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**Food Insecurity in Canada and the United States:
An International Comparison**

Mark Nord, Ph.D., Economic Research Service, U.S. Department of Agriculture, U.S.A.
Michelle Hooper, M.Sc., Office of Nutrition Policy and Promotion, Health Canada, Canada
Heather Hopwood, MPH, Food and Nutrition Service, U.S. Department of Agriculture, U.S.A.

Abstract

Food security—consistent access to enough food for an active, healthy life—is essential for health and good nutrition. Economic, policy, and program regimes that support the underlying factors associated with food security have the potential to reduce health inequities. We examine differences between Canada and the United States (U.S.) in the prevalence and distribution of household-level income-related food insecurity as a step toward understanding effects of economic, policy, and program factors on food security. Nationally representative U.S. household food security data have been collected since 1995 in the Current Population Survey Food Security Supplements (CPS-FSS). Nationally representative Canadian household food security data were collected in the 2004 Canadian Community Health Survey Cycle 2.2 (CCHS 2.2). The CCHS 2.2 used the same 18-item Household Food Security Survey Module that was used in the U.S., but in its data analysis, Health Canada used a different method to classify household food security status. We examine effects of the methodological differences and apply the Health Canada methodology to U.S. data for 2003-05 to directly compare Canadian and U.S. food insecurity rates. We conduct further comparisons by income adequacy (income adjusted for household size and purchasing power parity), household structure, education, residence area, and age. Food insecurity was substantially less prevalent in Canada than in the U.S. (9.0% versus 14.1% using the Canadian adult food security measure). The difference was larger in households with children, for which the prevalence rate of food insecurity in Canada was about half that in the U.S. These differences reflected primarily differences in food insecurity prevalence rates within each income adequacy range rather than differences in income distribution between the two countries.

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Introduction

Food security – consistent access to enough food for an active, healthy life – is essential for health and good nutrition. Economic, policy, and program regimes that support food security in vulnerable subpopulations have the potential to reduce health inequities.

The governments of both Canada and the U.S. have stated objectives to increase domestic food security as part of their responses to the 1996 World Food Summit. At that Summit, the international community jointly committed to reduce by half the number of undernourished people worldwide by no later than 2015 (1). Improving food security in Canada was the central issue highlighted in *Canada's Action Plan for Food Security* (2). The Plan outlines actions to improve food security domestically and internationally, and is the work of a Joint Consultative Group composed of both government and civil society representatives. The U.S. food security objective was stated as part of the U.S. Department of Health and Human Service's *Healthy People 2010*, a statement of national health objectives designed to identify the most significant preventable threats to population health and to establish national goals to reduce these threats (3). *Healthy People 2010* set an objective of decreasing food insecurity in the U.S. by 50 percent over the period 1995-2010.

Canada and the U.S. both assess income-related food security using nationally representative population and household surveys. The U.S. Department of Agriculture (USDA) has monitored the food security of U.S. households annually since 1995 via the Current Population Survey Food Security Supplements (CPS-FSS). Statistics Canada, in collaboration with Health Canada, collected food security data in the nationally representative Canadian Community Health Survey Cycle 2.2 (CCHS 2.2) in 2004.

Drawing on these nationally representative data sources, we describe differences between Canada and the U.S. in the measurement, prevalence, and distribution of household-level food insecurity. These analyses may contribute to understanding the effects of economic, policy, and program factors on food security.

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Data

U.S. food security data are from the 2003, 2004, and 2005 CPS-FSS. The Current Population Survey, to which the CPS-FSS is a supplement, is the primary source of labor force, employment, and earnings data for the U.S. It is a nationally representative survey of about 60,000 households conducted monthly by the Census Bureau for the Bureau of Labor Statistics. In December, after completing the labor force interview, households are administered the Food Security Supplement, which includes questions about households' ability to access enough food for their needs. About 15 percent of households that complete the labor force interview are unable or unwilling to complete the supplement. The three-year sample size was 140,909 households.¹ Sample weights of households that complete the supplement are adjusted by the Census Bureau to match State- and national-level population controls so that statistics based on the supplement weights represent the civilian, non-institutionalized population of the 50 States and the District of Columbia. USDA uses the CPS-FSS data as the basis of its annual reports on the food security of the nation's households (4), and for research on food security measurement and on factors affecting households' food security.

Canadian food security data are from the 2004 CCHS 2.2. The CCHS 2.2 was a joint initiative of Statistics Canada and Health Canada, and sought to provide reliable information about Canadians' dietary intake and nutritional well-being, and related determinants, and to inform and guide programs, policies and activities of federal and provincial governments. The CCHS 2.2 target population included individuals of all ages in private dwellings in the 10 Canadian provinces. The sample size was about 35,000 individuals. The target population did not include individuals who were full-time members of the Canadian Forces or who lived in the territories, on First Nations reserves or Crown Lands, in prison or care facilities, or in some remote areas. Overall the target population represents about 98% of the population. The CCHS 2.2 provides information about the food and nutrient intakes of Canadians and a wide range of related factors, including income-related household food security.

¹ Three years of data were used for the U.S. statistics to minimize the sampling error, even for relatively small subpopulations.

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Methods

We compared prevalence rates of food insecurity between Canada and the U.S. using consistent measures of food insecurity, income, and other household characteristics. To make data comparable, the U.S. data were categorized in accordance with Canadian criteria on several variables:

- The food security status of U.S. households was assigned based on the same criteria that Health Canada used in the CCHS.
- Household income in U.S. dollars was converted to Canadian dollars using purchasing power parity² and organized into Canadian income adequacy categories.
- Education and household structure characteristics were assigned to households in the U.S. data consistent with those used in Health Canada's food security report (6).

We compared food insecurity prevalence rates between Canada and the U.S. at the national level and by income adequacy (income adjusted for household size and purchasing power parity), household structure, education, residence area, and age. U.S. statistics are three-year averages (2003-05) calculated from CPS-FSS data. Canadian statistics are from the CCHS 2.2 (Share File).³

² Purchasing power parities are rates of currency conversion that eliminate differences in price levels. The purchasing power parity rates between Canada and the U.S. were 1.24 in 2003 and 1.25 in 2004 and 2005 (5).

³ See Health Canada (2007) for more information on the data source and descriptive analyses (6).

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Effect of Canadian-U.S. Methodological Differences in Assigning Food Security

Status

Differences in measurement methods must be taken into account to meaningfully compare food security statistics between Canada and the United States. The food security questions in the CPS-FSS and the CCHS 2.2 are essentially identical, but the way in which responses are combined to assign food security status differ somewhat between the two countries.

The CCHS 2.2 food security questions were adapted from the 18-item U.S. Household Food Security Survey Module (HFSSM), which has been used as the basis of food security monitoring in the U.S. since 1995. The HFSSM contains 18 questions about household food security over the previous 12 months. The questions cover a wide range of severity of food access problems, and each specifies lack of money or other resources to obtain food as the reason for the condition or behavior. The series contains 10 questions about food conditions at the household level and among adults in the household and, if there are children present in the household, an additional 8 questions about children's food conditions. Only minor changes in the wording of questions were made to adapt the HFSSM to the CCHS 2.2 survey context. Analysis of response data using statistical methods based on the Rasch measurement model confirmed that the questions were understood consistently and similarly in the two countries (6, Appendix B).

