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- Remittances by recent immigrants
- A profile of the Canadian Forces



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The following standard symbols are used in Statistics Canada publications:

| | |
|----------------|---|
| . | not available for any reference period |
| - | not available for a specific reference period |
| ... | not applicable |
| 0 ^s | not statistically significant |
| P | preliminary |
| r | revised |
| x | confidential |
| E | use with caution |
| F | too unreliable to be published |

Highlights

In this issue

■ Remittances by recent immigrants

- Within 6 to 24 months of landing, 23% of immigrants sent remittances to their home country, while 29% did so 25 to 48 months after landing.
- The incidence of sending money varied considerably by country of origin. Some 60% of immigrants from the Philippines and Haiti sent remittances 25 to 48 months after landing. About 40% to 50% of immigrants from Jamaica, Nigeria, Romania, Guyana and Ukraine sent money, but less than 10% of immigrants from France, the United Kingdom and South Korea did so.
- Of the immigrants who remitted 25 to 48 months after landing, those from 11 of 24 countries sent an average amount of between \$1,700 and \$2,200, while immigrants from 7 other countries sent between \$2,700 and \$3,700.
- The incidence of remitting was highest among those from countries with lower GDP per capita. During the 25 to 48 months after landing, around 36% of immigrants from countries with per capita GDP of less than \$4,000 sent money home, compared with only 11% from countries with per capita GDP of \$15,000 or more.
- Financial capacity and family obligations are correlated with the likelihood of sending remittances. Immigrants who had family incomes of \$70,000 or more were more than three times as likely to send money home as those with family incomes of less than \$10,000. Immigrants with three or more children at home were far less likely to send money abroad than those with no children.

■ A profile of the Canadian Forces

- After a steady decline in the 1990s, the number of personnel in the Canadian Forces has increased since 2001. In 2006, the CF comprised 64,000 full-time regular force members and 24,000 reservists.
- Compared with civilian workers, CF members are much younger (more than 70% under age 40 versus only 53% of civilian workers), predominantly male (85% vs. 53%) and white (94% vs. 83%).
- Education and income levels of CF personnel have significantly increased over the past decade. Almost 70% of reservists had postsecondary graduation and average earnings of regular forces personnel were higher than those of other public sector employees.
- Compared with the overall working population, CF members reported higher rates of life (5%) and job dissatisfaction (13%), job strain (28%), major depression (7%), and self-perceived negative mental health (8%).

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Remittances by recent immigrants

René Houle and Grant Schellenberg

Remittances—the money immigrants send to family members in their country of origin—have a long tradition. But with today's global networks of financial institutions and telecommunications technologies, the transmission of funds worldwide now takes place at a pace and volume unimaginable earlier.

Considerable work is underway both nationally and internationally to measure remittance flows. The World Bank estimates flows to developing countries at US\$167 billion in 2005 (World Bank 2006). This is likely an underestimate as some remittances through formal channels, such as post offices or exchange bureaus, and remittances below a minimum threshold, are often not recorded in official estimates. Furthermore, remittances through informal channels, like family or friends, generally go unrecorded. Such unrecorded remittances could add 50% or more to the total.

Remittances represent an important revenue source for developing countries. In absolute terms, India (US\$21.7 billion), China (US\$21.4 billion), and Mexico (US\$18.1 billion) top the list (World Bank 2006). In proportional terms, the importance of remittances to many smaller countries is evident. For example, remittances account for about 20% to 30% of GDP in Tonga, Moldova, Lesotho, Haiti, Bosnia and Herzegovina, and Jordan, and for about 10% to 19% in several others, such as Jamaica, El Salvador, the Philippines, the Dominican Republic, Lebanon and Nepal.

The importance of remittances can also be related to national industries. For example, remittances to Mexico "...are more than the country's total tourism

revenues, more than two-thirds of the value of petroleum exports, and about 180% of the country's agricultural exports." (Inter-American Development Bank 2004). More broadly, in 28 countries, remittances are "...larger than the earnings from the most important commodity export." (World Bank 2006) Remittances often also exceed overseas development aid and foreign direct investment.

Recorded estimates of remittance flows to developing countries show a marked increase in recent years, rising by 73% between 2001 and 2005. This trend has been evident across a wide range of nations (World Bank 2006). Many factors are likely at play, including improvements in data collection, a shift from informal to formal networks and developments within the remittance industry (World Bank 2006; Orozco 2006).

While a great deal of Canadian research continues to focus on the labour market and income characteristics of recent immigrants, little attention has been paid to their expenditures, of which remittances are one component.¹ Their preferences or obligations to send money to family members abroad may have implications for other aspects of settlement, such as housing or employment decisions. And while high rates of low income underscore the financial constraints often faced by new Canadians, such figures do not take into account any income used to support family members abroad.

From a macroeconomic perspective, household data on remittances contribute to understanding international financial flows and play a role in the development of concepts and measures for systems of national accounts and balance of payments. Internationally, agencies such as the International Monetary Fund, World Bank, and Inter-American Development Bank (IADB) are interested in the institutional characteristics of bilateral remittance corridors. Indeed, "...efforts are underway to induce users [remittance senders] to shift from informal to formal systems in order to increase the transparency of remittance flows and enhance their contribution to development in the

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Table 1 Remitters and their remittances

| | 6 to 24 months after arrival | | 25 to 48 months after arrival | |
|---|---------------------------------|--------------|----------------------------------|--------------|
| | Remitters | Average | Remitters | Average |
| | % | \$ | % | \$ |
| Total | 23 | 2,500 | 29 | 2,900 |
| Region of birth | | | | |
| Southeast Asia | 52 | 2,000 | 56 | 2,400 |
| Caribbean, Guyana | 47 | 1,400 | 54 | 1,600 |
| Sub-Saharan Africa | 37 | 2,400 | 42 | 2,500 |
| Eastern Europe | 32 | 1,800 | 41 | 2,100 |
| South Asia | 23 | 3,600 | 28 | 3,700 |
| Central, South America | 23 | 2,000 | 25 | 2,000 |
| East Asia | 13 | 2,900 | 20 | 3,900 |
| West Asia, Middle East, North Africa | 13 | 2,000 | 19 | 2,500 |
| North America, West Europe, Oceania | 11 | 3,200 | 11 | 3,600 |
| GDP/capita, country of birth | | | | |
| Less than \$2,000 | 31 | 1,900 | 35 | 2,200 |
| \$2,000 to \$3,999 | 31 | 2,700 | 37 | 3,000 |
| \$4,000 to \$5,999 | 20 | 2,500 | 25 | 3,300 |
| \$6,000 to \$7,999 | 19 | 1,600 | 31 | 2,200 |
| \$8,000 to \$14,999 | 26 | 2,400 | 28 | 1,900 |
| \$15,000 and over | 8 | 3,100 | 11 | 3,900 |

Note: Averages are for those who remitted and have not been adjusted for inflation.

Source: Statistics Canada and Citizenship and Immigration Canada, Longitudinal Survey of Immigrants to Canada, 2000/2001 cohort.

recipient countries.” (Hernández-Coss 2006) The Multilateral Investment Fund of the IADB identifies better documentation of the importance of remittances, reduced transaction costs and improved leveraging of the development impact of remittances as key objectives (Orozco 2002). Information on the entire remittance process, from senders to recipients, is needed to build a complete picture of this complex phenomenon.

Despite the ongoing interest, research on the characteristics of remittance senders in Canada remains quite limited, largely because of the absence of data. More broadly, studies are often focused on immigrants from only one or two source countries. This study uses the Longitudinal Survey

of Immigrants to Canada (LSIC) to document the prevalence of remitting and the amounts remitted by immigrants from a wide range of countries (see *Data source and methodology*). The incidence of remitting by the 2000/2001 landing cohort ranged from less than 10% to about 60%; the average amounts ranged from about \$500 to almost \$3,000 per year. Financial and family characteristics were consistently significant among immigrants from all regions, but other factors, such as sex and education, were significant for only some.

Descriptive results

A significant minority of immigrants from the 2000/2001 landing cohort remitted funds to family or friends abroad during their first

four years in Canada. In the 6 to 24 months after landing, 23% of immigrants remitted and 25 to 48 months after landing 29% did so (Table 1). Among those who remitted, the average amount was \$2,500 in the first reference period and \$2,900 in the second.⁴ Assuming the total to be evenly distributed over the reference period, annual remittances during the third and fourth years in Canada were \$1,450, which is comparable to estimates that Haitian and Jamaican immigrants send approximately \$1,000 to \$1,400 home per year (Simmons et al. 2005).

The extent to which remittance behaviour varies by region of birth is evident. Over half of immigrants from Southeast Asia and the Caribbean and Guyana sent remittances home 25 to 48 months after landing, compared with about 40% of those from sub-Saharan Africa and Eastern Europe. About one-quarter of the respondents from South Asia and Central and South America sent remittances during this period, while about one-fifth of those from East Asia or West Asia, the Middle East and North Africa did so. The average amounts sent also differed. Immigrants from East Asia sent \$3,900, while immigrants from the Caribbean and Guyana sent \$1,600.

The incidence of remitting was highest among those from countries with lower GDP per capita. Over the 25 to 48 months after landing, around 36% of immigrants from countries with GDP per capita under \$4,000 remitted, compared with only 11% from countries with GDP per capita of \$15,000 or more. One interpretation is that because their families are in greater need of financial support, immigrants from poorer countries are more likely to remit.

That being said, the relationship between GDP per capita and the incidence of remitting is fairly flat between these extremes, ranging from about 25% to 30%. Conditional on remitting, a consistent relationship between GDP per capita and average amounts was not evident.

By country of birth, variability is particularly striking (Chart A). Some 60% of immigrants from the Philippines and Haiti remitted two to four years after landing, while about 40% to 50% of immigrants from Jamaica, Nigeria, Romania, Guyana and Ukraine did so.⁵ Quite clearly, remittances are sent by many new immigrants from a diverse set of world regions. France, the United Kingdom and South Korea—all industrialized—are at the bottom of the distribution.

As for the average amounts sent, remitters from 11 of 24 countries sent between \$1,700 and \$2,200, and remitters from another 7 countries sent between \$2,700 and \$3,700 (Chart B). While less than 20% of immigrants from the United States sent money home, the average amount was quite high—just under \$6,000. (However, the confidence intervals around many of the estimates are quite large.)

In terms of admission categories, about 30% of immigrants in all three categories remitted 25 to 48 months after landing (Table 2). Among those who did remit, economic immigrants sent somewhat larger amounts than refugees (\$3,000 versus \$1,900). How-

ever, measures of central tendencies, like averages, demonstrate little about the range of values. Just over one-quarter of immigrants who remitted 25 to 48 months after landing sent less than \$500. This was the case for 21% of economic immigrants compared with 45% of refugees. About one-half of immigrants in all categories sent between \$500 and \$2,500. And at the high end of the distribution, 12% of the economic immigrants who remitted sent \$5,000 or more compared with 5% of refugees.

An important issue is the extent to which remittances impose financial hardships on newly arrived immigrants. Several studies have documented the relatively high and rising rates of low income among recent immigrants (Heisz and McLeod 2004; Picot et al. 2007). While measures of low income take the number of family members residing together into account, they do not take the sharing of income with members residing elsewhere into account. This applies to all families regardless of immigration status. However, given the relatively high rates of low income among recent immigrants and with almost one-third of them

Table 2 Remittances 25 to 48 months after landing

| | Total | Immigrant category | | |
|----------------------------|------------|--------------------|------------------|------------|
| | | Eco- nomic | Family- class | Refugee |
| Remitters (%) | 29 | 29 | 29 | 31 |
| Average amount (\$) | 2,900 | 3,000 | 2,700 | 1,900 |
| | | % | | |
| Remitters sending | 100 | 100 | 100 | 100 |
| Less than \$500 | 26 | 21 | 33 | 45 |
| \$500 to \$999 | 21 | 22 | 19 | 17 |
| \$1,000 to \$2,499 | 24 | 26 | 22 | 19 |
| \$2,500 to \$4,999 | 18 | 19 | 16 | 14 |
| \$5,000 or more | 11 | 12 | 10 | 5 |

Source: Statistics Canada and Citizenship and Immigration Canada, Longitudinal Survey of Immigrants to Canada, 2000/2001 cohort.

