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## **The relationship between food banks and food insecurity: insights from Canada**

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**Abstract:**

Food banks have become the first line of response to problems of hunger and food insecurity in affluent nations. Although originating in the USA, food banks are now well established in Canada, Australia, and some Nordic countries, and they have rapidly expanded in the United Kingdom and other parts of Europe in the past two decades. Defined by the mobilization of food donations and volunteer labour within communities to provide food to those in need, food banks are undeniably a response to food insecurity, but their relevance to this problem is rarely assessed. We drew on data from the 2008 Canadian Household Panel Survey Pilot to assess the relationship between food bank use and household food insecurity over the prior 12 months and examine the interrelation between food insecure households' use of other resource augmentation strategies and their use of food banks. We found that most food insecure households delayed bill payments and sought financial help from friends and family, but only 21.1% used food banks. Food bank users appeared to be more desperate: they had substantially lower incomes than food insecure households who did not use food banks and were more likely to seek help from relatives and friends and other community agencies. Our findings challenge the current emphasis on food charity as a response to household food insecurity. Measures are needed to address the underlying causes of household food insecurity.

**Key Words:**

Food insecurity, food banks, household resources, Canada

## 1 **Introduction**

2 Although originating in the United States (Daponte and Bade 2006, Poppendieck 1994,  
3 Poppendieck 1998), food banks are now well established in Canada, Australia (Booth and  
4 Whelan 2014), and some Nordic countries (Salonen 2016, Silvasti and Karjalainen 2014), and  
5 have rapidly expanded in the United Kingdom (Loopstra et al. 2015, Dowler and O'Connor 2012,  
6 Lambie-Mumford and Dowler 2014), other parts of Europe, and Asia (Martin-Fernandez et al.  
7 2013, Gonzalez-Torre and Coque 2016, 2014) in the 2000s. While the organizational structures,  
8 operations, and levels of government investment in food bank operations vary across countries,  
9 these initiatives are broadly defined by the mobilization of food donations and volunteer labour  
10 within communities to provide food to those in need. In this sense, they are inarguably responses  
11 to local concerns about food insecurity. Yet, the appropriateness of food banks as a response to  
12 problems of household food insecurity is highly contested. These arguments typically center on  
13 the relationship between the rise of food charity and the diminution of social protection programs  
14 and concerns about how food charity initiatives undermine the fundamental right to food  
15 (Dowler 2003, Dowler and O'Connor 2012, Perez de Armino 2014, Riches 2002, Lambie-  
16 Mumford 2017, De Schutter 2012, Poppendieck 1998, 2014). Less often considered is how well  
17 food banks even do at addressing the problem they aim to tackle in their communities:  
18 preventing individuals and families from going without food. Building on previous work  
19 examining the discrepancy between food insecurity and food bank use, this study explores the  
20 relationship between household food insecurity and food bank use in Canada. By examining use  
21 of food banks among food insecure households alongside several other resource augmentation  
22 strategies, this study asks, are food banks a form of help sought by food insecure households?

24 **An overview of food banks in Canada**

25 Food banks began to proliferate in Canada in the 1980s as communities rallied to provide  
26 charitable food assistance to people affected by the economic recession (Riches 1986). Although  
27 initially construed as temporary food relief efforts, food banks rapidly became entrenched. Much  
28 like the trajectories charted in other countries (e.g., (Daponte and Bade 2006, 2014)), the  
29 establishment and institutionalization of food banks in Canada is intimately intertwined with  
30 fundamental changes to social protection programs in this country. Food banking grew rapidly  
31 through the 1980s and 1990s, in tandem with social policy reforms that weakened the provision  
32 of income assistance and other publicly-funded supports for Canadians facing financial hardships  
33 (Riches 2002, Tarasuk and Davis 1996). The number of agencies and organizations providing  
34 charitable food assistance appears to have plateaued in recent years, perhaps reflecting the  
35 ‘saturation’ of communities with this model of programming. Since 2010, the number of people  
36 receiving food hampers from food banks has remained relatively stable (Food Banks Canada  
37 2016). The latest ‘HungerCount’ published by the national association of food banks indicates  
38 that in March 2016, 863,492 people received food hampers from food banks and almost 4.5  
39 million meals were served through affiliated charitable meal programs (Food Banks Canada  
40 2016).