Both Health Canada and the USDA determine the food security status of surveyed households based on the number of food insecure conditions that households report (a raw-score count of affirmative responses to the questions in the HFSSM).⁴ There are two

⁴ The food security measurement methods used by USDA were developed in the early 1990s by the U.S. Food Security Measurement Project, a broad coalition of U.S. Government agencies, academic institutions, and private research institutions (4, Appendix B; 7). The USDA played a leading role in that project and continues to provide leadership for food security measurement and monitoring in the U.S. For economy of communication we sometimes refer to the U.S. methods as "USDA methods," but we recognize that the methods are, in fact, attributable to a broader research community. The methods used by Health Canada were developed by Health Canada in consultation with the USDA and with government and private researchers in Canada. In time, these may become the Canadian standard methods, but we refer to them here as "Health Canada" methods because a considerable body of earlier food security research in Canada used the U.S. methods.

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primary differences between the methods used by Health Canada and the USDA (Table 1):

- Health Canada assesses the food security of adults and children separately, using an adult scale and a child scale. For many monitoring and research applications, either scale may be used independently. Alternatively, the food security status of households with children may be characterized using information from both scales. If either adults or children (or both) in the household are food insecure, the household is classified as food insecure. If either adults or children (or both) in the household are severely food insecure, the household is classified as severely food insecure. The U.S. method combines the adult and child items in a single household scale.⁵ Applied to the same data and absent any other changes, the Health Canada method would produce a somewhat lower estimate of the prevalence of food insecurity than the U.S. method.
- Health Canada classifies households as having adult food insecurity if the household reports two or more food-insecure conditions on the adult scale. This is less stringent than the corresponding threshold—three or more food-insecure conditions—in the U.S. method. Households that report two food-insecure conditions among adults and none among children would be classified as food insecure by the Health Canada method but food secure by the U.S. method. This difference, absent any other changes, would result in somewhat higher prevalence rates of food insecurity in Canada than in the U.S.

The effects of these two methodological differences are partially offsetting in households with children. Overall, and among households without children, the Health Canada methodology results in higher prevalence rates of food insecurity than the U.S. methodology.

⁵ U.S. researchers, including the USDA, also use separate adult and child food security scales for many research purposes, but the measure used for official monitoring by the USDA combines the adult and child items in a single, 18-item household scale.

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Measurement of the more severe range of food insecurity (described as “severe food insecurity” by Health Canada and “very low food security” by the USDA) is affected only by the first methodological difference. At the national level, any such effect will be slight, but effects may be substantial, and substantially different, for households with only very young children and for those with older teenaged children.⁶

Children’s food security is measured by Health Canada using the same methods as those used by USDA—two or more affirmative responses indicate food insecurity among children, and five or more indicate severe food insecurity among children.

We applied the Health Canada methodology to the U.S. data to examine effects of the methodological differences on prevalence rates of food insecurity. Applying Health Canada methods increased the measured prevalence of household food insecurity by about 3 percentage points and adult food insecurity by about 4 percentage points (Table 2). These represent increases in the estimated numbers of food-insecure households of about 25 and 40 percent, respectively. The effect on household-level severe food insecurity (very low food security) was slight—less than 0.1 percentage point. Health Canada and the USDA use identical methodologies to assess food insecurity and severe food insecurity of children and severe food insecurity among adults.⁷

Prevalence statistics based on the household scale add relatively little information that is not conveyed by separate presentation of statistics based on the adult scale and child scale. Therefore, in the national level Canada-U.S. comparisons that follow, we present only statistics for adult food security status (based on the Health Canada methodology) and child food security status. The further sub-national analyses are based only on adult food security status, which provides comparable statistics for households with and without children.

⁶ The U.S. method is known to bias comparisons among households with children of different ages, whereas the Health Canada method will avoid these biases (8,9).

⁷ USDA does not routinely publish statistics based on adult food insecurity, but the methodology for this measure is specified for households with no children present and can also be applied to households with children present. The measure is widely used in research in the U.S., and adult food security status based upon it is provided in several public-use data products including the National Health and Nutrition Examination Survey (NHANES) and the Early Childhood Longitudinal Studies (ECLS).

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Aboriginal Populations

Canadian households on First Nations reserves were omitted from the CCHS 2.2. A precisely corresponding population cannot be identified in U.S. data. As a proxy, we omitted Native American and Alaska Native households in non-metropolitan areas from the U.S. data. Specifically, households outside of metropolitan statistical areas and in which the reference person reported his or her race as Native American or Alaskan Native, whether as a single race or in combination with any other race, were omitted from the analyses in the remainder of the paper.

These omitted households comprised 0.45 percent of all U.S. households and were substantially more food insecure than other U.S. households. Based on the Health Canada classification methodology for adult food security, 29.7 percent were food insecure, including 8.63 percent with severe food insecurity. The corresponding statistics for all other U.S. households were 14.1 percent and 3.79 percent, respectively.

Findings: Canada-U.S. Comparisons

Food insecurity is more prevalent in the U.S. than in Canada, and the difference is greatest among households with children. Among all households (with and without children), the prevalence of adult food insecurity was 57 percent higher in the U.S. than in Canada (Table 3). The prevalence of severe food insecurity among adults was 31 percent higher in the U.S. than in Canada. Among households with children, the rate of adult food insecurity in the U.S. was nearly twice that in Canada, and the rate of severe food insecurity among adults was about 80 percent higher in the U.S. than in Canada. Food insecurity among children was also substantially higher in the U.S. than in Canada—about 70 percent higher for overall child food insecurity and more than 50 percent higher for severe child food insecurity.

Adults typically reduce the quality and/or quantity of their food intake to shield their children from food shortages (4,10,11,12), and this was observed in the food security data

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for both countries. Among households with children, food insecurity was about twice as prevalent among adults as among children, and severe food insecurity was six to seven times as prevalent among adults as among children.⁸

Income Adequacy

The food security status of households is strongly associated with their income, and the national-level differences in food insecurity described above might be thought to result in large part from differences in income distribution between the two countries. Cross-classification of households by food security status and income adequacy, however, suggests that this is not true. Rather, the differences in food insecurity reflect almost entirely differences between the two countries in the prevalence of food insecurity among households with similar cash incomes. Households in the U.S. are, on average, more likely to be food insecure than households in Canada with the same annual income and household size.

Income categories for this analysis are based on Statistics Canada's income adequacy measure, which is total annual household income (in Canadian dollars) adjusted for household size (Table 4). The incomes of U.S. households were converted to Canadian dollars using the purchasing power parity index for 2004 (5). Income concepts in the two surveys were similar, including all pretax cash income received by the household, but omitting in-kind assistance.