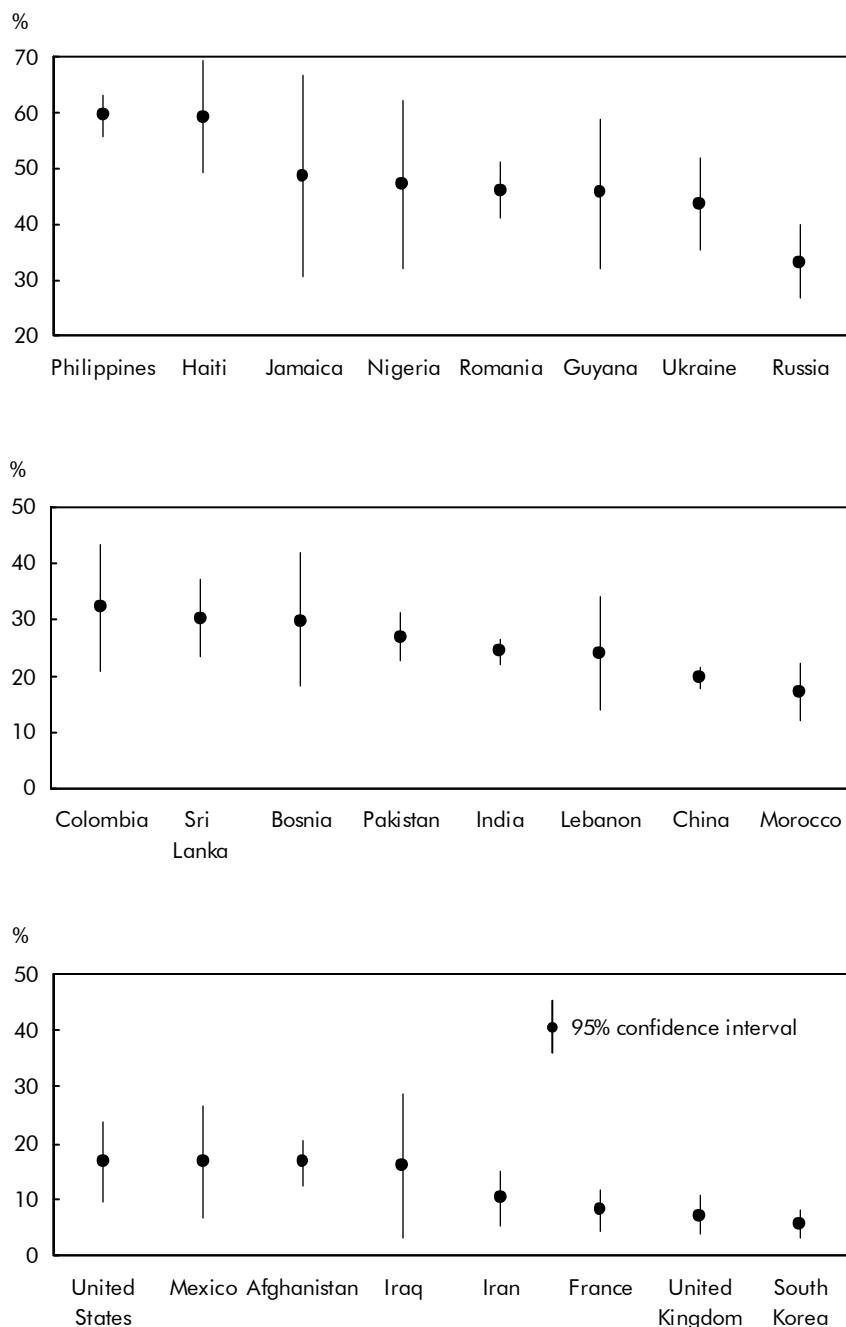
Data source and methodology

The **Longitudinal Survey of Immigrants to Canada (LSIC)**, conducted jointly by Statistics Canada and Citizenship and Immigration Canada (CIC), included all immigrants who arrived between October 1, 2000 and September 30, 2001; were age 15 or older on landing; and had applied through the Canadian Mission abroad. The sampling frame was an administrative database maintained by the CIC. The LSIC used two-stage stratified sampling. The first stage selected **immigrating units (IUs)** using probability proportional to size and the second randomly selected one member within each IU. Only the selected member was followed throughout the survey.

Respondents were first interviewed about six months after arrival and then again after two and four years. During the first interview they were asked if, since arriving, they had sent money outside Canada to relatives or friends—they were not asked the amount. During the second and third interviews, respondents were also asked the amounts.

The multivariate analysis includes a logistic regression on the likelihood of remitting and an ordinary least squares regression on the natural logarithm of the amount remitted. Coefficients from the logistic regressions have been converted into predicted probabilities for ease of interpretation.² Coefficients from the natural logarithm of the amount remitted approximate percentage differences and are discussed in these terms for ease of presentation. All models are calculated using bootstrap weights to correct variance estimates for survey design (a technique called design-based variance estimation).³

Chart A The proportion of immigrants making remittances varied considerably by country of origin



Note: Average of the average amounts remitted (conditional on remitting) at two years and four years after landing.

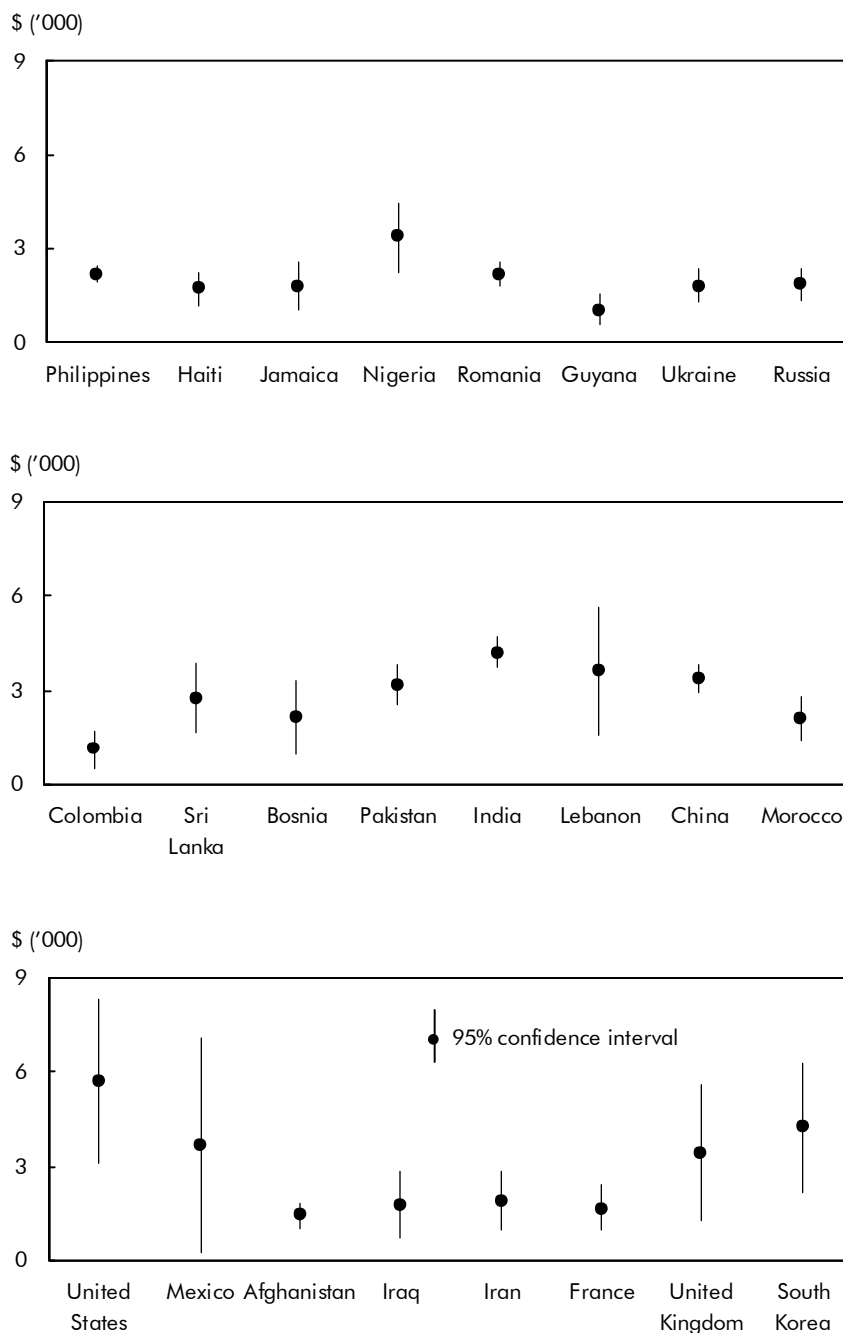
Source: Statistics Canada and Citizenship and Immigration Canada, Longitudinal Survey of Immigrants to Canada, 2000/2001 cohort.

sending money abroad, their financial resources may be stretched further than income figures alone would suggest.

Caution is warranted when addressing this issue. Because remittance behaviour is measured using individuals rather than families or households, estimates of amounts sent abroad are likely conservative. Furthermore, remittances as a share of income can be computed using total personal income or total economic family income as the denominator. Personal income yields a higher percentage, but does not take any sharing of financial resources into account. Family income yields a lower percentage, but mixes units of analysis (personal remittances and family income). Results from both approaches represent conservative estimates of the lower and upper bounds of remittances as a share of income (Table 3). Remittances accounted for 7.5% of the personal income of remitters and 3.4% of family income, on an average annualized basis, during remitters' second year in Canada. Two years later, remittances accounted for 5.9% and 2.9%.⁶

When all immigrants are considered, regardless of whether they remitted, remittances accounted for 3.7% and 3.4% of aggregate personal income, and 1.6% and 1.3% of aggregate family income, two and four years after arrival. From this perspective, remittances account for a fairly small share of the income of newly arrived immigrants. Nonetheless, remittances may still represent a considerable expenditure for some families—take refugees for example. The average family income of refugees who remitted during their fourth year in Canada was \$36,100. By comparison, the 2004 before-tax

Chart B Average remittances were less than \$4,000 for three-quarters of 24 countries of origin



Note: Average of the average amounts remitted (conditional on remitting) at two years and four years after landing.

Source: Statistics Canada and Citizenship and Immigration Canada, Longitudinal Survey of Immigrants to Canada, 2000/2001 cohort.

low-income cut-off (LICO) was just over \$31,000 for a three-person family and just under \$38,000 for a four-person family residing in a large urban centre. (The LICO is an income threshold below which a family will likely devote a larger share of its income than the average family on the basic necessities of food, shelter and clothing.) For refugees who remitted, the average of almost \$1,000 came from a fairly modest family income.

Multivariate results, pooled model

Descriptive statistics demonstrate the magnitude of differences in remittance behaviour, which partly reflect the characteristics and experiences of individuals from different countries. The significance of the various factors was examined via logistic regression and based on ordinary least squares regression.

Demographic characteristics

A modest correlation could be seen between sex and remittance behaviour, with predicted probabilities of remitting (after taking other characteristics into account) of 26% for men and 23% for women (Table 4). Among those remitting, women sent approximately 12% less than men. Age is also important—the predicted probability was highest among immigrants aged 25 to 44 (about 30%) and lower among those in younger and older age groups (less than 20%). Individuals 25 to 34 who remitted sent larger amounts than those under 25 or 55 and older.

Financial capacity

Consistent with the literature, strong correlations were found between remittance behaviour and financial capacity. For example, the

Table 3 Annual incomes of remitters

| | Total | Immigrant category | | |
|--|--------|--------------------|-------------------|---------|
| | | Eco- nomic | Famil- y-class | Refugee |
| 2nd year after arrival | | | | |
| Personal income (\$) | 22,200 | 27,200 | 14,100 | 12,500 |
| Remittance as share of income (%) | 7.5 | 6.7 | 10.4 | 8.1 |
| Family income (\$) | 48,700 | 51,000 | 47,400 | 28,300 |
| Remittance as share of income (%) | 3.4 | 3.5 | 3.1 | 3.6 |
| 4th year after arrival | | | | |
| Personal income (\$) | 28,200 | 33,600 | 17,500 | 16,400 |
| Remittance as share of income (%) | 5.9 | 5.4 | 8.4 | 6.1 |
| Family income (\$) | 57,200 | 61,100 | 52,600 | 36,100 |
| Remittance as share of income (%) | 2.9 | 3.0 | 2.8 | 2.8 |

Note: Based on those making remittances.

Source: Statistics Canada and Citizenship and Immigration Canada, Longitudinal Survey of Immigrants to Canada, 2000/2001 cohort.

predicted probability of remitting rose monotonically with family income, from 10% among immigrants with family incomes under \$10,000 to 36% among those with incomes of \$70,000 or more. The amounts sent also increased monotonically. The amount sent by remitters in families with incomes of \$70,000 or more was approximately 45% higher than the amount for those with incomes of \$25,000 to \$44,999.

Considering savings abroad, immigrants who had \$5,000 or more were significantly less likely to remit (about 20%) than those with no savings abroad (26%). One interpretation is that immigrants with savings abroad come from more affluent families, and hence were less likely to remit. Among remitters, the amounts were not correlated with savings.

Consistent with other studies, immigrants employed full time were significantly more likely to remit than those employed part time or not employed (predicted probabilities of 29%, 25% and 21% respectively). However, employment status was not correlated with the amount sent.

The probability of remitting was not significantly associated with immigrants' level of education upon arrival. However, the amounts sent by those with no

postsecondary education were 20% to 25% less than the amounts sent by those with a university degree.

Finally, place of residence was positively correlated with both incidence of remitting and amounts. The predicted probability of remitting ranged from 21% among immigrants in Montréal to 34% in Calgary and Edmonton. Through the 2000s, the labour markets in Calgary and Edmonton have been especially robust, fuelled by oil and gas and high world commodity prices. In 2004, for example, the unemployment rates in Edmonton and Calgary for men aged 25 to 44 (3.7% and 4.4% respectively) were about half the rate in Montréal (8.7%). The greater incidence of remitting among immigrants in these cities likely reflects favourable labour market circumstances and perhaps positive expectations about future earnings. Among immigrants who remitted, those in Calgary, Edmonton and Vancouver sent about 16% more than those in Toronto.

Obligations to family

Although LSIC information on family abroad is limited, the available evidence is consistent with the view that remittance behaviour is shaped by family characteristics. The likelihood of remitting and the amounts were negatively correlated with the number of minor children in the household. The predicted probability of remitting was 18% for households with three or more children, compared with 27% for those with no children. Furthermore, amounts sent by remitters with one or two children were 17% to 19% less, and with three or more children 36% less, than by those with no children.

The importance of family characteristics was also evident in intentions to sponsor family members to come to Canada. Immigrants already sponsoring or intending to sponsor a spouse or child were more likely to remit than those with no sponsorship activities or intentions (predicted probabilities of 36% and 23% respectively). Those sponsoring a child or parent sent approximately 23% more than those with no sponsorships. The same patterns were evident among immigrants sponsoring a parent or grandparent. Their predicted probability of remitting was 30% and they sent approximately 12% more. These findings are consistent with other studies reporting that immigrants remitting to support children and spouses tend to send more than those helping other family members (Stanwix and Connell 1995).