41

42 In Canada, food banks are voluntary, extra-governmental programs, mostly run by faith groups,  
43 public sector organizations (e.g., multiservice agencies, community health centres), but also with  
44 some programs run by independent community food organizations (Tarasuk et al. 2014).  
45 Irrespective of who is running them though, the work of food banks is heavily reliant on  
46 donations of food and money and volunteer labour, and most food bank operators report that the

47 needs of their clientele continually outstrip the availability of food assistance (Tarasuk et al.  
48 2014). Food is sourced from food manufacturers, producers, and retailers, and through regular  
49 solicitations for donations from the general public ('food drives'). Much of the collection and  
50 distribution of donated foods in communities is coordinated at a local or provincial level by  
51 centralized distribution agencies that are in turn aided by a national 'food sharing' program  
52 coordinated by Food Banks Canada (Food Banks Canada 2012b). In addition, many program  
53 operators solicit food donations from local businesses and community groups in their efforts to  
54 better respond to demands for assistance (Tarasuk et al. 2014).

55

56 The role of government in relation to food banks has been primarily facilitative. There are no  
57 government programs that supply food or core funding to food banks, but many agencies receive  
58 government support through infrastructure funding, grants for specific programs (e.g.,  
59 employment training, prenatal programs, community kitchens), and legislations continue to be  
60 enacted to encourage donations to food bank (McIntyre, Lukic, et al. 2016, McIntyre, Patterson,  
61 et al. 2016). Every province and territory has now passed a 'Good Samaritan' law absolving  
62 corporate donors of liability for the health and safety of the food they donate (Food Banks  
63 Canada 2017), and several provinces have recently begun to offer tax credits to local producers  
64 who donate unsold foods to community agencies (e.g., Ontario's Local Food Act). There are also  
65 ongoing lobby efforts for federal tax credits for corporate donors, a policy that proponents argue  
66 will also help reduce food waste in Canada (National Zero Waste Council 2017). While such  
67 initiatives highlight the continued support for food banks, their effectiveness as a response to  
68 problems of food insecurity in this country continues to be questioned.

69

## 70 **The relationship between food banks and food insecurity in Canada**

71 Population-level assessments of food insecurity show that it is a serious and growing problem,  
72 now affecting almost one in eight Canadian households (Tarasuk, Mitchell, and Dachner 2014,  
73 Tarasuk et al. 2017). Yet, comparisons of household food insecurity prevalence estimates with  
74 national and provincial statistics on food bank usage suggest that only a small fraction of food  
75 insecure households use food banks (Loopstra and Tarasuk 2015). In 2012, the most recent year  
76 for which we have nationally representative data on food insecurity, 4,005,000 individuals were  
77 living in households reporting some degree of food insecurity (Tarasuk, Mitchell, and Dachner  
78 2014), but only 882,188 people were reported to be receiving assistance from food banks (Food  
79 Banks Canada 2012a). As shown in Figure 1, this large discrepancy between the number of  
80 individuals living in food insecure households and those assisted by food banks in 2012 is  
81 observed for all years that data on national estimates of food insecurity are available (2007,  
82 2008, 2011).

83

84 Surveys of food bank users have long documented profound levels of food insecurity among  
85 those who seek assistance (Farahbakhsh et al. 2017, Ford, Lardeau, and Vanderbilt 2012, Matern  
86 and Iman 2016, Roncarolo et al. 2014, Rush et al. 2007, Roncarolo, Bisset, and Potvin 2016,  
87 Tarasuk and Beaton 1999, Tsang, Holt, and Azevedo 2011), but few studies have assessed the  
88 prevalence of food bank use among food insecure households. Three Canadian population  
89 surveys conducted in the 1990s revealed that one-third or fewer households with some indication  
90 of food insecurity used food banks (McIntyre, Connor, and Warren 2000, Rainville and Brink  
91 2001, Vozoris and Tarasuk 2003). Food bank use was most prevalent among households  
92 reporting severe food insecurity, but even among this group, fewer than half reported any use of

93 food banks (Rainville and Brink 2001). Households' use of food charity has not been assessed in  
94 more recent population surveys, but a comparison of cross-sectional samples drawn from the  
95 1997 and 2007 National Longitudinal Survey of Children and Youth revealed no change in the  
96 proportion of families reporting child hunger who used food banks (34.4% in 1997 and 32.8% in  
97 2007) (McIntyre et al. 2012).