Income adequacy categories are not directly comparable to U.S. income-to-poverty categories, since the latter adjust more completely for household size and composition. Typically, households in the lowest income adequacy category have incomes less than 50 percent of the U.S. poverty line, those in the lower-middle-income adequacy category have incomes near the U.S. poverty line, and those in the middle-income adequacy category have incomes around 1.5 times the U.S. poverty line (Figure 1). Similarly,

⁸ The thresholds for food insecurity and severe food insecurity on the child scale are somewhat more stringent than those on the adult scale. This difference is responsible for some proportion of the adult-child differences in prevalence rates, but large differences remain—especially in severe food insecurity—even when statistics are adjusted for the different thresholds.

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household incomes in the lowest income and lower-middle-income groups, and some in the middle-income group, fall below Statistics Canada's low Income Cut-Offs (a commonly used measure of poverty in Canada).

Within each income adequacy category except the lowest, adult food insecurity was substantially more prevalent in the U.S. than in Canada (Figure 2). In the middle, upper-middle, and highest income adequacy categories, the rates were about twice as high in the U.S. as in Canada. Similar, although weaker relationships were observed between severe adult food security and income adequacy, although in the lowest income adequacy category, the higher prevalence for Canadian households relative to U.S. households was more pronounced (Figure 3).

Figure 4 compares the proportions of households in the CCHS 2.2 and CPS-FSS (irrespective of food security status) in each income adequacy range. Income distributions differ somewhat between the two countries—most notably, the U.S. has larger proportions in the highest and lowest income adequacy categories. However, the effects of these two differences on the prevalence rates of food insecurity are partially offsetting, and population shares in the three lowest income adequacy categories, where most food insecurity occurs, differ only modestly between the two countries. The U.S. CPS-FSS had slightly larger proportions of households in the two lowest income categories, but the CCHS 2.2 had a larger proportion of households in the middle income adequacy category (which is still relatively low income and has fairly high rates of food insecurity in both countries). A decomposition analysis (not shown) indicated that the difference in income distribution between the two countries accounted for only 6 percent of the difference in prevalence rates of food insecurity and 29 percent of the difference in prevalence rates of severe food insecurity.⁹

⁹ This method probably understates the effect of differences in income distribution somewhat since the income adequacy categories are rather broad. Nevertheless, the effect of income distribution differences is unlikely to account for more than a modest proportion of the Canada-U.S. difference in food security rates.

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Household Structure

The large difference between Canadian and U.S. prevalence rates of food insecurity in households with children was seen in two-parent households and in those headed by lone parents (Figure 5). The difference was greatest for lone fathers with children, but this category made up only a small proportion of households with children in each country. The pattern of prevalence rates of adult severe food insecurity across categories of households with children was similar to that of adult food insecurity (Figure 6).

In both countries, lone mothers with children are particularly vulnerable to food insecurity. Adult food insecurity in these households was about three times as prevalent as in two-parent households and adult severe food insecurity was four to five times as prevalent. In these analyses, a larger share of households with children were headed by two parents in Canada than in the U.S. (81 versus 68 percent, analysis not shown), which contributed substantially to the lower rates of food insecurity and severe food insecurity in Canada.

In households without children, adult food insecurity rates were only moderately higher in the U.S. than in Canada. These differences reflected primarily differences between rates for multiple-adult households. For women living alone and men living alone, the prevalence of adult food insecurity differed only slightly between the two countries, and adult severe food insecurity was slightly more prevalent in Canada than in the U.S. In both countries, men and women living alone were substantially more vulnerable to food insecurity than were married couples and other multiple-adult households without children.

Education

The prevalence of adult food insecurity was higher in the U.S. than in Canada at all education levels except among post-secondary graduates, where the difference was negligible. For this analysis, households were classified by the educational attainment of the most highly educated adult in the household. The differences in food security were greatest for those with less than secondary, or only secondary education. For those with

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less than secondary education (less than high school graduation or GED in the U.S.), the prevalence of adult food insecurity in the U.S. was double that in Canada.

In both countries, the prevalence of food security was substantially higher in households with a member who had graduated post-secondary (either a bachelor's degree or a two-year technical or professional degree) than in households lacking that level of education. In our survey samples, the proportion of households with a post-secondary graduate was higher in Canada (67 percent) than in the U.S. (46 percent). A decomposition analysis (not shown) indicated that about 30 percent of the Canada-U.S. difference in food insecurity could be accounted for by differences in educational attainment between the two countries.

Residence Area

Rural-urban comparisons for Canada and metropolitan-nonmetropolitan comparisons for the U.S. are presented in Figures 5 and 6, but the residence concepts and classification systems are not equivalent. Statistics Canada identifies as urban areas those continuously built-up areas having a population concentration of 1,000 or more and a population density of 400 or more per square kilometre (6, Appendix D). This includes many towns and small cities that would be classified as nonmetropolitan in the U.S. Food security prevalence rates for the urban areas of Canada are, nevertheless, approximately comparable to those for metropolitan areas of the U.S., since both reflect primarily conditions in the large metropolitan areas. In both the Canadian and U.S. datasets, the urban/metropolitan categories comprised about 83 percent of the national population, and food security prevalence rates in these residence categories were near the respective national averages. Food security conditions in rural Canada were substantially better than in urban Canada, while conditions in metropolitan and nonmetropolitan areas of the U.S. differed little from one another.

Age¹⁰

¹⁰ The estimates presented in earlier sections of this paper refer to the *number of households* in Canada and the U.S. experiencing various levels of food security, determined through the application of the respective

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The percentage of adults living in households with food insecurity, including severe food insecurity, among adult household members was lower in Canada than in the U.S. across all age ranges (Figures 7 and 8). In both countries, the prevalence of adult food insecurity was highest in households with younger members (ages 18-24) and generally decreased with increasing age of members across the lifespan. Adults in the three youngest age groups (18-24, 25-34, and 35-44) were more likely than older adults to live in households with adult food insecurity in both countries. The greatest difference in prevalence rates of adult food insecurity between the two countries was among households with members aged 25-34: 10.4% in Canada versus 17.6% in the U.S. Proportional differences were greatest for households with elderly members, for which prevalence rates in Canada were well below half those in the U.S.

Selected Sub-populations

The prevalence of food insecurity among key sub-populations in Canada and U.S. was substantially higher than the respective national averages (Table 5). Nearly one in three (32 percent) Canadian Aboriginal households living off reserve (households in which the reference adult self-identified as Aboriginal, Inuit, Métis, or North American Indian) had food insecurity among their adult members, including 14 percent with severe food insecurity. Canadians living in the territories, on First Nations reserves, or in some remote areas were not included in the CCHS 2.2. Earlier results from baseline surveys conducted in connection with the Food Mail Pilot Project found very high prevalence rates of food insecurity in three isolated northern communities (13,14,15). Adult food insecurity was estimated at 83 percent in Kugaaruk, Nunavut, in 2001; 40 percent in Kangiqsujuaq, Nunavik, in 2002; and 67 percent in Fort Severn, Ontario, in 2002.¹¹ Corresponding rates of adult severe food insecurity were 59 percent, 7 percent, and 26 percent. These communities may not be representative of other Aboriginal communities,

survey's household weights. To determine the *number of adults, by age, living in households with food insecurity among its adult members*, the respective survey's person weights were applied. As not all people in food insecure households are necessarily food insecure, it cannot be assumed that the individual responding to the survey has the same food security status as the household. It is therefore not possible with the HFSSM to estimate the number of Canadians or Americans directly experiencing food insecurity.