Table 4 Regression results on pooled sample

| | Logistic regression coefficients on probability of remitting | Predicted probability of remitting ¹ | Ordinary least squares coefficients on natural log of remittance |
|--|--|---|--|
| | | % | |
| Sex | | | |
| Men (ref*) | ... | 26 | ... |
| Women | -0.170* | 23 | -0.117* |
| Age | | | |
| 15 to 24 | -0.718* | 17 | -0.200* |
| 25 to 34 (ref*) | ... | 30 | ... |
| 35 to 44 | -0.093 | 28 | -0.073 |
| 45 to 54 | -0.607* | 19 | -0.017 |
| 55 or older | -0.879* | 15 | -0.277* |
| Family income | | | |
| Less than \$10,000 | -1.110* | 10 | -0.453* |
| \$10,000 to \$24,999 | -0.605* | 16 | -0.316* |
| \$25,000 to \$44,999 (ref*) | ... | 26 | ... |
| \$45,000 to \$69,999 | 0.235* | 31 | 0.220* |
| \$70,000 or more | 0.471* | 36 | 0.445* |
| Savings abroad | | | |
| No saving abroad (ref*) | ... | 26 | ... |
| Less than \$5,000 | -0.109 | 24 | 0.014 |
| \$5,000 to \$24,999 | -0.477* | 18 | 0.135 |
| \$25,000 or more | -0.318 | 20 | 0.111 |
| Missing | -0.237 | 21 | -0.030 |
| Person most knowledgeable on income | | | |
| Respondent (ref*) | ... | 26 | ... |
| Other | -0.280* | 21 | -0.073 |
| Employment status | | | |
| Employed full time (ref*) | ... | 29 | ... |
| Employed part time | -0.239* | 25 | -0.099 |
| Not employed | -0.465* | 21 | -0.065 |
| Education at landing | | | |
| Less than high school | 0.131 | 27 | -0.255* |
| High school | 0.035 | 25 | -0.201* |
| Completed postsecondary | -0.065 | 23 | -0.078 |
| University degree (ref*) | ... | 24 | ... |
| Place of residence | | | |
| Toronto (ref*) | ... | 23 | ... |
| Montreal | -0.143 | 21 | 0.099 |
| Vancouver | 0.167* | 26 | 0.159* |
| Calgary, Edmonton | 0.553* | 34 | 0.158* |
| Other | 0.204* | 27 | 0.036 |
| Children in household | | | |
| No children (ref*) | ... | 27 | ... |
| One | -0.153* | 24 | -0.169* |
| Two | -0.404* | 20 | -0.187* |
| Three or more | -0.512* | 18 | -0.361* |
| Sponsorship | | | |
| None (ref*) | ... | 23 | ... |
| Spouse or child | 0.598* | 36 | 0.231* |
| Parent or grandparent | 0.322* | 30 | 0.117* |

Immigrant class

Although descriptive statistics indicated little difference in the incidence of remitting by immigration category, the picture changed somewhat with other characteristics taken into account. More specifically, the predicted probability of remitting was somewhat higher among family class immigrants (27%) than among economic immigrants (23%). Similarly, the predicted probability of remitting was 28% among refugees (although this estimate was just over the 0.1 level of confidence). The immigration category was not correlated with amounts sent.

Organizational involvement

Of the two organizational participation/involvement variables in the model, one was significant. Specifically, those belonging to a religious organization were more likely to remit than other immigrants (predicted probabilities of 28% and 24% respectively). Organizational involvement was not correlated with amounts remitted.

Region of birth

Dummy variables identifying immigrants from nine regions captured interregional differences in remittance behaviours net of other characteristics. Again, the differences were large. The predicted probability of remitting was highest among immigrants from Southeast Asia and the Caribbean and Guyana (52%), followed by Eastern Europe and sub-Saharan Africa (35% and 32%). The likelihood of remitting was lowest for those from West Asia, the Middle East and North Africa (16%), North America, Western Europe and Oceania (17%) and East Asia (18%). Among remitters, those from East Asia sent the largest amounts.

Table 4 Regression results on pooled sample (concluded)

| | Logistic regression coefficients on probability of remitting | Predicted probability of remitting ¹ | Ordinary least squares coefficients on natural log of remittance |
|--|--|---|--|
| | | % | |
| Immigrant category | | | |
| Family class | 0.174* | 27 | -0.033 |
| Economic (ref*) | ... | 23 | ... |
| Refugee | 0.249 | 28 | -0.135 |
| Member of religious organization | | | |
| No (ref*) | ... | 24 | ... |
| Yes | 0.230 | 28 | -0.046 |
| Member of ethnic/immigrant organization | | | |
| No (ref*) | ... | 25 | ... |
| Yes | 0.145 | 27 | -0.002 |
| Region of birth | | | |
| North America, Western Europe, Oceania | -0.067 | 17 | -0.554* |
| Eastern Europe | 0.860* | 35 | -0.629* |
| Caribbean, Guyana | 1.586* | 52 | -0.789* |
| Central, South America | 0.362* | 24 | -0.693* |
| Sub-Saharan Africa | 0.760* | 32 | -0.487* |
| West Asia, Middle East, North Africa | -0.148 | 16 | -0.461* |
| East Asia (ref*) | ... | 18 | ... |
| Southeast Asia | 1.581* | 52 | -0.770* |
| South Asia | 0.283 | 23 | -0.139 |
| GDP/capita, country of birth | | | |
| Less than \$2,000 | 0.566* | 38 | -0.169 |
| \$2,000 to \$3,999 (ref*) | ... | 26 | ... |
| \$4,000 to \$5,999 | 0.127 | 28 | -0.215* |
| \$6,000 to \$7,999 | 0.143 | 29 | -0.216* |
| \$8,000 to \$14,999 | -0.466* | 18 | -0.283* |
| \$15,000 or more | -0.957* | 12 | -0.133 |
| Constant | -0.782* | ... | 8.089* |

* statistically significant or significantly different from a reference group (ref) at 0.05 or better
 1. Predicted probability of remitting with other co-variables set to their mean values.

Source: Statistics Canada and Citizenship and Immigration Canada, Longitudinal Survey of Immigrants to Canada, 2000/2001 cohort.

Finally, remittance behaviour was significantly associated with GDP per capita in the country of birth. The predicted probability of remitting was highest for immigrants from countries with GDP per capita below \$2,000 (38%) and lowest for countries with GDP per capita of \$8,000 to \$14,999 (18%) or \$15,000 or more (12%).

Multivariate results, regional comparisons

Given the considerable variation in the remittance behaviour of immigrants from different regions, one question that arises is whether the factors associated with remitting are universal or regional. To address this, separate regression

models were estimated for immigrants from nine regions. Because three of these models were based on samples of less than 800, the likelihood of regression coefficients being statistically significant was reduced. Hence, these models used a simplified specification—some co-variables were excluded because they were correlated with region (e.g. immigrant category), while others, like number of children, were re-grouped into fewer categories.

Several characteristics were consistently correlated with remittance behaviour (Tables 5 and 6). This was most evident for financial capacity. The likelihood of remitting and the amount were both positively and significantly correlated with family income for seven of the nine regions.⁷ Employment status was correlated with the likelihood of remitting for six regions, but the amount for only two. Finally, savings abroad were negatively correlated with the likelihood of remitting for five regions, but not correlated with the amount sent for any.

The correlations between presence of children and the likelihood of remitting and the amount were significant for four regions, and approached significance for another. The positive correlation between sponsorship of a family member and the likelihood of remitting was significant for five regions, but significant for the amount in only two cases.

The negative correlation between older ages and the likelihood of remitting was significant for six of the nine regions, but the correlation with the amount sent was significant in only one case.

Table 5 Logistic regression on the probability of remitting by region of birth

| Region | A | B | C | D | E | F | G | H | I |
|--|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sex | β coefficient | | | | | | | | |
| Men (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Women | -0.302 | -0.127 | 0.015 | -0.030 | -0.058 | -0.545* | 0.101 | -0.023 | -0.445* |
| Age group | | | | | | | | | |
| 15 to 24 | -0.271 | -0.200 | -0.238 | -0.293 | -0.826* | -0.604* | -0.809* | -1.110* | -1.017* |
| 25 to 34 (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 35 to 44 | 0.399 | -0.070 | 0.457 | -0.303 | -0.084 | -0.195 | -0.114 | -0.146 | -0.035 |
| 45 to 54 | 0.483 | -0.405 | 0.273 | -1.124 | -1.140* | -0.721* | -0.766* | -0.525* | -0.958* |
| 55 or older | 0.441 | -0.784* | -1.026 | -0.666 | -0.536 | -2.454* | -0.591 | -0.789* | -1.090* |
| Family income | | | | | | | | | |
| Less than \$10,000 | .. | -0.557 | -0.666 | -0.568 | -1.180* | -0.913* | -1.483* | -1.452* | -1.428* |
| \$10,000 to \$24,999 | -0.530 | -0.836* | -0.095 | -0.775* | -0.447 | -0.532* | -0.790* | -0.441* | -0.432* |
| \$25,000 to \$44,999 (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| \$45,000 to \$69,999 | -0.151 | 0.458* | -0.117 | -0.067 | -0.188 | 0.438* | 0.454* | 0.206 | 0.104 |
| \$70,000 or more | 0.228 | 0.811* | 0.348 | 0.284 | -0.092 | 0.860* | 0.823* | 0.405* | 0.352* |
| Savings abroad | | | | | | | | | |
| No saving abroad (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Less than \$5,000 | -0.109 | -0.950 | -0.338 | -0.296 | -0.311 | 0.319 | -0.470 | 0.528* | -0.139 |
| \$5,000 to \$24,999 | -0.914* | -0.748 | -0.544 | -1.425 | -1.383* | -1.319* | -0.252 | -0.246 | -0.192 |
| \$25,000 or more | 0.193 | 0.605 | -2.493* | -1.926* | -0.724 | -0.490 | -0.809 | -0.599 | 0.103 |
| Missing | 0.354 | -0.654 | -0.528 | -0.666 | -1.104 | -0.825 | -0.525* | -0.429 | 0.086 |
| Person most knowledgeable on income | | | | | | | | | |
| Respondent (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Other | -0.106 | -0.197 | -0.053 | -0.576 | -0.045 | -0.051 | -0.551* | -0.158 | -0.302* |
| Employment status | | | | | | | | | |
| Employed full time (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Employed part time | -0.129 | -0.055 | -0.311 | 0.429 | -0.113 | -0.273 | -0.451* | -0.199 | -0.405* |
| Not employed | -0.356 | -0.335* | -0.745* | 0.197 | -0.712* | -0.358 | -0.683* | -0.584* | -0.214* |
| Education at landing | | | | | | | | | |
| Less than high school | -0.480 | -0.527* | -0.031 | 0.552 | -0.155 | 0.071 | 0.861* | 0.345 | 0.189 |
| High school | -0.405 | -0.269 | 0.045 | 1.325* | -0.003 | -0.219 | 0.986* | 0.118 | 0.024 |
| Completed postsecondary | -0.397 | -0.174 | -0.870* | 0.677 | -0.201 | -0.191 | 0.217 | 0.082 | -0.163 |
| University degree (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Place of residence | | | | | | | | | |
| Toronto (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Montreal | -0.384 | -0.026 | 0.339 | -0.347 | -0.066 | -0.016 | -0.465* | -0.176 | -0.507 |
| Vancouver | -0.274 | 0.250 | -1.199 | -0.125 | 0.861 | 0.285 | 0.006 | 0.354* | 0.311* |
| Calgary, Edmonton | 0.583 | 0.588* | 0.046 | -0.120 | 0.979* | 1.419* | 0.422* | 0.490* | 0.254 |
| Other | -0.163 | -0.016 | 0.816* | -0.427 | 0.822* | 0.494 | -0.029 | 0.921* | 0.167 |
| Children in household | | | | | | | | | |
| No children (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| One | 0.033 | -0.154 | -0.546 | 0.175 | 0.937* | -0.262 | -0.166 | -0.131 | -0.301* |
| Two or more | -0.776* | -0.308 | -0.641 | 0.060 | -0.536 | -0.650* | -0.319 | -0.395* | -0.490* |
| Sponsorship | | | | | | | | | |
| None (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Spouse or child | 1.646* | 0.888* | 1.001* | 0.805 | 0.596 | 0.437 | 0.209 | 0.646* | 0.390* |
| Parent or grandparent | 0.507 | 0.315* | 0.526 | 0.314 | 0.060 | 0.209 | 0.264 | 0.282 | 0.310* |
| Member of organization | | | | | | | | | |
| No (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Yes | 0.061 | 0.239 | 0.247 | 0.259 | 0.511* | 0.551* | -0.316* | -0.199 | 0.218 |
| GDP/capita | -0.044* | -0.058* | -0.048 | -0.083 | -0.129* | -0.079* | -0.057* | -0.139* | 0.198* |
| Constant | -0.172 | 0.279 | 0.641 | -0.365 | 0.343 | 0.050 | -0.674* | 1.097* | -0.462 |

* statistically significant or significantly different from a reference group (ref) at 0.1 or better

A = North America, Western Europe, Oceania

B = Eastern Europe

C = Caribbean, Guyana

D = Central, South America

E = Sub-Saharan Africa

F = West Asia, Middle East, North Africa

G = Eastern Asia

H = Southeast Asia

I = South Asia

Source: Statistics Canada and Citizenship and Immigration Canada, Longitudinal Survey of Immigrants to Canada, 2000/2001 cohort.

