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**MEASURING EMIGRATION THROUGH SURVEY DATA: THE AMERICAN
COMMUNITY SURVEY AS A CASE STUDY FOR CANADA**

Submitted by Statistics Canada *

I. Introduction

1. Information on the population of immigrants in different countries is very important from many perspectives. It is considered a vital part of national statistical systems for an increasing number of countries as it serves the needs of policy-makers and the research community. This information is also sought after by international organizations and by individual countries' statistical agencies, which require statistics about their residents leaving to go abroad.

2. Although there are many issues within the framework for international migration statistics, the general lack of quality data on flows, and especially outflows (emigration) are recognized as a major challenge¹. Recently, Canada and the United States have been collaborating on developing consistent methodological approaches to improve the comparability

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¹ Statistical Commission and Economic Commission for Europe. Rapporteur report for migration statistics. Note prepared by the United States. Conference of European Statisticians, Geneva, 10-11 February, 2005.

of international migration data. This work is done within the North American Migration Working Group, which also includes Mexico. This study focuses first on the migratory exchanges between two countries before exploring ways to incorporate a third country. Significant progress previously was made in producing estimates of temporary migration using census data² and so we are currently exploring data exchanges as a way to improve our estimates of emigration.

3. In this paper, we summarize the results from a joint Canadian and American effort to construct estimates of emigration from Canada to the United States. First, we discuss the general coverage of the emigrant population and the type of emigration flows, which could be approximated by using information on the stocks of immigrants from the U.S. decennial census. Then, we extend this discussion to demonstrate how the American Community Survey (ACS), a survey designed to replace the decennial long form data, could be employed to derive timely and quality data on Canadian emigration flows. The quality of these data is assessed by using Canadian sources on emigrants with a destination to the United States. Finally, we elaborate on the most important lessons learned from the Canada–United States collaboration and how they could be used in the development of a general standard for a migration module to collect data on emigration.

II. The U.S. Census – stocks and flows of Canadian migrants

4. Although there are many different sources that could be used to measure stocks and flows of international migrants, a country's census is still one of the most comprehensive sources of information about the foreign population.³ The U.S. Census 2000 estimated 820,770 people in the United States who were born in Canada. From the Canadian perspective, this stock of foreign-born could be regarded as the stock of emigrants from Canada living in the United States in 2000. The census provides information on a variety of personal characteristics of these emigrants; this enables us to assess the demographic and socio-economic profiles of the Canadian diaspora. But, only when we combine information on the place of birth with year of entry to the United States, can we get an approximation of the intensity of emigration to the United States during periods prior to the census. Of those Canadian-born still in the United States in 2000, 29.7% arrived during the decade prior to the census, 12.3% entered between 1980 and 1989, and 58% came before 1980⁴.

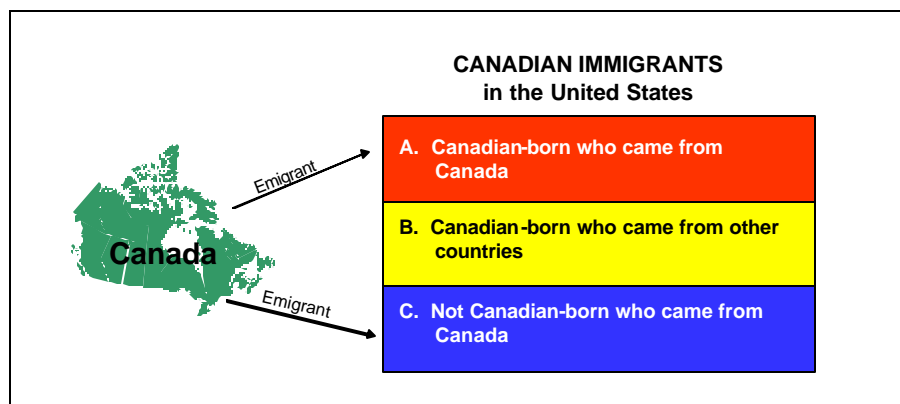
5. There are several conditions under which the above conclusion would reflect the actual trend in Canadian emigration to the United States. First, return migration of the Canadian-born would have to be of the same relative importance during the two decades (a constant level of propensity to depart from the United States). Second, although probably to a lesser extent, this trend would not be biased if, for these two periods, the representation of Canadian-born arriving in the United States from countries other than Canada remained unchanged. Third, this conclusion does not take into consideration emigration of Canadian residents who were not born in Canada – Canadian immigrants.

² Deardorff, K., B. Guzmán, D. Norris, M. Michalowski. North American mobility: Regional synergies in collecting migration statistics. ECE-Eurostat Work Session on Migration Statistics, Geneva, 28-20 April 2003.

³ “Foreign” and “foreign born” will be used interchangeably throughout this paper.

⁴ Source: U.S. Census Bureau, Census 2000 Special Tabulations (STP-159).