¹¹ These food security estimates used the U.S. methodology. Analysis described earlier in this paper suggest that the rates would have been somewhat higher using the Health Canada method that has been used for all other Canada-U.S. comparisons in this paper.

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however. They were purposively selected as demonstration/test sites for the Food Mail Pilot Project because they were known to have high levels of risk for nutritional problems.

In the U.S., prevalence rates of food insecurity among American Indian/Alaska Natives, Blacks, and Hispanics were 2.4 to 2.9 times as high as those among non-Hispanic Whites. On the other hand, Asians and Pacific/Hawaiian Islanders as a group were more food secure than the national average.

Province/State

Food security varies across Canadian Provinces and across U.S. States as a result of differences in local population characteristics, economic conditions, and policy and program regimes. In Canada, the prevalence of adult food insecurity ranged from 7.8 percent in Saskatchewan to 14.5 percent in Nova Scotia (Table 6). Across the U.S., the corresponding rate ranged from 8.2 percent in New Hampshire to 21.5 percent in Mississippi (Table 7). Adult severe food insecurity ranged from 2.1 percent in Prince Edward Island to 4.9 percent in Nova Scotia and from 2.0 percent in North Dakota to 6.2 percent in South Carolina.

The difference in the size and number of sub-national political units in the two countries complicates comparisons of regional variation. The greater number and smaller size of States compared with Provinces might, *ceteris paribus*, be expected to result in greater variation in food insecurity prevalence rates in the U.S. than in Canada. The ratios of the highest Provincial or State rates to national rates were similar in the two countries: 1.6 and 1.5 for Canada and the U.S., respectively, for the prevalence of adult food insecurity, and 1.8 and 1.6 for the prevalence of adult severe food insecurity. Coefficients of variation were also similar: 0.21 and 0.22 for Canada and the U.S., respectively, for adult food insecurity, and 0.28 and 0.24 for adult severe food insecurity. The most notable difference in regional variation was that the most food-secure States differed more from the national average than did the most food-secure Provinces. The prevalence rate of adult food insecurity in the State with the lowest rate was 42 percent below the U.S.

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national average, while the prevalence rate in the Province with the lowest estimated rate was 13 percent below the Canadian national average (and the difference was not statistically significant). The corresponding statistics for adult severe food insecurity were 46 percent in the U.S. and 28 percent in Canada.¹²

Discussion

Canada and the U.S. differ substantially in the proportions of their populations that have consistent access to enough food for active, healthy living. Our findings shed considerable light on the character of those differences, but further research is needed to identify specific social, economic, and policy differences that underlie these differences. The findings described above provide some general guidance for that further research.

- The Canada-U.S. differences with the greatest impact on food security affect households with children to a much greater extent than households without children. U.S. households with children are nearly twice as likely to be food insecure as are Canadian households with children. Differences for households without children are much more modest.
- The differences in food security between the two countries result for the most part from factors other than differences in levels of annual pre-tax cash income. Differences in the distribution of households across income adequacy categories accounts for only small proportions of the observed differences in food insecurity and severe food insecurity between the two countries.
- The higher overall prevalence of food insecurity in the U.S. reflects primarily higher prevalence rates in the lower-middle, middle, and upper-middle income adequacy categories—corresponding to incomes ranging from the U.S. poverty line to about three times the U.S. poverty line.

¹² We also compared U.S. Census Divisions to Canadian Provinces. The nine Census Divisions more nearly resemble Canadian provinces in size and number than do the 50 States (51 with the District of Columbia). Census Divisions, however, are not political or administrative units and do not represent unique policies, programs, and administrative regimes as do Provinces and States. Consistent with their less politically distinct status, Census Divisions differed less in rates of food insecurity than did either Provinces or States. The coefficient of variation was 0.17 for adult food insecurity and 0.14 for adult severe food insecurity.

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- About 30 percent of the Canada-U.S. difference in food insecurity may be accounted for by the higher average educational attainment in Canada—especially the higher proportion completing a degree or technical graduation beyond secondary/high school.
- Food insecurity is more strongly associated with lower educational attainment in the U.S. than in Canada. In particular, among households lacking an adult with at least secondary (i.e., high school) graduation, food insecurity is about twice as prevalent in the U.S. as in Canada.

Further analysis of data from the two countries incorporating household structure, income, education and other household characteristics simultaneously should provide further insight into these relationships.¹³ Such analysis offers a rare opportunity to shed light on key factors associated with food insecurity, and how they vary in their importance in the two countries. Considered within the context of the different social, economic, program, and policy systems of these countries, such information would contribute to a better understanding of the impact of these factors on household food security.

¹³ Researchers using the CCHS 2.2 data may need to recalculate the food security status variables to be consistent with the Health Canada methodology. The currently available data file provides food security status based on the U.S. methodology.

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Table 1. Health Canada and U.S. food security labels and specifications

Health Canada Category Labels	Health Canada Category Specifications		
	10-Item Adult Scale (and Household Scale for Households with no Children)	8-Item Child Scale	Household Food Security Status for Households with Children
Food Secure	0-1 affirmative responses	0-1 affirmative responses	Both adults and children food secure
Food Insecure, Moderate	2-5 affirmative responses	2-4 affirmative responses	Either adults or children (or both) food insecure, neither severely food insecure
Food Insecure, Severe	≥ 6 affirmative responses	≥ 5 affirmative responses	Either adults or children (or both) severely food insecure
U.S. Category Labels	U.S. Category Specifications		
	10-Item Adult Scale (and Household Scale for Households with no Children)¹	8-Item Child Scale	18-Item Household Scale for Households with Children¹
Food Secure	0-2 affirmative responses	0-1 affirmative responses	0-2 affirmative responses
Low Food Security	3-5 affirmative responses	2-4 affirmative responses	3-7 affirmative responses
Very Low Food Security	≥ 6 affirmative responses	≥ 5 affirmative responses	≥ 8 affirmative responses

¹ The food secure category on the U.S. Adult and Household scales is subdivided into “high food security” (no affirmative responses) and “marginal food security” (1 or 2 affirmative responses).

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Table 2. Prevalence rates of food insecurity and severe food insecurity in U.S. households (average 2003-2005): Comparison of U.S. and Health Canada methods

	Food Insecure	Severely Food Insecure (very low food security)
	----- percent of households -----	
Household Food Security		
U.S. Method	11.38	3.77
Health Canada Method	14.33	3.85
Adult Food Security¹		
U.S. Method	10.15	3.82
Health Canada Method	14.17	3.82
Child Food Security¹		
U.S. Method	8.89	0.63
Health Canada Method	8.89	0.63

¹ U.S. and Health Canada use identical methods for determining child food security status and adult severe food insecurity (very low food security).

Data Source: Current Population Survey Food Security Supplements, 2003-05.