Table 6 Ordinary least squares regression on the amount remitted by region of birth

| Region | A | B | C | D | E | F | G | H | I |
|--|---------------------|---------|---------|---------|---------|---------|--------|---------|---------|
| Sex | β coefficient | | | | | | | | |
| Men (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Women | -0.536 | -0.086 | -0.083 | -0.445 | -0.229 | -0.268 | 0.056 | 0.048 | -0.173 |
| Age group | | | | | | | | | |
| 15 to 24 | -0.747 | -0.074 | -0.155 | -0.408 | -0.179 | -0.438* | 0.046 | -0.136 | -0.147 |
| 25 to 34 (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 35 to 44 | 0.157 | -0.154 | -0.030 | -0.077 | 0.137 | -0.292* | -0.143 | 0.041 | -0.077 |
| 45 to 54 | -0.147 | -0.036 | -0.418 | 0.852 | 0.509 | -0.031 | -0.019 | -0.014 | -0.003 |
| 55 or older | -0.317 | -0.206 | -0.416 | -1.125 | -1.073 | 0.217 | -0.390 | -0.095 | -0.144 |
| Family income | | | | | | | | | |
| Less than \$10,000 | .. | -0.414 | -0.163 | 0.786 | -0.165 | -0.823* | -0.298 | -0.916* | -0.549 |
| \$10,000 to \$24,999 | 0.354 | -0.476* | -0.256 | -0.441 | -0.435* | -0.524* | -0.047 | 0.109 | -0.472* |
| \$25,000 to \$44,999 (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| \$45,000 to \$69,999 | 0.271 | 0.161 | -0.093 | 0.009 | 0.157 | 0.422* | 0.095 | 0.418* | 0.232* |
| \$70,000 or more | 1.233* | 0.331* | 0.024 | 0.901* | 0.823* | 0.549* | 0.361* | 0.486* | 0.363* |
| Savings abroad | | | | | | | | | |
| No saving abroad (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Less than \$5,000 | 0.101 | -0.133 | 0.109 | 0.330 | 0.479 | 0.048 | 0.633* | -0.100 | -0.069 |
| \$5,000 to \$24,999 | 0.791 | 0.263 | -0.274 | -0.732 | 0.551 | 0.613 | -0.037 | 0.140 | 0.175 |
| \$25,000 or more | 0.443 | 0.803* | 2.865 | -1.025 | -0.831* | 0.571 | -0.021 | 0.201 | -0.225 |
| Missing | 0.054 | -0.648* | 0.419 | -0.921 | -0.817 | -0.374 | 0.209 | 0.506* | -0.263 |
| Person most knowledgeable on income | | | | | | | | | |
| Respondent (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Other | 0.539 | 0.029 | -0.015 | -0.047 | -0.168 | -0.037 | -0.219 | -0.161 | 0.104 |
| Employment status | | | | | | | | | |
| Employed full time (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Employed part time | -0.387 | -0.151 | 0.072 | -0.534 | 0.157 | 0.061 | -0.072 | -0.220 | -0.204 |
| Not employed | 0.230 | -0.001 | -0.049 | -0.567* | 0.044 | -0.110 | 0.017 | -0.164 | -0.210* |
| Education at landing | | | | | | | | | |
| Less than high school | 0.881 | -0.621 | -0.466* | -0.801 | -0.499 | 0.022 | -0.296 | -0.396* | -0.066 |
| High school | 0.382 | -0.048 | -0.636* | -0.646 | -0.540* | 0.044 | -0.261 | -0.263 | -0.149 |
| Completed postsecondary | 0.768* | -0.183 | -0.566* | -0.540 | -0.244 | 0.204 | -0.172 | -0.086 | -0.031 |
| University degree (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Place of residence | | | | | | | | | |
| Toronto (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Montreal | 0.188 | 0.030 | 0.208 | 0.290 | -0.676* | 0.101 | 0.094 | 0.214 | 0.296 |
| Vancouver | 0.773 | -0.029 | 0.987 | 0.538 | -0.242 | 0.011 | -0.065 | 0.072 | 0.423* |
| Calgary, Edmonton | 1.079* | 0.187 | -0.714 | 0.037 | -0.223 | 0.215 | 0.234 | 0.061 | 0.064 |
| Other | 0.870* | -0.015 | -0.092 | 0.404 | -0.427 | -0.019 | -0.074 | 0.001 | 0.211 |
| Children in household | | | | | | | | | |
| No children (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| One | -0.645 | -0.016 | -0.062 | 0.361 | -0.109 | -0.618* | -0.025 | -0.210 | -0.121 |
| Two or more | -0.520 | 0.109 | -0.317 | -0.149 | -0.428* | -0.381* | 0.069 | -0.273* | -0.352* |
| Sponsorship | | | | | | | | | |
| None (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Spouse or child | 0.711 | 0.830* | 0.381 | -0.488 | 0.623* | 0.225 | -0.011 | 0.047 | -0.070 |
| Parent or grandparent | 0.732 | 0.063 | 0.242 | -0.339 | 0.114 | 0.261 | 0.210 | 0.073 | 0.060 |
| Member of organization | | | | | | | | | |
| No (ref*) | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Yes | 0.493 | -0.072 | -0.065 | -0.083 | 0.044 | 0.051 | 0.052 | 0.067 | -0.188* |
| GDP/capita | 0.033 | -0.020 | 0.022 | -0.251* | -0.013 | 0.043* | -0.007 | -0.005 | -0.123 |
| Constant | 5.343* | 7.306* | 7.322* | 9.694* | 7.892* | 7.450* | 7.645* | 7.038* | 8.384* |

* statistically significant or significantly different from a reference group (ref) at 0.1 or better

A = North America, Western Europe, Oceania

B = Eastern Europe

C = Caribbean, Guyana

D = Central, South America

E = Sub-Saharan Africa

F = West Asia, Middle East, North Africa

G = Eastern Asia

H = Southeast Asia

I = South Asia

Source: Statistics Canada and Citizenship and Immigration Canada, Longitudinal Survey of Immigrants to Canada, 2000/2001 cohort.

Overall, the significance of financial and family characteristics was far more evident in terms of the decision to remit than for the amount sent. Furthermore, the results suggest a considerable interregional consistency in some of the factors correlated with remittance behaviour, most notably financial and familial characteristics.

In other instances the correlates of remittance behaviour appear to be more evident for specific regions. For example, women from South Asia and West Asia, the Middle East and North Africa had a negative correlation with the likelihood of remitting. Such correlations were not evident for other regions.

In the literature, evidence on the significance and direction of the correlation between education and remitting is mixed. This was also the case here. Among immigrants from Eastern Europe, those with less than high school education were less likely to remit than those with a university degree. Among immigrants from the Caribbean and Guyana, those with a postsecondary certificate or diploma were less likely to remit than those with a degree. The correlation runs in the opposite direction among immigrants from Central and South America and from Eastern Asia, as immigrants with lower levels of educational attainment were more likely to remit. However, remitters with lower levels of educational attainment sent less money than those with university training for three of the nine regions.

Finally, a strong, positive correlation was seen between membership in an organization and remitting for immigrants from sub-Saharan Africa and West Asia, the Middle East and North Africa.

Summary

During their initial years in Canada, a significant minority of new immigrants send money to family or friends abroad. On an annual basis, the average amount was approximately \$1,450, accounting for about 6% of personal and 3% of family income before taxes.

Remittance behaviour varied greatly. Within a single landing cohort, the incidence of remitting among immigrants from different countries ranged from less than 10% to around 60%, while the annual amounts ranged from about \$500 to almost \$3,000. Financial and family characteristics were consistently significant among immigrants from all regions. In contrast, other

factors, such as sex and education, were significant for some regions but not others. Furthermore, large intercountry and interregional differences remained after socioeconomic characteristics and group composition were taken into account.

Perspectives

Notes

1. Considerable emphasis has been placed on earnings trajectories after arrival, economic returns to foreign credentials and experience, ability to find employment in an area of specialization, and incidence of low income. For a review see Picot 2004.
2. Predicted probabilities for each independent variable were estimated by setting the other independent variables to their mean values.
3. Some researchers have used the Heckman selection model (1976) to take into account the possibility that the sample of immigrants who remit may be a selective sample of those who could have remitted (Funkhouser 1995; Brown and Piorine 2005). Several Heckman models were run using different specifications to address this issue but evidence of selectivity was not found. Our results are consistent with several studies that also report that selection effects are modest or not statistically significant (Menjivar et al. 1998; Funkhouser 1995).
4. All dollar figures have been rounded to the nearest \$100. Remittance amounts reported 2 years and 4 years after arrival have not been adjusted for inflation. Questions about remitting and remittance amounts were included in the income section of the LSIC questionnaire. This section includes numerous questions about the income of the respondent and respondent's family—all of which refer to the 12-month period preceding the interview. At the end of the section, respondents were asked if they had remitted since their last interview, and if so, how much they had remitted. Here, the reference period shifts from the 12 months preceding the survey to the 18- or 24-month period preceding the survey (the duration varies between Waves 2 and 3). Given the sudden shift in the reference periods, it is not clear if respondents who reported remittance amounts had a 12-month or 18/24-month reference period in mind.
5. The estimates in Chart A are computed by taking the average of the incidences of remitting at LSIC Wave 2 (i.e. 24 months after landing) and at LSIC Wave 3 (i.e. 48 months after landing). This approach reduces standard errors around the estimates (which are still large in many cases) and simplifies the presentation of the data. The same approach is used for Chart B.

6. For immigrants who remitted, average family income after expenditures on housing (rent or mortgage, taxes and utilities) was also computed and used to estimate remittances as a share of family income after housing expenditures. For immigrants in all three admission categories, remittances accounted for about 4.0% to 4.9% of family income after housing expenditures
7. In this section, within-region correlations with P-values of 0.1 or better are flagged as statistically significant. The usual threshold of 0.05 was relaxed because of the small number of cases in several of the models.

References

- Brown, Richard P.C. and Bernard Poirine. 2005. "A Model of Migrants' Remittances with Human Capital Investment and Intrafamilial Transfers." *International Migration Review*. Vol. 39, no. 2. Summer. p. 407-438. <http://www.blackwell-synergy.com/action/showPdf?submitPDF=Full+Text+PDF+%281%2C522+KB%29&doi=10.1111%2Fj.1747-7379.2005.tb00272.x> (accessed June 23, 2008).
- Funkhouser, Edward. 1995. "Remittances from International Migration: A Comparison of El Salvador and Nicaragua." *The Review of Economics and Statistics*. Vol. 77, no. 1. February. p. 137-146. <http://www.jstor.org/stable/pdfplus/2109999.pdf> (accessed June 23, 2008).
- Heisz, Andrew and Logan McLeod. 2004. *Trends and Conditions in Census Metropolitan Areas: Low-income in Census Metropolitan Areas, 1980-2000*. Statistics Canada Catalogue no. 89-613-MIE – No. 001. Ottawa. 87 p. <http://www.statcan.ca/english/research/89-613-MIE/2004001/89-613-MIE2004001.pdf> (accessed June 24, 2008).
- Hernández-Coss, Raúl. 2005. *The Canada-Vietnam Remittance Corridor: Lessons on Shifting from Informal to Formal Transfer Systems*. World Bank Working Paper No. 48. Washington, D.C. The World Bank. 69 p. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2005/04/26/000090341_20050426100319/Rendered/PDF/32179.pdf (accessed June 23, 2008).
- Inter-American Development Bank, Multilateral Investment Fund. 2004. "Sending Money Home: Remittance to Latin America and the Caribbean." Document no. 547263. New York, N.Y. Inter-American Development Bank, Multilateral Investment Fund.
- Inter-American Development Bank, Multilateral Investment Fund. 2004. "Sending Money Home: Remittance Recipients in the Dominican Republic and Remittance Senders from the US." Document no. 546769. New York, N.Y. Inter-American Development Bank, Multilateral Investment Fund.
- Menjivar, Cecilia, Julie DaVanzo, Lisa Greenwell and R. Burciaga Valdez. 1998. "Remittance Behavior Among Salvadoran and Filipino Immigrants in Los Angeles." *International Migration Review*. Vol. 32, no. 1. Spring. p. 97-126. <http://www.jstor.org/stable/pdfplus/2547562.pdf> (accessed June 24, 2008).
- Orozco, Manuel. 2006. *International Flows of Remittances: Cost, competition and financial access in Latin America and the Caribbean—toward an industry scorecard*. Inter-American Dialogue, May 12, 2006. Washington, D.C. 17 p. <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=736019> (accessed June 24, 2008).
- Orozco, Manuel. 2002. "Globalization and Migration: The Impact of Family Remittances in Latin America." *Latin American Politics and Society*. Vol. 44, No. 2. Summer. p. 41-66. <http://www.jstor.org/stable/pdfplus/3177094.pdf> (accessed June 25, 2008).
- Picot, Garnett, Feng Hou and Simon Coulombe. 2007. *Chronic Low Income and Low-income Dynamics Among Recent Immigrants*. Statistics Canada Catalogue no. 11F0019MIE – No. 294. Analytical Studies Branch Research Paper Series. Ottawa. 48 p. <http://www.statcan.ca/english/research/11F0019MIE/11F0019MIE2007294.pdf> (accessed June 24, 2008).
- Picot, Garnett. 2004. "The Deteriorating Economic Welfare of Canadian Immigrants." *Canadian Journal of Urban Research*. Vol. 13, Issue 1. Summer. p. 25-45.
- Simmons, Alan, Dwaine Plaza and Victor Piché. 2005. *The Remittance Sending Practices of Haitians and Jamaicans in Canada*. A Report to CIDA. United Nations Secretariat. 21 p. http://www.un.org/esa/population/migration/turin/Symposium_Turin_files/P01_ASimmmons.pdf (accessed June 25, 2008).
- Stanwix, Clare and John Connell. 1995. "To the Islands: The Remittances of Fijians in Sydney." *Asian and Pacific Migration Journal*. Vol. 4, no. 1. p. 69-87.
- World Bank. 2006. *Global Economic Prospects: Economic Implications of Remittances and Migration 2006*. Washington, D.C. The World Bank. 157 p. http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2005/11/14/000112742_20051114174928/Rendered/PDF/343200GEP02006.pdf (accessed June 25, 2008).

