pololo		0.61
pormllo		0.23
porolo		0.42
porlylo		0.27
sasyhs		0.62
sasylo		0.58
yugmlo		0.52
yugolo		0.53

SE Business Services		Total
group		
canmps		0.71
canodg		0.63
canydg		0.50
chimdg		0.18
chiydg		0.45
czemdg		0.04
germdg		0.34
latydg		0.21
oasmdg		0.57
oasodg		0.14
oasydg		0.51
otemdg		0.59
oteydg		0.38
othmps		0.38
ofhydg		0.20
sasmdg		0.38
sasops		0.49
sasydg		0.51
ukiydg		0.54
usamps		0.71

SE Health Services		Total
group		
canodg		0.37
canydg		0.49
czemdg		0.95
germdg		0.65
itaydg		0.29
latmdg		0.22
latodg		0.42
otemdg		0.40
oteodg		0.21
oteydg		0.62
ofhmdg		0.26
othodg		0.25
othydg		0.80
sasydg		1.01
ukimdg		0.37
ukiodg		0.61
ukiydg		0.45
usarmdg		0.14
usaodg		0.12
usaydg		0.22

Education		Total
group		
canodg		0.19
canydg		0.32
czemdg		0.78
germdg		0.47
itaydg		0.47
latmdg		0.11
latodg		0.60
otemdg		0.22
oteodg		0.26
oteydg		0.45
ofhmdg		0.43
othodg		0.34
othydg		0.63
sasydg		0.84
ukimdg		0.54
ukiodg		0.79
ukiydg		0.28
usarmdg		0.05
usaodg		0.10
usaydg		0.11

WL Restaurants		Total
group		
chimhs		0.23
germlo		0.22
gerolo		0.15
latylo		0.23
oasmhs		0.38
oasmlo		0.18
oasyhs		0.21
otemhs		0.38
otemlo		0.35
oteolo		0.21
oteylo		0.13
otholo		0.35
polylo		0.46
porrhhs		0.46
porlylo		0.38
sasyhs		0.13
sasylo		0.33
yugmlo		0.12
yugolo		0.11
yugylo		0.15

WL Business Services		Total
group		
canops		0.24
canyps		0.09
chiops		0.16
gerops		0.14
geryps		0.06
latmps		0.13
latops		0.17
latyhs		0.23
latyps		0.12
oasmps		0.19
oasyhs		0.16
othyps		0.18
polyps		0.24
poryhhs		0.18
sasmps		0.09
ukimhs		0.23
ukiohs		0.22
ukiops		0.21
ukiyps		0.12
usayps		0.12

WL Health Services		Total
group		
canmps		0.05
canops		0.10
canyps		0.18
chiydg		0.26
gerops		0.24
geryps		0.30
latmps		0.32
latops		0.28
oasmdg		0.31
oasmps		0.07
oasydg		0.21
otemps		0.30
othyps		0.18
sasmps		0.18
sasops		0.24
ukimps		0.01
ukiops		0.09
ukiyps		0.17
usamps		0.21
usayps		0.18

Public Administration		Total
group		
canmps		0.16
canops		0.22
canyps		0.32
chiydg		0.13
gerops		0.38
latops		0.39
latydg		0.39
oasmdg		0.20
oasops		0.19
oasydg		0.11
ofhmps		0.36
othyps		0.31
sasmdg		0.28
sasmps		0.32
sasops		0.10
ukimps		0.15
ukiops		0.22
ukiyps		0.30
usamps		0.27
usayps		0.32

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