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Table 3. Prevalence rates of adult and child food insecurity and severe food insecurity in Canada and the U.S.¹

	Canada	U.S.
	- - percent of households- -	
All households		
Adult food insecurity (moderate and severe)	9.0	14.1
Adult severe food insecurity	2.9	3.8
Households with children		
Adult food insecurity (moderate and severe)	9.8	19.2
Adult severe food insecurity	2.3	4.2
Child food insecurity (moderate and severe)	5.2	8.8
Child severe food insecurity	0.4	0.6
Households without children		
Adult food insecurity (moderate and severe)	8.6	11.3
Adult severe food insecurity	3.1	3.6

¹ Statistics for both countries are based on Health Canada food security classification methodology.

Data Sources: Canadian Community Health Survey Cycle 2.2; Current Population Survey Food Security Supplements, 2003-05.

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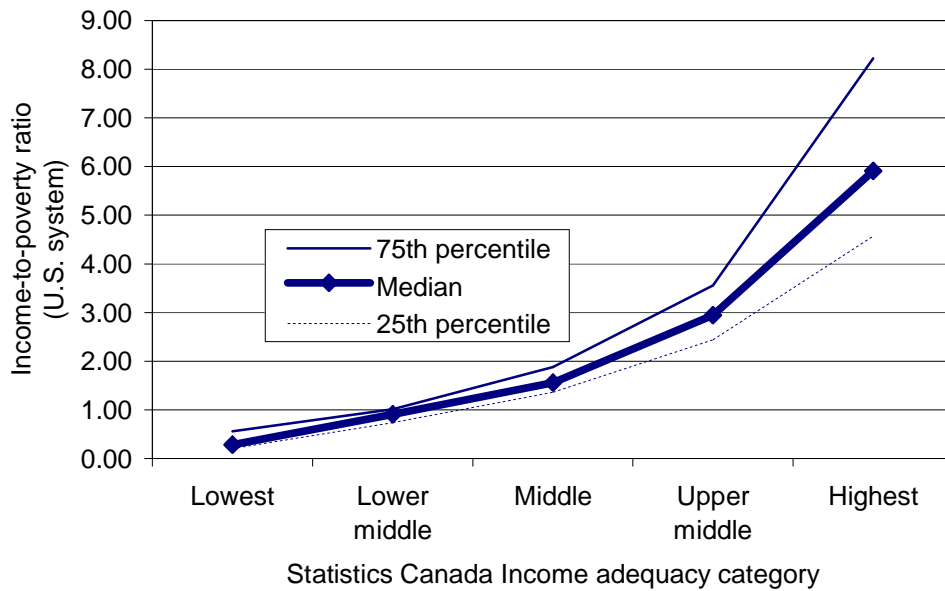
Table 4. Statistics Canada income adequacy categories

Income Adequacy Category	Household Income (\$CND)	Household Size
Lowest	< 10,000	1 - 4 persons
	< 15,000	5+ persons
Lower middle	10,000 - 14,999	1 - 2 persons
	10,000 - 19,999	3 - 4 persons
	15,000 - 29,000	5+ persons
Middle	15,000 - 29,999	1 - 2 persons
	20,000 - 39,999	3 - 4 persons
	30,000 - 59,999	5+ persons
Upper middle	30,000 - 59,999	1 - 2 persons
	40,000 - 79,999	3 - 4 persons
	60,000 - 79,999	5+ persons
Highest	≥ 60,000	1 - 2 persons
	≥ 80,000	3+ persons

Source: Statistics Canada. 2005. *Canadian Community Health Survey (CCHS), Cycle 2.2 (Nutrition) 2004: Derived Variables Specifications.*

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Figure 1. Income-to-poverty ratios of U.S. households by income adequacy category¹

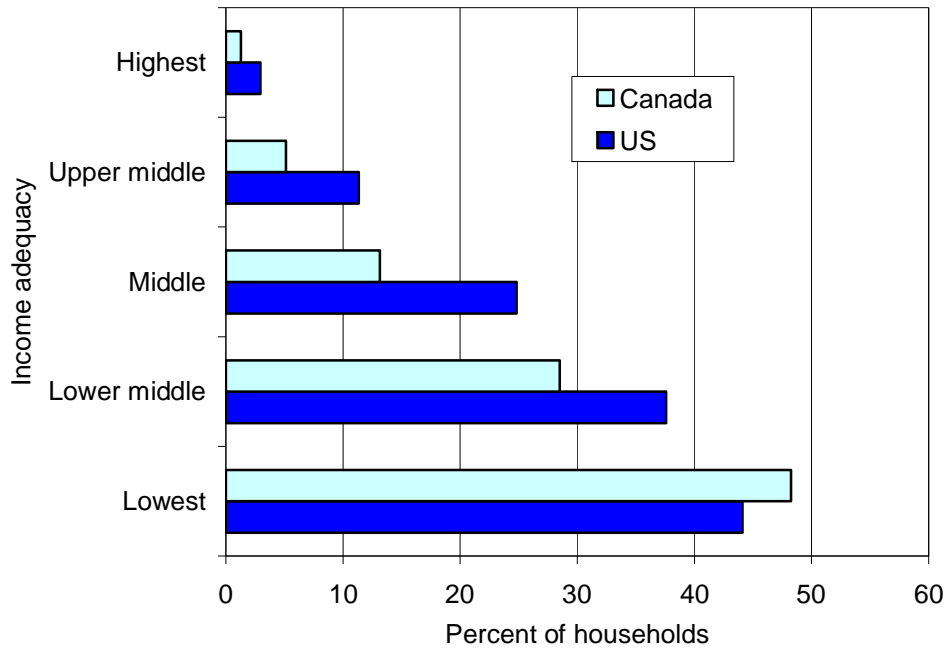


¹ U.S. households were classified by Statistics Canada income adequacy criteria after adjusting household income to Canadian dollars by the purchasing power parity index for 2004.

Data Source: Current Population Survey Food Security Supplements, 2003-05.

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Figure 2. Prevalence of adult food insecurity by income adequacy^{1,2}



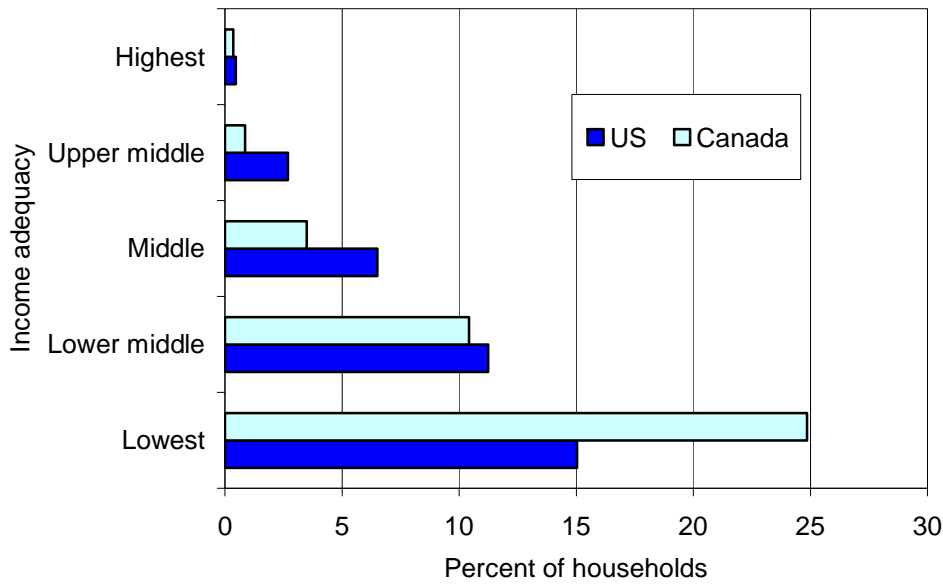
¹ Statistics for both countries are based on Health Canada food security classification methodology.