A profile of the Canadian Forces

Jungwee Park

Canada's military makes up a small but significant segment of Canadian society. The Canadian Forces (CF) are an important part of the country's national image, both at home and abroad. On the international front, these highly trained men and women are repeatedly called upon to participate in the humanitarian, peacekeeping and security missions of international organizations such as the UN and NATO; while domestically, their expertise is often needed in search and rescue operations and aiding citizens cope with natural disasters such as forest fires, floods, avalanches and ice storms. Additional responsibilities include assisting in the protection of Canada's fisheries and in the detection and interception of shipments of illegal drugs.

The forces also contribute significantly to the economy. With more than 111,000 people on the payroll (including about 24,000 civilian workers), the Department of National Defence (DND) and CF together are Canada's second largest employer and the single largest public service employer, making a significant contribution to local, provincial and territorial economies (DND 2008a). In the fiscal year 2006/2007, Canada's military spending was \$15.7 billion (DND 2008b).

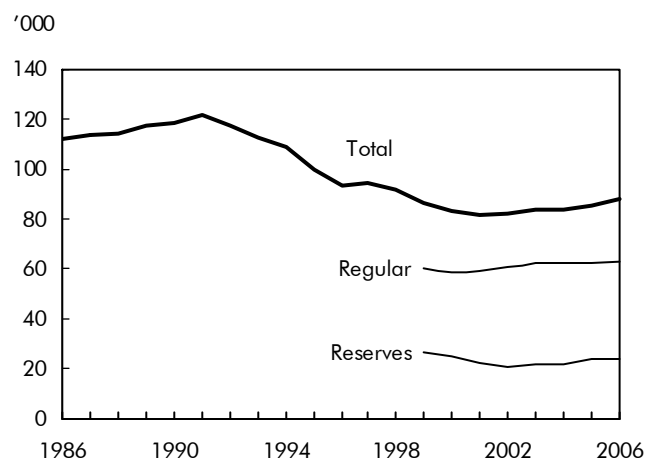
The military generally increased in the late 1980s, reaching its highest numbers in 1991 with more than 120,000 people (Chart A). The subsequent decline continued until 2001 when personnel numbered 81,600, about a 33% decrease. Since then, the forces have grown steadily, reaching 87,700 in 2006. These changes are related to the international political climate—the rapid decline occurring after the end of the Cold War and the recent increase coinciding with the war on terror since 9/11.¹

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This article profiles the personnel of the Canadian Forces as a special group distinct from the rest of the Canadian labour force. Using the Canadian Forces Supplement to the Canadian Community Health Survey (CCHS) – Mental Health and Well-being, it also compares the military's prevalence rates of work stress and other work-related mental health issues with those of the civilian working population and investigates whether any specific groups experience a higher prevalence.

The distinctive work arrangements and responsibilities of the military, especially missions to conflict-ridden places, such as Bosnia-Herzegovina, Rwanda or Afghanistan,² warrant examining the psychological well-being and work stress of CF members. However, wartime conditions are not the only source of

Chart A After hitting their nadir in 2001, military personnel increased for the next five years



Source: Department of National Defence, Military personnel and wages and salaries, 1986 to 2006.

Table 1 Characteristics of military personnel and civilian workers, aged 15 to 64

| | Regular forces | | | | Reserve forces | | | Total civilian workers |
|------------------------------|--------------------|--------------------|--------------------|------------------|----------------|------------------|----------------------|------------------------|
| | All military | All regular | Officer | Non-commissioned | All reserve | Officer | Non-commissioned | |
| | % | | | | | | | |
| Sex | | | | | | | | |
| Men | 85.3 * | 87.8 * | 85.6 * | 88.4* | 79.2*(*) | 84.9* | 78.1* | 53.3 |
| Women | 14.7 * | 12.2 * | 14.4 * | 11.6*[*] | 20.8*(*) | 15.1*(*) | 21.9*[*][*] | 46.7 |
| Age | | | | | | | | |
| 15 to 24 | 19.3 | 9.9 * | 10.4 * | 9.7* | 42.1*(*) | 10.2* | 48.0*[*][*] | 19.3 |
| 25 to 39 | 51.8 * | 57.7 * | 49.2 * | 60.2*[*] | 37.4*(*) | 48.6* | 35.4 [*][*] | 33.3 |
| 40 to 54 | 28.3 * | 32.0 * | 39.3 * | 30.0*[*] | 19.2*(*) | 37.6 | 15.8*[*][*] | 36.6 |
| 55 to 64 | 0.6 * | 0.4 ^E * | 1.1 ^E * | F | 1.3*(*) | 3.6*(*) | 0.9 ^E [*] | 10.7 |
| Education¹ | | | | | | | | |
| Less than high school | 6.5 * | 7.1 * | F | 9.0* | 4.3*(*) | F | 5.7*(*) | 13.3 |
| High school diploma | 28.0 * | 31.4 * | 5.5 * | 38.7*[*] | 15.2*(*) | 4.9* | 18.5 [*][*] | 19.5 |
| Some postsecondary | 12.7 * | 13.1 * | 6.2 | 15.1*[*] | 11.0*(*) | 7.0 | 12.2*[*][*] | 6.6 |
| Postsecondary degree/diploma | 52.6 * | 48.2 * | 88.1 * | 37.1*[*] | 69.4*(*) | 88.1* | 63.4*[*][*] | 59.6 |
| Immigrants | 5.9 * | 4.1 * | 6.0 * | 3.6*[*] | 10.0*(*) | 9.2*(*) | 10.2*(*) | 20.6 |
| Official language | | | | | | | | |
| English only | 53.8 * | 51.4 * | 26.6 * | 58.3*[*] | 59.9*(*) | 54.6*(*) | 60.9*[*] | 64.5 |
| French only | 3.8 * | 3.0 * | F | 3.8* | 5.9*(*) | 2.2 ^E | 6.6*[*][*] | 10.7 |
| Both | 42.2 * | 45.6 * | 73.1 * | 37.8*[*] | 33.9*(*) | 43.1*(*) | 32.2*[*][*] | 23.5 |
| Neither | 0.2 ^E * | F | F | F | F | F | F | 1.3 |
| Visible minority | 6.4 | 4.5 * | 3.4 * | 4.8*[*] | 11.1*(*) | 5.9*(*) | 12.0*[*][*] | 17.1 |

* significantly different from total civilian workers at 0.05 or less

(*) significantly different from the same column of regular forces at 0.05 or less

[*] significantly different from officers at 0.05 or less

1. Population 25 or older.

Source: Statistics Canada, Canadian Community Health Survey Cycle 1.2, 2002.

stress—in addition to military-specific stressors such as deploying overseas, frequent change of station and temporary duty away from home, day-to-day aspects of the job like work responsibilities, work hours, or difficulties with supervisors have a significant effect on the psychological well-being of military personnel (Pflanz and Sonnek 2002; Sudom et al. 2006). CF members may be exposed to numerous stressful events and be at risk of experiencing job stress.

Moreover, psychological ill health of military personnel may compromise their physical health, impair work performance or decrease quality of life; it also has a significant economic impact, in both civilian and military populations (Fikretoglu et al. 2007; Pflanz and Ogle 2006; Hourani et al. 2006; Dobрева-Martinova et al. 2002).

Regular and reserve forces differ

The two primary components of the CF are regular and reserve forces.³ Generally speaking, while the regular force consists of full-time personnel, most members of the reserves are part-time personnel (for more detailed classifications see *Data source and Definitions*). The reserves are used to mobilize or expand the army when needed. In other words, they are eligible to deploy on operations, and in recent years more and more reservists were supporting overseas missions (DND 2008c). As well, the reserves augment the professional forces by providing soldiers, units or specialists to the CF (DND 2008c). For example, reservists in Afghanistan provide their expertise in medicine and psychological operations in addition to combat responsibilities (Castonguay 2008).

Table 2 Characteristics of military personnel

| | Men | Women | Regular | Reserves | All military |
|-----------------------------------|------|-------------------|---------|----------|--------------|
| | % | | | | |
| Rank | | | | | |
| Junior | 58.7 | 66.0* | 56.3 | 68.2(*) | 59.8 |
| Senior | 21.2 | 14.1* | 21.8 | 16.2(*) | 20.1 |
| Officer | 20.2 | 19.8 | 22.0 | 15.6(*) | 20.1 |
| Region | | | | | |
| Atlantic | 22.0 | 18.8* | 22.7 | 18.8(*) | 21.6 |
| Quebec | 16.7 | 18.1 | 15.1 | 21.3(*) | 16.9 |
| Central | 33.6 | 36.3* | 34.4 | 33.2 | 34.0 |
| Western | 27.7 | 26.8 | 27.9 | 26.8 | 27.6 |
| Service | | | | | |
| Land | 57.4 | 47.6* | 50.2 | 70.1(*) | 56.0 |
| Air | 23.9 | 30.6* | 31.5 | 8.7(*) | 24.9 |
| Sea | 17.0 | 18.8 | 18.3 | 14.8(*) | 17.3 |
| Communication | 1.7 | 3.0* | F | 6.5 | 1.9 |
| Years in service | | | | | |
| Less than 10 | 32.9 | 41.8* | 23.7 | 59.9(*) | 34.2 |
| 10 to 24 | 53.4 | 52.8 | 62.9 | 29.9(*) | 53.3 |
| 25 or more | 13.7 | 5.4* | 13.4 | 10.3(*) | 12.5 |
| Occupation | | | | | |
| Combat arms | 32.3 | 10.8* | 22.2 | 46.1(*) | 29.1 |
| Communications | 6.0 | 5.0 | 6.5 | 4.3(*) | 5.9 |
| Maritime | 5.1 | 4.2* | 4.8 | 5.5 | 5.0 |
| Maritime communications | 3.5 | 3.5 | 3.7 | 3.1 | 3.5 |
| Maritime technical | 3.2 | 0.4 ^{E*} | 3.9 | F | 2.8 |
| Aviation | 6.9 | 4.3* | 8.0 | 2.9(*) | 6.5 |
| Aviation technical | 7.4 | 5.0* | 9.1 | 2.1(*) | 7.1 |
| Administration, etc. ¹ | 19.0 | 46.7* | 23.9 | 20.8(*) | 23.0 |
| Engineering | 2.3 | 1.3* | 2.4 | 1.5(*) | 2.1 |
| Technical | 8.9 | 1.8* | 9.1 | 4.8(*) | 7.9 |
| Medical | 3.4 | 13.0* | 4.8 | 4.9 | 4.8 |
| General officer specialist | 2.0 | 4.1* | 1.6 | 3.9(*) | 2.3 |

* significantly different from men at 0.05 or less

(*) significantly different from regular forces at 0.05

¹. Includes logistics, security, intelligence or emergency services.

Source: Statistics Canada, Canadian Community Health Survey Cycle 1.2, 2002.

Over the last five years, the regular forces and the reserves showed similar increasing trends. In 2006, the CF had about 64,000 regular members and 24,000 reservists. But reserve personnel tend to be much younger than regular force members. More than 40% of reservists

were under 25, compared with only 10% of full-time military personnel (Table 1). However, this age cohort in the regular force showed a significant increase in recent years—by 2007, 17% (15% of officers and 18% of non-commissioned members) were under age

25 (calculation based on DND 2008d)—as a result of more young recruits.

More than one in five reservists were women compared with about one in eight in the regular forces in 2002. Also, while less than 5% of regular force personnel were immigrants or from a visible minority, more than 10% of reservists were. This reflects the many young reserve members from visible minority or immigrant groups.

Overall, 60% of CF personnel were junior non-commissioned members, from privates to master corporals; 20% were senior non-commissioned members, sergeants to chief warrant officers; and the remainder were officers. About 68% of reservists were junior non-commissioned members and 16% were officers, compared with 56% and 22% of the regular forces (Table 2). The rank structure of the regular forces changed little from 2002 to 2007 (DND 2008d).

Regular and reserve forces differed in terms of environment (land, air or sea). Among reservists, 70% were in the army, 9% air force and 15% navy, compared with 50%, 32%, and 18% for regular personnel. In terms of occupation, members of the reserve and regular forces play different roles in their services—reservists tended to concentrate much more in combat arms (e.g. infantry battalion, or armoured or artillery regiment) than regular force personnel (46% vs. 22%).

Members of the CF differ from civilian workers

Members of the military differed substantially from civilian workers aged 15 to 64 with respect to

Data source and definitions

The Canadian Community Health Survey (CCHS) – Canadian Forces supplement on mental health was used to profile military personnel. The target population for this survey was all full-time regular members of the Canadian Forces, and reservists who had paraded at least once in the past six months. In order to improve the efficiency of the survey design, each target population was stratified by sex and rank. Collection took place between May and December 2002 to allow for spreading the field workload and more time in which to contact respondents departing or returning from deployments or training courses. The vast majority of computer-assisted interviews were conducted face-to-face during working hours in private on-base rooms. A total of 5,155 regular forces personnel were interviewed, a response rate of 79.5%. For the reserves, the numbers were 3,286 and 83.5% (Statistics Canada 2003).

The 2002 Canadian Community Health Survey (CCHS) – Mental Health and Well-being was used to compare the general working population with the Canadian Forces. (The CCHS sample did not include regular forces personnel, but may have picked up some members of the reserves.) The survey covered people aged 15 or older living in private dwellings in the 10 provinces. Most interviews (86%) were conducted in person; the remainder, by telephone. Proxy responses were not accepted. The 36,984 interviews represented a response rate of 77%.

General working population were those aged between 15 and 64 working at jobs or businesses in the past 12 months.

Members of the regular forces are full-time personnel. They consist of officers and non-commissioned members in continuing, full-time military service. Its all units, other elements, and members are at all times liable to perform any lawful duty. When enlisting, the members are signing on for an initial engagement ranging from three to nine years, not including subsidized training or education. The initial engagement can be followed by an indefinite period of service or a continuing engagement. According to the current terms of service, they can retire after 25 years.