Figure 1. Types of Canadian immigrants to the United States – the Canadian emigration perspective



6. This example illustrates the types of international emigration available through census data (Figure 1). Combining the concept of place of birth to define the immigrant population (Canadian-born) and year of entry to derive statistics on its flow, we would be able to estimate jointly Type A flow (Canadian-born who came from Canada) and Type B flow (Canadian-born who came from countries other than Canada), but could not obtain information related to the third flow (Type C – not Canadian-born who came from Canada). For many countries, Type C flow is just as important since the re-migration of their immigrants could be viewed from the perspective of the efficiency of their immigration policy, consequences of their labour market or the growth of their population. Also, depending of the size of this flow for a particular country, lack of this information could have an important impact on the completeness of the estimation of the emigration level through the census data of another country.

7. Finally, the timeliness of flow data is an issue, as censuses are taken every five years in some countries such as Canada, but usually are taken only once every ten years, as is the case of the United States. Due to the growing numbers of people who move across borders and the growing interest in this movement, from a demographic perspective but also from the perspective of the economic movement of goods and services, there is a substantial need for more current, preferably annual, statistics. To determine if this need could be fulfilled by the use of annual population surveys, we have begun working with the American Community Survey (ACS) to explore such a possibility.

III. American Community Survey (ACS)

8. One of the disadvantages of relying on census data is that these data are usually only available every ten years, at best every five years. However, it is usually the only source of information that contains the level of detailed characteristics at low levels of geography for the country. The United States has moved from relying on a decennial census to using an annual survey, the American Community Survey, to provide up-to-date information on the U.S. population including immigrants to the United States. The ACS is a rich new source of data for the United States, which will replace the need for a long-form census. About 1-in-40 households will be sampled annually, resulting in about 3 million households, or 2.5% of the nation's population. In addition, ACS will also sample households from all counties.⁵ Since the ACS was modeled after the decennial census long form, it contains many of the same migration items: (1)

⁵ For more details on the American Community Survey, visit the homepage at <http://www.census.gov/acs/www>

place of birth, (2) year of entry into the United States, (3) residence one year ago,⁶ (4) citizenship, (5) ancestry, and (6) language spoken at home. The ACS allows for more detailed analyses because it has a much larger sample and this data source holds great promise for providing annual estimates of net international migration. In particular, it is possible to reproduce the same statistics on the Canadian-born residing in the United States by year of entry using data from the ACS as were produced from the U.S. Census 2000 results. In addition, these statistics may be supplemented with data from the ACS question on residence one year ago, allowing for more complete coverage of different types of international migration.

IV. Estimates of Canadian emigrants from the ACS

9. According to the 2000 ACS, there were 826,760 Canadian-born residents in the United States. This number is different from the 2000 Census by only 6,000, or less than 1 percent.⁷ The ACS data show that the stock of Canadian-born residents increased between 2000 and 2001 by about 3,500 and then decreased by 15,800 between 2001 and 2002 (Table 1).⁸ The annual changes in the stock represent the net result of emigration of the Canadian-born from Canada, return migration from the United States and mortality to the stock of Canadian-born residents in the United States⁹. All three survey years indicate that between 25 percent and 28 percent of the Canadian-born stock are arrivals during the 1990s; this is consistent with the statistics from the 2000 Census.

Table 1. Canadian-born residents in the United States by period of entry, the 2000, 2001 and 2002 ACS

ACS year	Total		Period of entry (percent)			
	Number (thousands)	%	before 1990	1990-1994	1995-1999	after 1999
2000	826.8	100.0	68.8	10.6	17.3	3.3
2001	830.3	100.0	66.9	9.2	16.0	8.0
2002	814.5	100.0	63.5	9.2	16.8	10.5

10. In order to construct estimates of total emigration from Canada to the United States, we used data on place of residence (Canada) one year prior to the survey. We combined this information with information on place of birth to obtain estimates of two types of emigration flows: Canadian-born emigrants (Type A) and other emigrants from Canada (Type C). Table 2 presents these estimates.

⁶ The decennial census asks for residence five years ago.

⁷ The difference is due, in part, to the different population universes used for each of the estimates. The Census 2000 estimate does not include those who were born in Canada to U.S. citizen parents, whereas the ACS estimate includes all Canadian-born residents regardless of parental citizenship.

⁸ Unless otherwise specified, differences throughout the paper are not statistically significant.

⁹ They could also be affected by the survey variability due to a small sample size.