² Income adequacy is based on Statistics Canada criteria. The income of U.S. households was first adjusted to Canadian dollars by the purchasing power parity index for 2004 (5).

Data sources: Canadian Community Health Survey Cycle 2.2; Current Population Survey Food Security Supplements, 2003-2005

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Figure 3. Prevalence of adult severe food insecurity by income adequacy^{1,2}



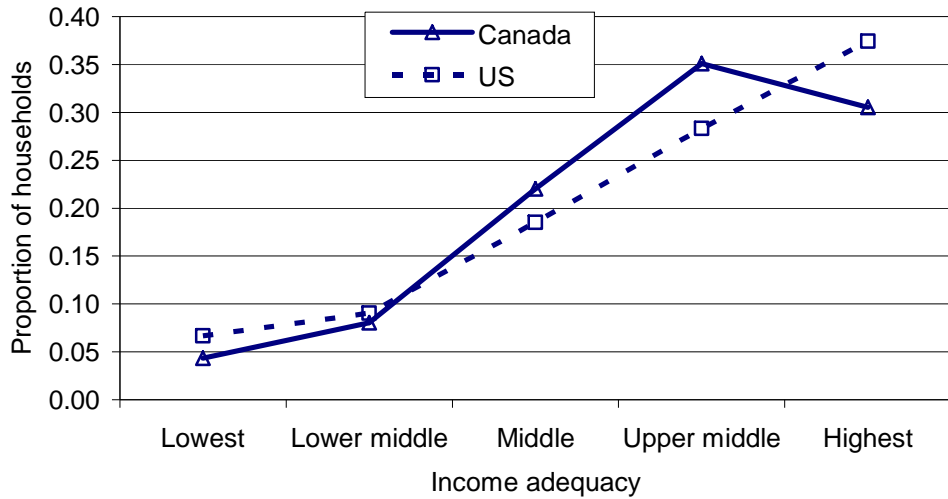
¹ Statistics for both countries are based on Health Canada food security classification methodology.

² Income adequacy is based on Statistics Canada criteria. The income of U.S. households was first adjusted to Canadian dollars by the purchasing power parity index for 2004 (5).

Data Sources: Canadian Community Health Survey Cycle 2.2; Current Population Survey Food Security Supplements, 2003-05.

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Figure 4. Distribution of households by income adequacy category^{1,2}



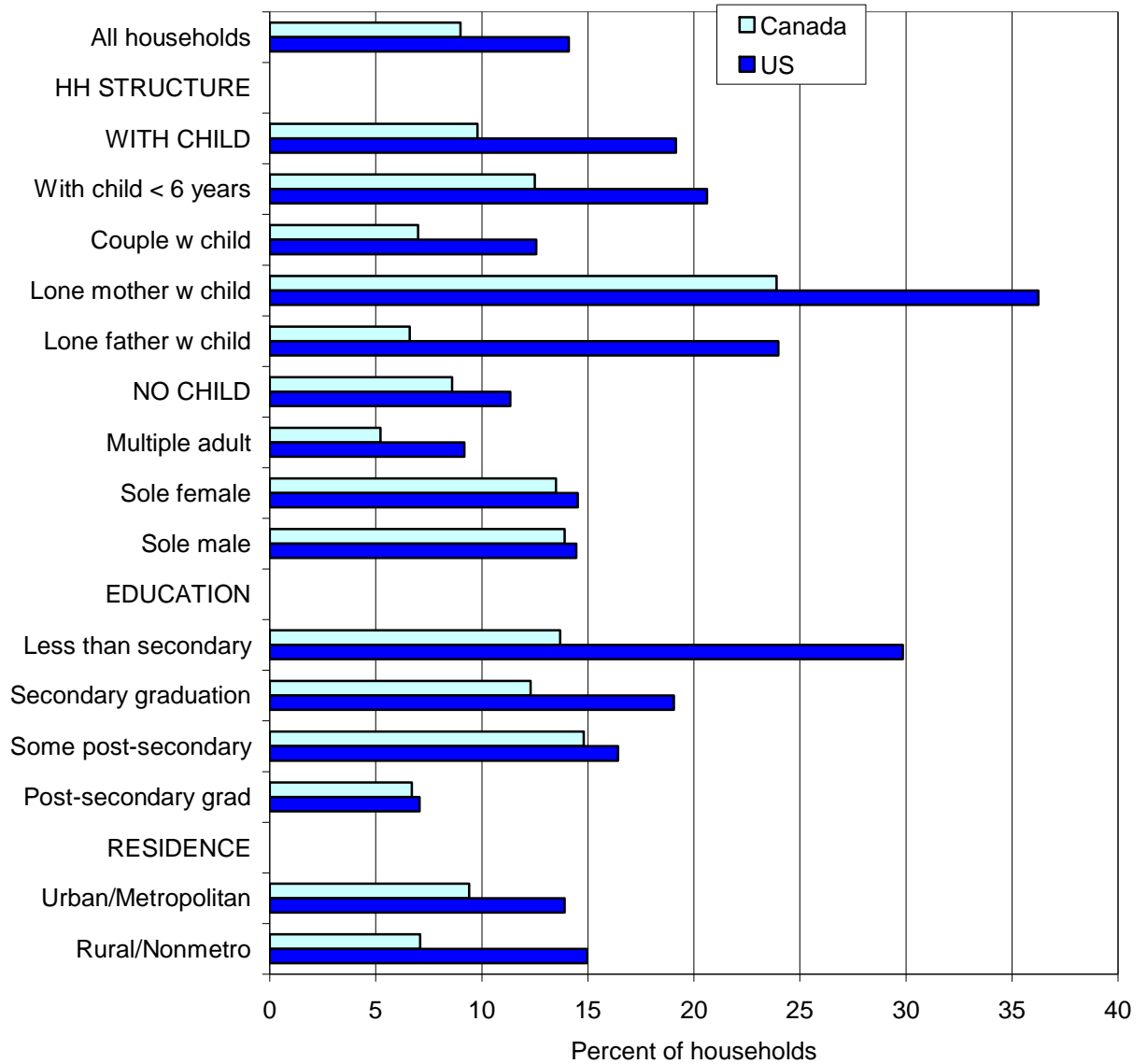
¹ Income adequacy is based on Statistics Canada criteria. The income of U.S. households was first adjusted to Canadian dollars by the purchasing power parity index for 2004 (5).

² Calculations are based on households that included food security status and income.

Data Sources: Canadian Community Health Survey Cycle 2.2; Current Population Survey Food Security Supplements, 2003-05.