Members of the reserve forces are part-time military personnel. They consist of officers and non-commissioned members enrolled for other than continuing, full-time military service when not on active service. Its all units, other elements, and all members may be ordered to train for such periods as are prescribed in regulations made by the Governor in Council and may be called out on service to perform any lawful duty other than training at such times and in such a manner as by regulations or otherwise are prescribed by the Governor in Council. Service in the reserves is voluntary and is for an indefinite period. Reservists are enrolled to serve on a part-time basis but may volunteer for full-time employment.

The reserve force has four sub-components: Primary Reserve, Cadet Instructor Cadre (CIC), Canadian Rangers, and the Supplementary Reserve (DND 2008g).

The **Primary Reserve** is the largest and is commonly what people refer to when using the term 'reserves.' Its personnel train regularly on a part-time basis with occasional periods of full-time service. It is divided into Naval, Army, Air, Communications, Health Services, Legal, and the National Defence Headquarters Primary Reserve List.

CIC officers are responsible for the safety, supervision, administration, and training of cadets aged 12 to 18.

Canadian Rangers provide a military presence that cannot conveniently or economically be provided by other components of the CF in sparsely settled northern, coastal, and isolated areas.

The **Supplementary Reserve** consists of former members of the regular and reserve forces. They do not perform training or duty but provide a pool of personnel that could be called out in an emergency (DND 2008e).

Reserve service falls in three classes: A, B and C. **Class A** is used for periods of service to a maximum of 12 consecutive days. A member of the Primary Reserve may be ordered to train on Class A only for an annual maximum of 60 days (DND 2004a). **Class B** is used for service of 13 or more consecutive days in a temporary full-time position on the instructional or administrative staff of a school or other training establishment; on such training attachment and such training course of such duration as may be prescribed by the Chief of the Defence Staff; or on duties of a temporary nature approved by the Chief of the Defence Staff, or by an authority designated by him, when it is not practical to employ members of the regular force on those duties. **Class C** service may be used at any authorized location, when the member is on full-time service and is serving with approval by or on behalf of the Chief of the Defence Staff in a regular force establishment position or is supernumerary to regular force establishment; or on either an operation or an operation of a type approved by or on behalf of the Chief of the Defence Staff.

Officer means a person who holds Her Majesty's commission in the Canadian Forces; a person who holds the rank of officer cadet in the Canadian Forces; and any person who pursuant to law is attached or seconded as an officer to the Canadian Forces. An officer is a leader trained to be responsible for a group of people. Higher levels of education and training are required for officers than non-commissioned members. Four rank groups are defined: General Officers, Senior Officers, Junior Officers, and Subordinate Officers.

A **non-commissioned member** is any person other than an officer, who is enrolled in, or who pursuant to law is attached or seconded otherwise than as an officer to, the CF. They fall into three rank groups: warrant officers, non-commissioned officers and privates.

nearly every demographic characteristic. CF personnel were much younger—more than 70% under 40 versus only 53% of civilians in 2002. This is not surprising since, unlike most other jobs, the forces still have a

compulsory retirement age. Less than 1% of CF members were 55 to 64, compared with 11% of the working population.

International military expenditures, 2001

Canada currently ranks 6th in NATO in terms of defence budgets and 17th in terms of defence spending as a share of gross domestic product (GDP).

| | Total | Share of GDP |
|----------------|-----------------|-----------------|
| | US\$ (billions) | % |
| Belgium | 2.2 | 1.3 |
| Canada | 7.3 | 1.1 |
| Czech Republic | 1.1 | 2.2 |
| Denmark | 2.4 | 1.5 |
| France | 25.3 | 2.6 |
| Germany | 21.0 | 1.5 |
| Greece | 3.3 | 4.8 |
| Hungary | 0.8 | 1.8 |
| Iceland | 0.0 | 0.0 |
| Italy | 15.5 | 1.9 |
| Luxembourg | 0.1 | 0.8 |
| Netherlands | 5.6 | 1.6 |
| Norway | 2.8 | 1.8 |
| Poland | 3.7 | 1.8 |
| Portugal | 1.3 | 2.1 |
| Spain | 6.9 | 1.2 |
| Turkey | 5.1 | 5.0 |
| United Kingdom | 34.0 | 2.4 |
| United States | 310.5 | 2.9 |

Source: Department of National Defence 2008b.

Today's CF personnel, however, tend to be much older than 20 years ago. In 2007, only 28% of the regular forces were under 30 (DND 2008d) compared with 53% in 1988 (Strike 1989). This change in the age profile may reflect the general trend of population aging, delayed retirement, and the intentional decrease in new recruits as part of 1990s downsizing.⁴ Similarly, in 2002, about one-quarter of regular personnel had less than 10 years of service compared with 56% in 1988 (Strike 1989).⁵

Compared with the general working population, about twice the proportion of CF personnel were bilingual. More than 40% (46% for the regular forces and 34% for reservists) spoke both official languages. Such high percentages are due to the high proportions of bilingual officers (73% in the regular forces) and members from Quebec (77% bilingual).⁶

Overall, the Canadian military is predominantly male. However, women's representation has risen in recent decades. In 2002, 15% of all personnel were women—12% in the regular forces and 21% of reservists—up from 2% in 1972 and 10% in 1988 (Strike 1989).⁷

Similar to their male colleagues, about one in five female members were officers in 2002. According to the most recent data (DND 2008d) for the regular forces, a higher proportion of women than men were officers (28% compared with 23%).

Women's roles in the CF are quite different from those of men. More than 30% of women belonged to the air force compared with 24% of men, while a smaller proportion were in the army (48% vs. 57%). Women worked in all types of military occupations including combat duty, but their distribution was considerably different from men's.⁸ While about one-third of men in the CF reported combat arms as their occupation, 11% of women did so. In 2002, about one-half of women worked in administration, logistics, security, intelligence, or emergency services compared with 19% of men. This indicates that women still continue to be concentrated in the more traditional support areas, including medical and dental, with some increases in less traditional occupations, particularly naval operations and maritime engineering, and a modest increase in combat arms (Soeters and Van der Meulen 2006).

An international comparison shows that women in the Canadian military have played greater roles (see *Women in the military*). Canadian women account for a higher share of personnel in the armed forces and a much higher share of deployments than in many other countries.⁹

Visible minorities under-represented

A very small proportion of CF personnel were members of visible minorities—only 6% of all CF members (5% of regular forces and 11% of reservists) were visible minorities compared with 17% of the civilian working population. This is much lower than the U.S. military's rate of 33% (Office of the Under Secretary of Defense, Personnel and Readiness 2006). Only 3% of officers in the regular forces were members of visible minorities.

Similarly, a very small portion were immigrants (6% compared with 21%). The low rates of visible minority and immigrant members may be related to the citizenship requirement for joining the CF. Currently, only Canadian citizens can join the regular forces (DND 2008e).¹⁰

Women in the military

Canada was one of the first NATO member countries to legally admit women to the military (1951) and has among the highest participation of women in terms of proportion of the force and deployment responsibilities.

| | Year of admittance | Proportion in 2005 | Deployed in 2005/2006 |
|----------------|--------------------|--------------------|-----------------------|
| | | % | % |
| Belgium | 1975 | 8.3 | 20.6 |
| Bulgaria | 1995 | 6.0 | |
| Canada | 1951 | 12.6 | 26.8 |
| Czech Republic | Early 1980s | 12.2 | |
| Denmark | 1962 | 5.0 | 6.0 |
| France | 1972 | 12.8 | 5.0 |
| Germany | 1975 | 6.0 | 3.5 |
| Greece | 1979 | 16.0 | |
| Hungary | 1996 | 4.3 | 8.0 |
| Italy | 1999 | 1.0 | |
| Latvia | 1991 | 20.0 | |
| Lithuania | 1991 | 9.1 | |
| Luxembourg | 1980 | 5.7 ¹ | |
| Netherlands | 1979 | 9.0 | |
| Norway | 1977 | 6.3 | |
| Poland | 1988 | 0.5 | 1.3 |
| Portugal | 1992 | 8.4 | Up to 10 |
| Romania | 1973 | 5.0 | |
| Slovakia | Early 1980s | 7.1 | |
| Slovenia | 1991 | 15.4 | |
| Spain | 1988 | 10.7 | |
| Turkey | 1955 | 4.0 | |
| United Kingdom | 1949 | 9.0 | |
| United States | 1948 | 15.5 | 11.0 |

1. 2006.

Source: Committee on Women in the NATO Forces (NATO 2008).

However, even after excluding recent immigrants (in Canada less than 10 years) and adjusting for age, significant differences in visible minority and immigrant representation remain between the CF and the civilian working population (data not shown). The under-representation of visible minorities in the CF can be explained by many factors (Jung 2007): the importance of education, family, and ethnic identity;¹¹ a relatively low ranking of

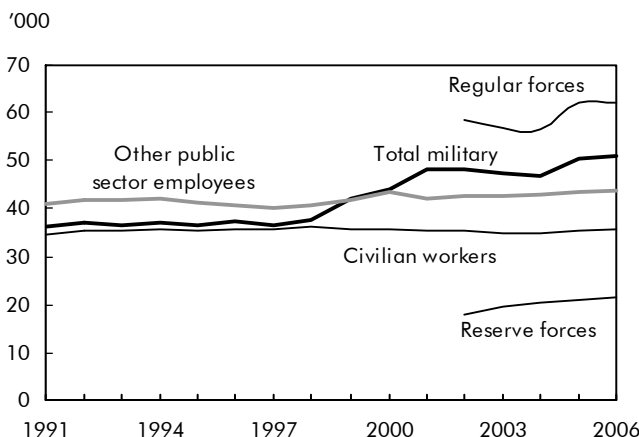
military service as a career, combined with the negative image provided by their own native militaries; and insufficient numbers in senior ranks to provide the necessary positive role models. However, visible minority representation in the CF is important because they are the fastest growing segment of the Canadian population, particularly in the traditional recruitment target age group of 17 to 24 (Rueben 2004).

Wages, income and education

Whereas the earnings of civilian workers remained relatively constant at \$35,000 (in 2002\$) for the last decade and a half, CF personnel experienced steady increases since the late 1990s. On average, they have earned more than other public sector employees since 1999 (Chart B).¹² Earnings of reservists increased in recent years, although their average was as low as \$21,000 in 2006, which is not surprising given that as part-timers many of them had other jobs. As well, about 40% of them were still students (DND 2004b).

Rising military wages and salaries correlate with the age structure of the members. The aging of CF personnel was accompanied by increased levels of experience. In 1988, 35% of personnel had served 10 to 24 years and only 9% had 25 or more years of service (Strike 1989). In 2002, 63% had served 10 to 24 years and 13% had 25 or more.

The steady increase in earnings also coincided with rising levels of education. To meet the high technical demands of modern warfare, more recognized training and education are necessary. In 2002, more than half of CF members aged 25 or older had a postsecondary degree or diploma (88% of officers; 37% of non-commissioned members in the regular forces, 63% in the reserves). In 1988, 19% of regular force personnel had a postsecondary degree or diploma¹³ and 26% had less than high school graduation (Strike 1989).¹⁴ By 2002, postsecondary graduation had increased to 48% and less than high school graduation had fallen to 7%. Even with the increase, postsec-

Chart B CF members had higher overall earnings than civilian workers

Note: Earnings in 2002 dollars.

Sources: Department of National Defence, Military personnel and wages and salaries; Statistics Canada, Survey of Employment, Payrolls and Hours, 1991 to 2006.

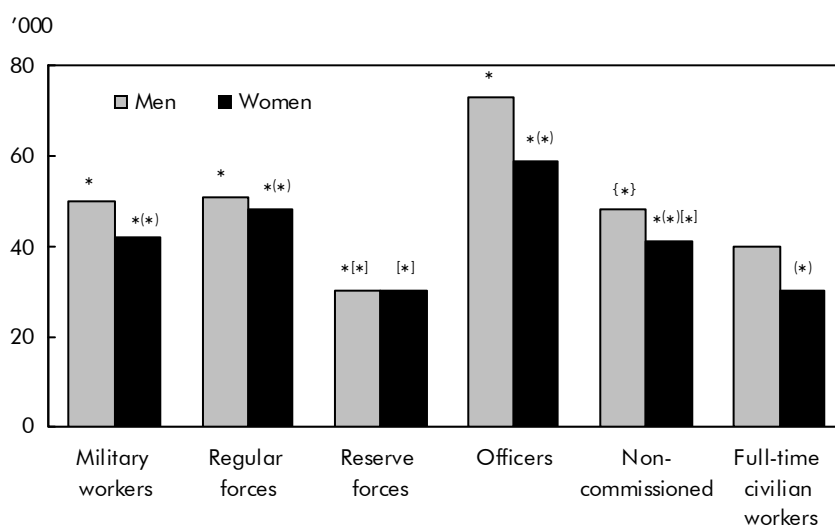
Not surprisingly, incomes of CF personnel vary considerably by rank—personnel are paid first by rank and then by specific occupation. Among men, the median income in 2002 was \$73,000 for officers and \$48,000 for non-officers.

As well, clear differences were evident in the median incomes of men and women for all groups except the reserves. Among officers, the median income for men was higher than for women (\$73,000 vs. \$59,000), mainly due to the high share of men found at higher ranks. As the forces are a bottom-loaded system, it may take considerable time for women to achieve greater representation at senior levels (Truscott and Dupre 1998).