Table 2. Canadian emigrants to the United States during the last year, 2000 to 2002

ACS year	Total	Canadian-born	Other
Number (thousands)			
2000	113.1	43.2	69.9
2001	92.5	42.9	49.6
2002	58.1	34.3	23.8
Percentage			
2000	100.0	38.2	61.8
2001	100.0	46.4	53.6
2002	100.0	59.1	40.9

11. A few interesting conclusions can be drawn from Table 2. Since 2000, emigration from Canada to the United States has been decreasing, and by 2003 was just half the 2000 level (58,000 compared with 113,000). At the same time, the participation of Canadian-born in this movement was fairly stable, from 43,000 to 34,000. The other than Canadian-born residents of Canada was the reason behind the decreasing level of emigration during this period. This segment of emigration is composed of the immigrants to Canada, including those born in the United States who should be considered as return migrants. The emigration level of non-Canadian born residents of Canada went from almost 70,000 to 24,000, and their proportion of the total emigration, from 62 percent to 41 percent.

12. Estimates derived from the question on residence one year ago could be compared to the flow of emigrants estimated using the year of entry question. In this particular case, when using data from the 2000 ACS, we would compare Canadian-born residents in the United States who resided in Canada one year ago with those Canadian born who reported year of entry into the United States as 1999. The 2000 ACS estimated that 31,400 Canadian-born entered the United States during 1999 and 43,200 Canadian born were in Canada one year prior to the survey. The same type of comparison yield respective estimates of: 45,900 compared with 42,900 from the 2001 ACS; and 25,500 compared with 34,300 from the 2002 ACS. The differences between these estimates are due to several factors, including the measurement of period of emigration and sampling variability.

13. Because the above estimates are derived from the survey and are subject to sample errors¹⁰, we used estimates derived from the coverage studies of the Canadian census, specifically the Reverse Record Check Study (RRC)¹¹ to see how accurately they reflect trends in emigration from Canada.

¹⁰ Standard errors for estimates of Canadian -born who resided in Canada one year prior to the survey vary between 0.63 percent and 0.69 percent.

¹¹ After the 2001 Census was taken, a number of studies were carried out to estimate gross undercoverage, gross overcoverage and net undercoverage due to persons, households, dwellings or families being missed or enumerated in error by the census. The Reverse Record Check is one of them and has been carried out since the 1966 Census of Canada (Statistics Canada. 2004. Coverage, 2001 Census Technical Report. Catalogue no. 92-394-XIE).

V. Canadian emigrants from the ACS vs. estimates from the RRC

14. The target population of the RRC consists of all persons who should have been enumerated in the census. It is formed from six sources or sampling frames¹². Data collected by the survey for each of the selected respondents provide information on some personal characteristics, including place of birth. It also establishes if a person was enumerated in the census, and the reason for this person to be omitted by the census. From this classification we can derive estimates of Canadians who emigrated from Canada during the five-year period prior to the census. By using criteria on length of absence from Canada and intention to return, it is also possible to construct separate estimates for those who left on a permanent and temporary basis.

Table 3. Emigrants from Canada by destination, 1996 to 2001

Destination	Total	Permanent	Temporary
	Number (thousands)		
All destinations	506.6	302.6	204.0
U.S.	234.0	154.8	79.2
Canadian-born	154.7	103.2	51.5
Other	79.3	51.6	27.7

15. Table 3 presents estimates of emigrants from Canada during the 1996 to 2001 period produced using the 2001 RRC. Among the over half a million Canadians who left Canada from 1996 to 2001, 234,000 (or 52 percent) departed for the United States, most of them on a permanent basis. Among those who went to the United States, about 154,700 were Canadian-born.

16. When using the 2001 ACS data, the number of Canadian-born who entered the United States in the same period was estimated to be between 148,800 and 155,600¹³. This comparison seems to point to the accuracy of estimates constructed using data from the ACS.

VI. Lessons learned

17. International migration continues to be important for sending and receiving countries. In the case of the United States and Canada, we have been able to collaborate and exchange data to address the need for more information about migration for both countries. In particular, this initial study addresses the ability to get some estimates of emigration with a certain degree of reliability. Even for countries with reliable migration statistics, emigration continues to be one of the most difficult components to collect data for. This study demonstrates one method to get the necessary data through international collaborations. The next steps for this research would include (1) looking at U.S. emigrants in Canada using Canadian immigration data, and (2) cross-tabulating data to see if the characteristics of the Canadian emigrants from the U.S. census match data from the RRC.

¹² There are 6 sources used in the 2001 RRC: the 1996 Census, the persons missed in the 1996 Census, births which occurred between the 1996 and 2001 Censuses, immigrants to Canada between 1996 and 2001, non-permanent residents (temporary immigrants) to Canada during this intercensal period, and health care files.

¹³ This represents the number of Canadian-born who entered between 1997 and 2001, and between 1996 and 2000, respectively.

18. The Canada-United States experience shows that sharing data across countries can be very beneficial to the participating countries and provide cost-efficient way of developing new data. This study demonstrates how population censuses and survey data can be used to define stock data on immigrants in a country. These data can then be exchanged with other countries to inform trends of emigration. By making progress in producing reliable and valid statistics on immigration, we can eventually address the overall usefulness of statistics for many data users.