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Figure 5. Prevalence of adult food insecurity in Canada and the U.S. by selected household characteristics¹

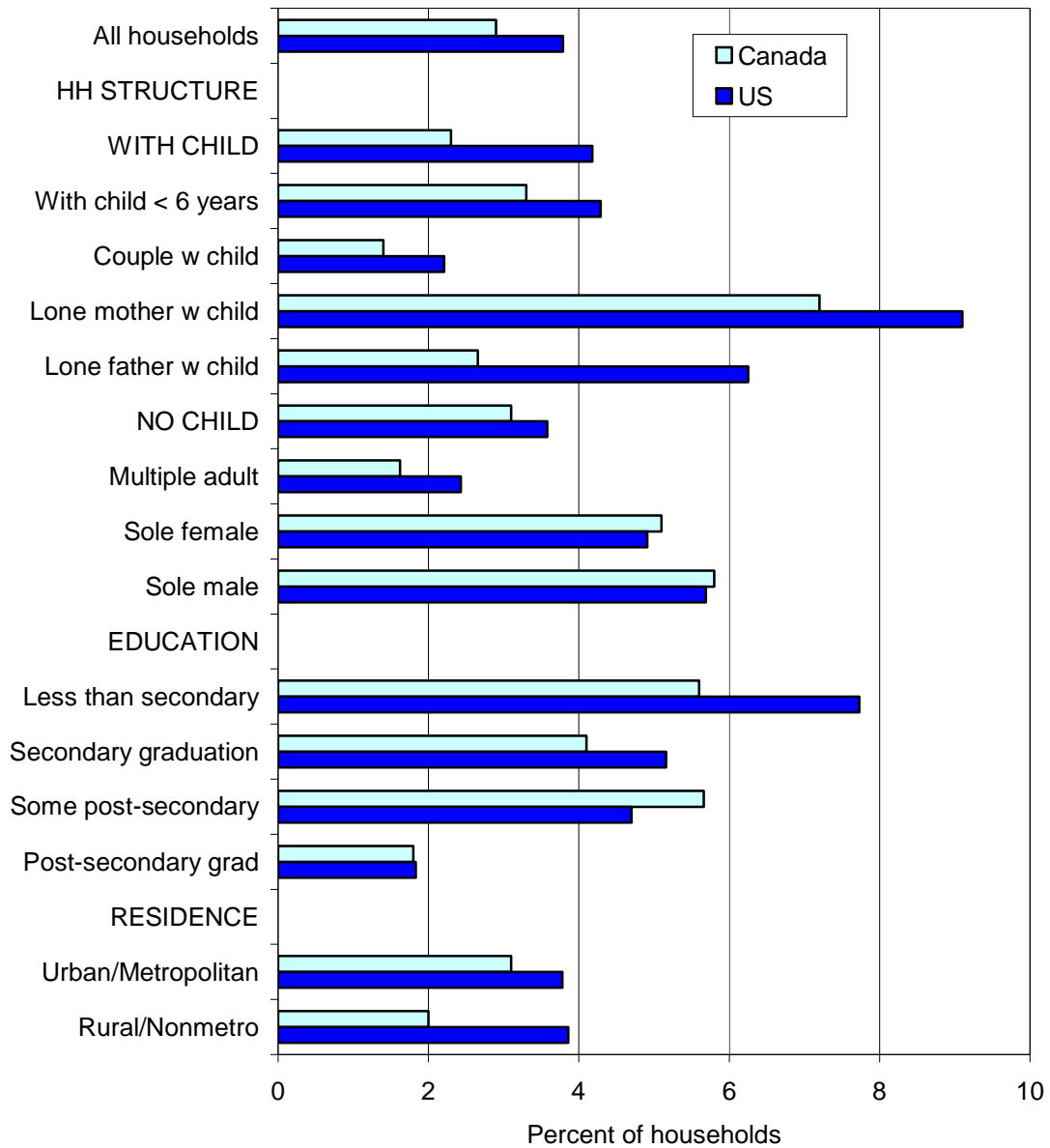


¹ Statistics for both countries are based on Health Canada food security classification methodology.

Data Sources: Canadian Community Health Survey Cycle 2.2; Current Population Survey Food Security Supplements, 2003-05.

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Figure 6. Prevalence of adult severe food insecurity in Canada and the U.S. by selected household characteristics¹

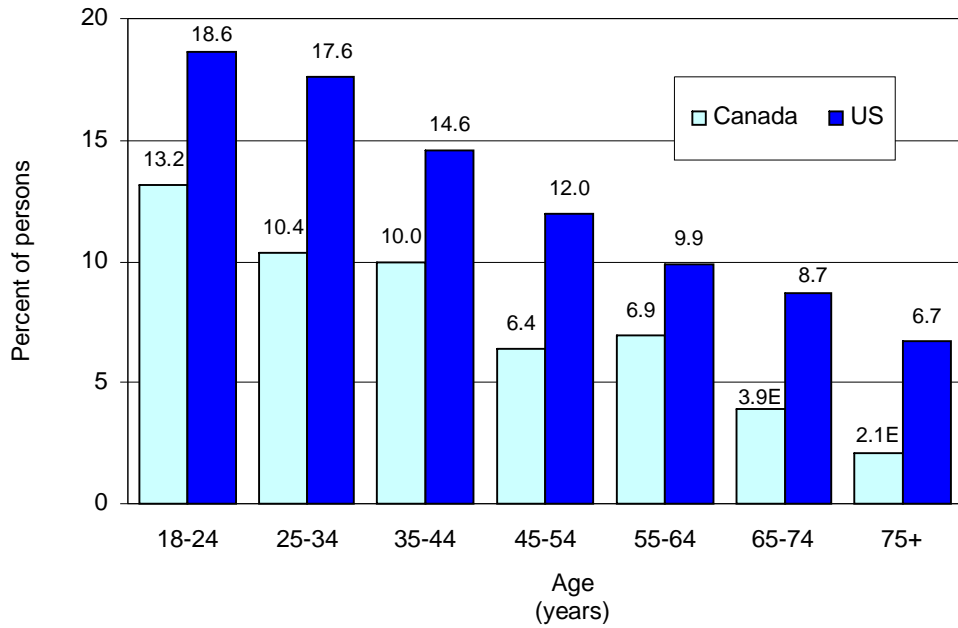


¹ Statistics for both countries are based on Health Canada food security classification methodology.

Data Sources: Canadian Community Health Survey Cycle 2.2; Current Population Survey Food Security Supplements, 2003-05.