The income gap between the sexes may also be related to the concentration of women in more traditional support areas. For instance, only 4% of women in the regular forces had participated in three or more deployment missions lasting three months or longer, compared with 26% of men. In addition, women's years of service were much lower than men's—only

ondary graduation among CF personnel was lower (53%) than for civilian workers aged 25 or older (59%). However, members of the reserves had higher rates (69%), reflecting on-campus recruiting.¹⁵

As with earnings, the annual income of military personnel was also higher than that of the full-time working population. In 2002, the median personal income of men in the CF was \$50,000 compared with \$40,000 for their civilian counterparts (Chart C). Among women, even non-commissioned members had higher incomes than the Canadian median (\$42,000 vs. \$30,000). The higher incomes for CF members may be explained in part by a variety of allowances received in addition to their salaries—for example, for exceptional hazard, field operations, paratroops, aircrew, rescue specialist, diving, sea duty and submarine.

Chart C CF members had higher median personal income than civilian full-time workers

* significantly different from the same sex group of all full-time civilian workers at 0.05 or less

(*) significantly different from men of the same group at 0.05 or less

[*] significantly different from the same sex group of regular forces at 0.05 or less

(*) significantly different from the same sex group of officers at 0.05 or less

Source: Statistics Canada, Canadian Community Health Survey Cycle 1.2, 2002.

Table 3 Characteristics of psychological well-being among members of the military

| | All | Regular forces | Reserve forces | Civilian workers |
|---------------------------------------|-------------------|-------------------|------------------------------------|------------------|
| | | | % | |
| Life dissatisfaction | 4.6* ¹ | 5.0* | 3.8* ¹ | 4.0 |
| Negative self-perceived mental health | 7.8* | 9.1* | 4.8* ¹ (*) | 5.9 |
| Alcohol dependence | 4.8* ¹ | 4.2* ¹ | 6.2* ¹ (*) ¹ | 3.3 |
| Major depression | 6.9* | 8.0* | 4.2(*) | 4.8 |

* significantly different from total civilian workers at 0.05 or less

(*) significantly different from regular forces at 0.05 or less

1. significance disappeared after age-sex adjustments.

Source: Statistics Canada, Canadian Community Health Survey Cycle 1.2, 2002.

5% had served for 25 or more years in 2002, compared with 14% of men.¹⁶

Psychological well-being

Small but statistically significant differences in psychological well-being existed between full-time CF members and the civilian workforce in 2002 (see *Psycho-social well-being*). Members of the regular forces were more likely to be dissatisfied with their life (5% vs. 4%), to perceive their mental health as fair or poor (9% vs. 6%) and to

have had major depression in the past 12 months (8% vs. 5%). As well, compared with reservists, regular forces personnel showed a higher prevalence of depression and negative self-perceived mental health (Table 3).

For better comparability, the psychological well-being of civilian full-time managers was compared with that of military officers in the regular forces (Chart D). Similarly, non-commissioned personnel were compared with non-managers.¹⁷ Military officers had higher rates of

negative self-perceived mental health and major depression; and non-officers seemed to have lower psychological well-being (Chart E). More than 5% of non-commissioned members were dissatisfied with their life and 9% felt that their mental health was fair or poor. Compared with less than 5% of non-managers, 8% of non-commissioned staff had had a major depression in 2002.

Differences in alcohol dependence disappeared after age-sex adjustments. Higher rates of dependence among CF personnel were due to their being young and predominantly male.

To investigate whether any specific groups in the CF are under a greater risk of psychological ill health and work stress, multivariate logistic regression models were developed. Associations between psychological health and military-related variables such as rank, type of CF (regular or reserve), career deployments, and months absent due to military responsibility were examined while controlling for possible confounders such as age, marital status, income and education. Psychological well-being and

Psycho-social well-being

Life dissatisfaction: very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, or very dissatisfied. For this article, respondents answering very dissatisfied or dissatisfied were considered to have life dissatisfaction.

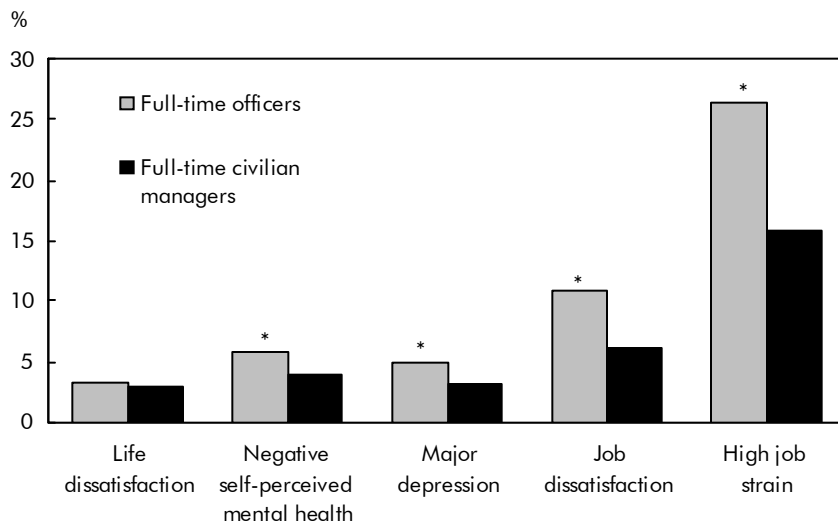
Negative self-perceived mental health: excellent, very good, good, fair or poor. For this study, respondents answering fair or poor were considered to be in negative self-perceived mental health.

Major depression (past 12 months) is a period of two weeks or longer with persistent depressed mood and loss of interest or pleasure in normal activities, accompanied by symptoms such as decreased energy, changes in sleep and appetite, impaired concentration, feelings of guilt or hope-

lessness, or suicidal thoughts. The definition and criteria are from the *Diagnostic and Statistical Manual of Mental Disorders* used by the American Psychiatric Association.

Alcohol dependence (past 12 months) is measured by questions on alcohol use and behaviour and attitudes towards drinking. The definition includes alcohol-related withdrawal, loss of control, or social or physical problems. The questions are based on an international instrument that provides diagnostic estimates for psychoactive substance use disorder.

The algorithms used to measure the 12-months prevalence of major depression and alcohol dependence are available in the Annex of the 2004 Health Reports supplement (Statistics Canada 2004).

Chart D Military officers had higher work stress than civilian managers

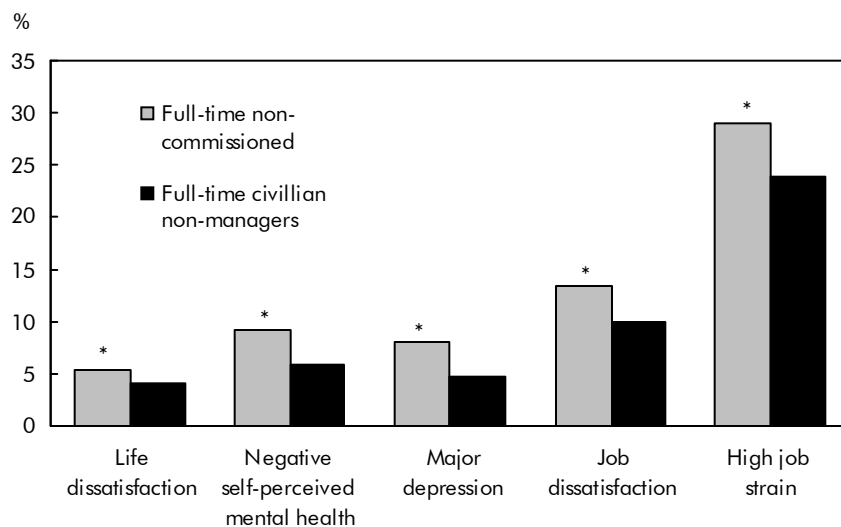
* significantly different from full-time civilian managers at 0.05 or less
 Source: Statistics Canada, Canadian Community Health Survey Cycle 1.2, 2002.

more than 12 months in the past 24 were almost twice as likely to have alcohol dependence as those away less than 6 months.

Members of the regular forces were almost twice as likely as reservists to perceive their mental health as poor or fair rather than good, very good, or excellent. Women in the CF were 1.7 times more likely than men to have been depressed in the past 12 months. Compared with married personnel, those never or previously married had a significantly higher prevalence of mental health problems such as life dissatisfaction, negative self-perceived mental health, and alcohol dependence (data not shown). These findings on inter-group differences are generally consistent with studies on the U.S. military (Hourani et al. 2006).

work stress were measured by prevalence of life dissatisfaction, negative self-perceived mental health, 12-month major depression, job dissatisfaction, high job strain, and alcohol dependence. Since the analyses were based on cross-sectional data, neither causality nor temporal ordering of events can be inferred.

Being away from home for long periods of time due to deployment, exercises, sea time, individual or collective training courses, temporary duty, aid to civil authorities, or Canadian disaster relief missions was associated with life dissatisfaction and alcohol dependence (Table 4). The effects were significant even after controlling for other socio-demographic and military-occupation variables such as sex, age, personal income, education, deployments and years in the service. CF members away from home

Chart E Military non-commissioned personnel had higher life and job dissatisfaction than civilian non-managers

* significantly different from full-time civilian workers at 0.05 or less
 Source: Statistics Canada, Canadian Community Health Survey Cycle 1.2, 2002.

Table 4 Adjusted odds ratios for psychological well-being and work stress among military personnel

| | Life dissatisfaction | Negative self-perceived mental health | Major depression | Job dissatisfaction | High job strain | Alcohol dependence |
|--|----------------------|---------------------------------------|------------------|---------------------|-----------------|--------------------|
| adjusted odds ratio | | | | | | |
| Sex | | | | | | |
| Men (ref*) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Women | 1.10 | 1.44* | 1.70* | 0.99 | 1.24* | 0.40* |
| Rank | | | | | | |
| Officers (ref*) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Non-commissioned | 1.50* | 1.62* | 1.65* | 1.16 | 1.14 | 1.58* |
| Total forces | | | | | | |
| Regular | 1.48* | 1.89* | 2.05* | 1.60* | 1.44* | 1.03 |
| Reserve (ref*) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Number of deployments in career | | | | | | |
| None (ref*) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 1 to 2 | 0.75* | 0.82 | 0.94 | 1.10 | 0.98 | 1.25 |
| 3 or more | 0.97 | 1.12 | 1.10 | 0.92 | 0.92 | 0.87 |
| Months away from home in past two years | | | | | | |
| Less than 6 (ref*) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 6 to 12 | 0.94 | 0.99 | 0.90 | 0.99 | 1.11 | 1.21 |
| More than 12 | 1.26* | 1.09 | 1.09 | 1.26 | 1.56* | 1.71* |

* significantly different from reference group (ref) at 0.05 or less

Note: Adjusted for age, marital status, personal income, education and years served.

Source: Statistics Canada, Canadian Community Health Survey Cycle 1.2, 2002.

Work stress

Full-time CF members¹⁸ and civilian workers reported different types of work stress (see *Measuring stress*). CF personnel indicated higher levels of job security and co-worker support. Less than 2% of military personnel felt job insecurity compared with 14% of full-time civilian workers (Table 5). High co-worker support among CF members may be related to the nature of military work, which involves close collegial collaboration and clear role definitions.

On the other hand, members of the regular forces were less likely to be satisfied with their job—13% reported job dissatisfaction compared with 10% of civilians. As well, 28% of the forces had high job strain compared with 23% of civilians.¹⁹ This indicates that more CF personnel felt their job requirements did not match their capabilities, resources or needs.

Table 5 Work stress among members of the regular forces

| | Regular forces | Civilian full-time workers |
|----------------------------|--------------------|----------------------------|
| | | % |
| Job insecurity | 1.8* | 14.3 |
| Job dissatisfaction | 12.7* | 9.5 |
| High job strain | 28.4* | 22.9 |
| Low co-worker support | 37.4* | 40.7 |
| Self-perceived work stress | 30.8* ¹ | 33.2 |

* significantly different from civilian full-time workers at 0.05 or less
1. significance disappeared after age-sex adjustments.

Source: Statistics Canada, Canadian Community Health Survey Cycle 1.2, 2002.

To be more specific, 26% of military officers had high job strain compared with 16% of full-time civilian managers. Compared with non-managers in civilian jobs, non-commissioned members of the military showed higher job strain (29% vs. 24%) and job dissatisfaction (13% vs. 10%).

Multivariate analyses reaffirmed that high job strain was also associated with months away from home due to deployment responsibilities—CF personnel away from home more than 12 months were 1.6 times more likely to have job stress than those away less than 6 months—but that the number of deployments had no significant impact. Even though women deploy less frequently than their male colleagues, they were 1.2 times more likely to have high job strain. The number and length of deployments were not associated with work stress among women in the CF (data not shown).²⁰ As well, regular personnel were 1.6 times more likely than reservists to be dissatisfied with their job—similar to the U.S. situation, where military job satisfaction was reported to be higher among the reserves and National Guard personnel than among those on active duty (Sanchez et al. 2004).

Conclusion

The Canadian military has faced numerous changes and challenges in recent decades. After a steady decline in the 1990s, the number of personnel has increased since 2001. In 2006, the CF comprised 64,000 full-time regular force members and 24,000 reservists. Military members are much younger than other workers. The number of women among both officers and non-commissioned members has grown since the early 1970s (Strike 1989) and their roles in the CF have expanded. Yet women accounted for only 15% of the CF (12% of regular forces) in 2002. Visible minorities were also significantly under-represented, less so among reservists.

Education and income levels of CF personnel increased over the past decade. More than half had postsecondary graduation and average earnings of regular forces personnel were higher than those of other public sector employees. Since the late 1990s, average CF pay has increased rapidly.

Although CF personnel reported solid job security and co-worker support, they experienced some issues related to psychological well-being and work stress. Compared with the overall working population, they reported higher rates of life and job dissatisfaction,

Measuring stress

To measure work stress, the CCHS employed an abbreviated version of Karasek's Job Content Questionnaire (JCQ). The CCHS measured work stress of respondents who worked at jobs or businesses in the past 12 months. Twelve items in the JCQ (for details see Park 2007) are used to measure job control, psychological demands, job insecurity, and social support at workplace. The job strain ratio was calculated by dividing the adjusted score for psychological demands by that of job control. A small constant (0.1) was added to numerator and denominator to avoid division by 0. To deal with outliers, scores were capped at 3. Respondents were classified as being in **high job strain** if the ratio was 1.2 or higher.