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Figure 7. Percentage of adults living in households with food insecurity among adult members in Canada and the U.S., by age ¹



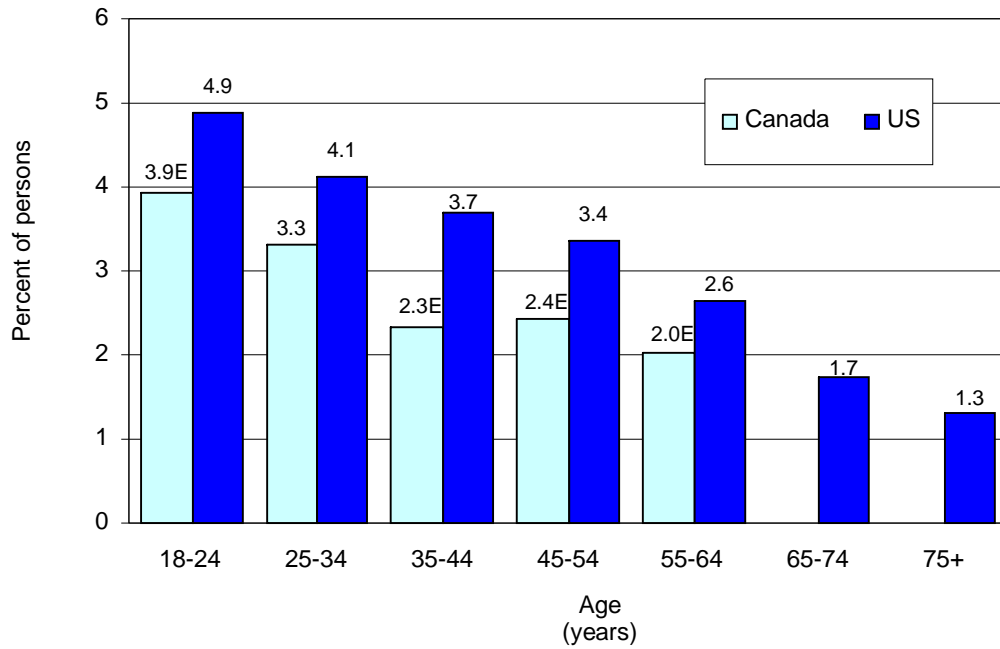
¹ Statistics for both countries are based on Health Canada food security classification methodology.

E Data with a coefficient of variation (CV) from 16.6% to 33.3%; interpret with caution.

Data Sources: Canadian Community Health Survey Cycle 2.2; Current Population Survey Food Security Supplements, 2003-05.

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Figure 8. Percentage of adults living in households with severe food insecurity among adult members in Canada and the U.S., by age ^{1,2}



¹ Statistics for both countries are based on Health Canada food security classification methodology.

² Canadian data for ages 65-74 and 75+ have been suppressed due to small sample size. E Data with a coefficient of variation (CV) from 16.6% to 33.3%; interpret with caution.

Data Sources: Canadian Community Health Survey Cycle 2.2; Current Population Survey Food Security Supplements, 2003-05.

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Table 5. Prevalence rates of adult food insecurity and severe food insecurity in U.S. and Canadian households, selected sub-populations, 2004^{1,2,3}

	Food Insecure	Severely food Insecure
	percent of households	
Canada		
Aboriginal, living off reserve	32.0	14.1
Non-Aboriginal	8.6	2.7
United States		
American Indian or Alaska Native, nonmetropolitan areas ¹	29.7	8.6
American Indian or Alaska Native, metropolitan areas ¹	24.4	8.7
Black non-Hispanic (except American Indian or Alaska Native)	28.2	7.8
Hispanic (except American Indian or Alaska Native) ²	24.8	5.2
Other non-Hispanic (includes Asian, Pacific Islander, Hawaiian Islander, and those reporting more than one race; excludes American Indians and Alaska Natives)	9.2	1.9
White non-Hispanic	10.3	3.0

¹ Statistics for both countries are based on Health Canada food security classification methodology.

² Includes those reporting another race or Hispanic ethnicity along with American Indian or Alaska Native. American Indian or Alaska Native households in nonmetropolitan areas were omitted from all Canada-U.S. comparison statistics.

³ Hispanic ethnicity is reported separately from race. Hispanics in this analysis may be of any race except American Indian/Alaskan Native.

Data Sources: Canadian Community Health Survey Cycle 2.2; Current Population Survey Food Security Supplements, 2003-05.

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Table 6. Prevalence rates of adult food insecurity and severe food insecurity in Canadian Provinces, 2004¹

Province	Food Insecure	Severely Food Insecure
	----- percent of households -----	
Newfoundland and Labrador	10.2	2.4E
Prince Edward Island	9.2	2.1E
Nova Scotia	14.5	4.9E
New Brunswick	10.1	3.0E
Quebec	8.4	2.4E
Ontario	8.2	2.7
Manitoba	9.2	2.6
Saskatchewan	7.8	2.9E
Alberta	10.4	3.5
British Columbia	10.2	3.5
Canada Overall	9.0	2.9
Ratio: Highest to Overall	1.6	1.7
Ratio: Lowest to Overall	0.87	0.72
Coefficient of Variation	0.21	0.28

¹ Comparisons between provinces should take into consideration sampling error estimates as reported in *Canadian Community Health Survey, Cycle 2.2, Nutrition (2004) -- Income-Related Household Food Security in Canada* (6).

E = Statistics with coefficient of variation (CV) between 16.6 percent and 33.3 percent; interpret with caution.

Data Source: Canadian Community Health Survey Cycle 2.2.

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Table 7. Prevalence rates of adult food insecurity and severe food insecurity in U.S. States, average 2003-05¹

State	Food Insecure	Severely Food Insecure
	----- percent of households -----	
Alabama	15.4	3.4
Alaska	15.0	4.6
Arizona	15.9	4.0
Arkansas	17.9	5.5
California	14.3	3.6
Colorado	14.2	3.8
Connecticut	10.6	2.6
Delaware	9.2	2.0
District of Columbia	14.9	3.6
Florida	12.3	3.6
Georgia	15.4	5.0
Hawaii	9.7	2.7
Idaho	16.3	3.8
Illinois	11.0	3.3
Indiana	13.5	4.3
Iowa	13.3	3.5
Kansas	15.2	4.7
Kentucky	16.2	4.1
Louisiana	17.0	3.9
Maine	14.4	4.8
Maryland	12.0	3.4
Massachusetts	9.4	3.1
Michigan	14.1	4.3
Minnesota	9.6	2.7
Mississippi	21.5	4.5
Missouri	13.9	4.0
Montana	13.1	4.4
Nebraska	12.1	4.1
Nevada	9.8	3.0
New Hampshire	8.2	2.3
New Jersey	10.2	2.6
New Mexico	20.3	5.6
New York	13.0	3.1
North Carolina	16.5	4.5
North Dakota	8.3	2.0
Ohio	15.8	4.1
Oklahoma	16.8	4.8
Oregon	14.8	4.1
Pennsylvania	12.7	3.0
Rhode Island	14.4	4.2
South Carolina	18.3	6.2
South Dakota	11.6	3.1
Tennessee	15.6	4.1
Texas	19.5	4.8
Utah	18.1	5.4
Vermont	11.4	3.8
Virginia	10.7	2.9
Washington	13.9	4.1
West Virginia	11.7	3.1
Wisconsin	12.0	2.8
U.S. Overall	14.1	3.8
Ratio: Highest to Overall	1.5	1.6
Ratio: Lowest to Overall	0.58	0.54
Coefficient of Variation	0.22	0.24

¹ Food security status of U.S. households was based on Health Canada methodology. Comparisons between States should take into consideration margins of error due to sampling error as reported in *Household Food Security in the United States, 2005* (4, Table 7).

Data Source: Current Population Survey Food Security Supplements, 2003-05.