Respondents who strongly disagreed or disagreed with "your job security is good" were classified as having **job insecurity**. Respondents were classified as having **low social support at workplace** if they agreed or strongly agreed with being exposed to hostility or conflict from the people they work with or disagreed or strongly disagreed with supervisors' or co-workers' being helpful in getting the job done.

Additionally, respondents were asked if they were very satisfied, somewhat satisfied, not too satisfied, or not at all satisfied with their job. Those who were not too satisfied or not at all satisfied were classified as having **job dissatisfaction**.

Self-perceived work stress at the main job or business in the past 12 months was measured by asking whether most days at work were not at all stressful, not very stressful, a bit stressful, quite a bit stressful, or extremely stressful. Respondents answering quite a bit or extremely stressful were classified as having high self-perceived work stress.

job strain, major depression, and self-perceived negative mental health. This was particularly true for women, the regular forces, non-commissioned members and those who had to be away from home for longer-term deployment responsibilities.

Perspectives

■ Notes

1. The decrease in the 1990s was facilitated by the Forces Reduction Program (FRP), which offered a compensation package designed to entice members to take early release or retirement. The FRP resulted in the release of almost 14,000 members (Truscott and Dupre 1998).
2. Since the CCHS was conducted in 2002, the year of the first major wave of Canadian soldiers to Afghanistan, the sample did not include those on or returning from deployment. As well, it is unlikely that those awaiting imminent deployment would have participated in the

survey. For post-deployment health outcomes, see Zamorski and Galvin 2008 or US Department of Defense Task Force on Mental Health 2007.

3. Another component is the Special Force. According to Queen's Regulations and Orders for the Canadian Forces, (Chief of Defence Staff 2008), members of the regular forces and members of the reserve forces on active service or having applied for and been accepted for continuing full-time military service may be placed in a special force established and authorized by the Governor in Council in an emergency, or if considered desirable in consequence of any action undertaken by Canada under the *United Nations Charter*, the *North Atlantic Treaty* or any other similar instrument for collective defence.
4. In 2004, the compulsory retirement age for the CF was extended from 55 to 60.
5. Due to the increased number of recruits in recent years, in 2007 more than half of CF members had less than 10 years of service (DND 2008d).
6. This is much higher than the percentage of bilingual workers (46%) in the province of Quebec (data not shown).
7. Women's representation in the regular forces increased to 14% in 2007 (DND 2008d).
8. In 1989, a Human Rights Tribunal ordered the CF to fully integrate women into all occupations (except submarine service) by 1999. After the last barrier of submarine duty was lifted in 2001, all military occupations were open to women (Bourgon 2007; Chief Review Services 1998). Canada was the first NATO country to achieve this, although Norway, Denmark and Belgium have since followed.
9. Many allied nations including the UK still do not allow women in combat.
10. CF policy states that applicants must hold Canadian citizenship. However, a waiver may be granted by the Commander of the Canadian Forces Recruiting Group (CFRG) for exceptional cases: holders of Permanent Resident Status who possess specialized skills/qualifications the CF needs and cannot fill with a Canadian citizen and who do not pose a risk to any national interest (DND 2008f).
11. This also explains their relatively higher interest in the reserves, since the primacy of family, higher education, and professional (respectable) careers can still be pursued within the civilian sector (Jung 2007).
12. The data for public-sector employees include both full- and part-time workers.
13. Trades certificate or diploma, college diploma or certificate, university certificate, or bachelor's or post-graduate degree.

14. Strike used rates for all age groups, rather than 25 or older.
15. Many individuals join the reserves while attending university since the CF offers pay and summer jobs that may be ideal for students.
16. By 2007, 7% of women had served 25 or more years (DND 2008d).
17. This comparison is not perfect since some high-ranking non-commissioned personnel play the role of manager or supervisor.
18. The comparison with the general working population focuses on the regular forces because it is not known whether reservists refer to their military service or civilian job as the source of work stress.
19. Similarly, U.S. military personnel were reported to have higher job stress and dissatisfaction than their civilian counterparts (Pflanz and Sonnek 2002; Sanchez et al. 2004). According to a recent study, more than one-quarter of the military population studied reported significant job stress (Pflanz and Ogle 2006).
20. Similar findings were found in a U.S. study. For men, first deployments and longer deployments were associated with an increase in meeting criteria on one of the clinical scales. In contrast, women's overall primary screen rates remained relatively stable throughout the deployment, regardless of how long they were deployed or whether they had been previously deployed (Huffman et al. 2000).

■ References

- Bourgon, Lise. 2007. *The CF as an Employer of Choice: The Key for a Successful Gender Integration*. JCSP 33. Exercise New Horizons. Canadian Forces College. 33 p. <http://wps.cfc.forces.gc.ca/papers/csc/csc33/exnh/bourgon.doc> (accessed June 27, 2008).
- Castonguay, Alec. 2008. "Record de réservistes au front." *Le Devoir*. January 15, 2008. <http://www.ledevoir.com/2008/01/15/171839.html> (accessed July 2, 2008).
- Chief of Defence Staff. 2008. *Queen's Regulations and Orders for the Canadian Forces (QRO)*. National Defence. <http://www.admfincs.forces.gc.ca/qro/> (accessed July 4, 2008).
- Chief Review Services. 1998. *Evaluation—Gender integration in the CF*. 5000-1 CRS. http://www.forces.gc.ca/crs/pdfs/genint_e.pdf (accessed July 2, 2008).
- Department of National Defence. 2008a. *Contributing to the Canadian economy*. http://www.dnd.ca/site/about/economy_e.asp (accessed July 2, 2008).

- Department of National Defence. 2008b. *Budget*. http://www.forces.gc.ca/site/about/budget_e.asp (accessed July 2, 2008).
- Department of National Defence. 2008c. *Reserve Life*. http://www.army.forces.gc.ca/LF/English/11_0.asp (accessed July 2, 2008).
- Department of National Defence. 2008d. *Annual Report on Regular Force Personnel 2006-2007*. Workforce Modeling & Analysis Section. Director Strategic Military Personnel Research and Analysis, Director General Military Personnel Research and Analysis.
- Department of National Defence. 2008e. *How to Join*. http://www.recruiting.forces.gc.ca/v3/engraph/resources/howtojoin_en.aspx?bhcp=1 (accessed July 2 2008).
- Department of National Defence. 2008f. *Non-Canadians*. http://www.recruiting.forces.gc.ca/v3/engraph/resources/noncanadians_en.aspx (accessed July 2, 2008).
- Department of National Defence. 2008g. *Chief of Reserves and Cadets*. http://www.vcds.forces.gc.ca/cres_cdt/intro_e.asp (accessed July 2, 2008).
- Department of National Defence. 2004a. "Administrative Policy Of Class "A", Class "B" and Class "C" Reserve Service." *Chief Military Personnel Instruction*. http://www.dnd.ca/hr/instructions/engraph/2004_V16_admhrmil_e.asp?cat=1 (accessed June 27, 2008).
- Department of National Defence. 2004b. "CFLC initiative focusses on student-Reservists." *Canadian Forces Personnel Newsletter*. Issue 7/04 – 21 July 2004. p. 4. http://www.forces.gc.ca/hr/cfpn/pdf/cfpn7_04_e.pdf (accessed July 2, 2008).
- Dobrev-Martino, Tzvetanka, Martin Villeneuve, Lloyd Strickland and Kimberly Matheson. 2002. "Occupational role stress in the Canadian Forces: Its association with individual and organizational well-being." *Canadian Journal of Behavioural Science*. Vol. 34, no. 2. April. http://findarticles.com/p/articles/mi_qa3717/is_200204/ai_n9065081 (accessed July 2, 2008).
- Fikretoglu, Deniz, Alain Brunet, Stéphane Guay and David Pedlar. 2007. "Mental Health Treatment Seeking by Military Members With Posttraumatic Stress Disorder: Findings on Rates, Characteristics, and Predictors From a Nationally Representative Canadian Military Sample." *The Canadian Journal of Psychiatry*. Vol. 52, No. 2. p. 103-110. <http://publications.cpa-apc.org/media.php?mid=323> (accessed July 2, 2008).
- Hourani, Laurel L., Thomas V. Williams and Amii M. Kress. 2006. "Stress, Mental Health, and Job Performance among Active Duty Military Personnel: Findings from the 2002 Department of Defense Health-Related Behaviors Survey." *Military Medicine*. Vol. 171, no. 9. http://findarticles.com/p/articles/mi_qa3912/is_200609/ai_n16756201/pg_6?tag=artBody;col1 (accessed July 2, 2008).
- Huffman, Ann H., Amy B. Adler and Carl A. Castro. 2000. *The Impact of Deployment History On the Wellbeing of Military Personnel: The Gender Effect*. U.S. Army Medical Research Unit–Europe. Walter Reed Army Institute of Research. Washington, D.C. 17 p. <http://stinet.dtic.mil/cgi-bin/GetTRDoc?AD=A386536&Location=U2&doc=GetTRDoc.pdf> (accessed July 2, 2008).
- Jung, Hans. 2007. "Can the Canadian Forces Reflect Canadian Society?" *Canadian Military Journal*. Autumn. p. 27-36. http://www.journal.dnd.ca/engraph/Vol8/no3/PDF/06-jung_e.pdf (accessed July 4, 2008).
- North Atlantic Treaty Organization (NATO). 2008. *Committee on Women in the NATO Forces*. http://www.nato.int/issues/women_nato/ (accessed July 4, 2008).
- Office of the Under Secretary of Defense, Personnel and Readiness. 2006. *Population Representation in the Military Services: Fiscal Year 2006*. U.S. Department of Defense. http://www.defenselink.mil/prhome/PopRep_FY06/index.html (accessed July 7, 2008).
- Park, Jungwee. 2007. "Work stress and job performance." *Perspectives on Labour and Income*. Vol. 8, no. 12. December. Statistics Canada Catalogue no. 75-001-XIE. p. 5-17. <http://www.statcan.ca/english/freepub/75-001-XIE/2007112/articles/10466-en.pdf> (accessed July 3, 2008).
- Pflanz, Steven E. and Alan D. Ogle. 2006. "Job Stress, Depression, Work Performance, and Perceptions of Supervisors in Military Personnel." *Military Medicine*. Vol. 171, no. 9. September.
- Pflanz, Steven and Scott Sonnek. 2002. "Work Stress in the military: Prevalence, causes, and relationship to emotional health." *Military Medicine*. Vol. 167, no. 11. November.
- Rueben, A.F. 2004. *Recruiting Visible Minorities: A Matter of Survival*. Canadian Forces College. NSSC 6. <http://wps.cfc.forces.gc.ca/papers/nssc/nssc6/rueben.htm> (accessed July 7, 2008).

Sanchez, Rebecca P., Robert M. Bray, Amy A. Vincus and Carla M. Bann. 2004. "Predictors of Job Satisfaction Among Active Duty and Reserve/Guard Personnel in the US Military." *Military Psychology*. Vol. 16, issue 1. January.

Soeters, Joseph L. and Jan Van der Meulen (eds.). 2006. "Diversity in the Canadian Forces." *Cultural Diversity in the Armed Forces: An International Comparison*. Chapter 3. Cass Military Studies series. United Kingdom. Routledge.

Statistics Canada. 2004. "Annex." *Supplement to Health Reports: How healthy are Canadians? 2004 Annual Report*. Vol. 15, 2004. Statistics Canada Catalogue no. 82-003-SIE. p. 63-79.
<http://www.statcan.ca/english/freepub/82-003-SIE/2004000/pdf/82-003-SIE2004000.pdf> (accessed July 7, 2008).

Statistics Canada. 2003. *Canadian Community Health Survey – Mental Health and Well-being – Canadian Forces (CCHS)*.
<http://www.statcan.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=5084&lang=en&db=IMDB&dbg=f&adm=8&dis=2> (accessed July 7, 2008).

Strike, Carol. 1989. "Profile of the Canadian Armed Forces" *Canadian Social Trends*. No. 15. Winter. Statistics Canada Catalogue no. 11-008XPE. p. 17-22.

Sudom, Kerry, Sanela Dursun and Steve Flemming. 2006. "PERSTEMPO in the Canadian Forces: The Role of Coping and Cohesion in the Relationship between Job Stress and Morale." *Human Dimensions in Military Operations – Military Leaders' Strategies for Addressing*

Stress and Psychological Support. RTO-MP-HFM-134, Paper 9. NATO Research and Technology Organization. Neuilly-sur-Seine, France. 22 p.
<http://ftp.rta.nato.int/public//PubFullText/RTO/MP/RTO-MP-HFM-134/MP-HFM-134-09.pdf> (accessed July 7, 2008).

Truscott, Susan and Kate Dupre. 1998. *Organizational, Social and Demographic Change in the Canadian Forces*. AB-37 – Paper. Department of National Defence.
<http://www.internationalmta.org/1998/9837.html> (accessed July 7, 2008).

U.S. Department of Defense Task Force on Mental Health. 2007. *An Achievable Vision: Report of the Department of Defense Task Force on Mental Health*. Falls Church, VA. Defense Health Board.
<http://www.taps.org/%5Cdownload%5CDOD%20Mental%20Health%20Task%20Force%20Report.pdf> (accessed July 7, 2008).

Zamorski, Mark A. and Melanie Galvin. 2008. *Physical and Mental Health Status of Canadian Troops 4 to 6 Months after Return from Service in Afghanistan: Findings of a Compulsory Screening Interview Programme*. Department of National Defence.
http://www.dnd.ca/health/information/engraph/Depl_Health_research_e.asp (accessed July 7, 2008).

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