98

99 These findings beg the question of why so many people struggling to afford food do not seek  
100 charitable assistance, and what dictates whether someone does or does not use a food bank. Our  
101 earlier in-depth examination of food insecurity and food bank use among a sample of low-  
102 income households in Toronto offered some insights (Loopstra and Tarasuk 2012). Among food  
103 insecure households, only 28% had used food banks in the previous 12 months. The probability  
104 of households using food banks rose with severity of food insecurity and receipt of welfare  
105 benefits, and declined with household income. Those reporting no food bank use were asked an  
106 open-ended question about why they had not received assistance from a food bank. Based on  
107 these responses, two main themes emerged. Some households reported a lack of knowledge or  
108 lack of access to food banks, describing being turned away from food banks, having difficulty  
109 getting to food banks, or not knowing how to access them, among other access barriers. But the  
110 more commonly indicated theme was one that captured resistance to food bank use. Responses  
111 suggested that respondents felt they did not want or need to use food banks and that food banks  
112 would only be used as a last resort. Households expressed that they were able to manage, even  
113 though the experiences of food insecurity they reported suggested otherwise. Additionally, we  
114 observed that these same households engaged in a myriad of other strategies to minimize food  
115 deprivation, including compromising the quality of their housing (Kirkpatrick and Tarasuk 2011)



116 and food (Dachner et al. 2010, Loopstra and Tarasuk 2013a) and delaying bill and rent payments  
117 and selling or pawning possessions (Loopstra and Tarasuk 2013a, Kirkpatrick and Tarasuk  
118 2009). However, the generalisability of these findings is limited, as all households participating  
119 in this study lived in deprived neighbourhoods in Toronto.

120  
121 Given evidence that food banks remain a primary response to food insecurity in Canada and  
122 across many other high-income countries, it is critical to understand their reach and relevance for  
123 the populations that they aim to target. In particular, it is important to understand where food  
124 bank use fits within the range of other strategies households employ when faced with  
125 increasingly severe resource constraints. If, as suggested by prior Canadian research, food banks  
126 are a strategy of last resort, avoided by most food insecure households, this could indicate the  
127 need for different kinds of community responses and a redirection of political support to actions  
128 that better align with the expressed needs of food insecure households. Drawing on data from a  
129 novel survey of household resources and material deprivation conducted in four Canadian  
130 provinces in 2008, our objectives were to i) determine the relationship between household food  
131 insecurity and various resource augmentation strategies including food bank use and ii) examine  
132 how the use of food banks relates to other resource augmentation strategies among households  
133 reporting food insecurity.

134

## 135 **Methods**

136 The Canadian Household Panel Survey (CHPS) Pilot was conducted by Statistics Canada in the  
137 provinces of Ontario, Quebec, Saskatchewan and New Brunswick between October 15 and  
138 December 31, 2008 (Heisz 2013). The target population was all Canadians living in households,

139 excluding people living on Indian reserves or crown lands, members of the Canadian Forces and  
140 of religious or communal colonies, and individuals living in institutions. The samples drawn  
141 from each of the four provinces were roughly of equal size. Altogether, 2,122 households were  
142 eligible for interview. The response rate was 76%, yielding a total sample of 1606 households.

143  
144 The survey was administered through non-proxy computer assisted personal interviews, with  
145 27% of interviews conducted over the telephone because a face to face meeting could not be  
146 scheduled. In addition to basic demographic information, a person identified to be  
147 knowledgeable about all household members was asked questions on housing, childcare use and  
148 monthly expenditures on key items, as well as questions on food insecurity, material deprivation,  
149 and financial security. Household income was obtained from income tax records if access was  
150 granted to Statistics Canada, or it was estimated from the incomes reported in the interview of  
151 each household member 15 years of age and above. For the purposes of this study, we focus on  
152 the food insecurity indicator and the financial security module, which comprised six questions  
153 about resource augmentation behaviours, including the use of food banks.

154  
155 One question adapted from the USDA Household Food Security Survey Module (HFSSM) was  
156 included in the CHPS, namely, “In the last 12 months, have you and your family ever had to eat  
157 less because you did not have enough money to buy food?” For the purposes of this study,  
158 households responding “yes” to the question were considered food insecure. Based on the  
159 sequencing of the 18 items of the HFSSM and the severity continuum they captured, the question  
160 included in CHPS is adapted from the eighth item, which reflects a relatively severe level of food  
161 insecurity (Bickel et al. 2000, Hamilton et al. 1997, Health Canada 2007). Food bank use was

162 assessed as ever having used a food bank in the last 12 months. Other resource augmentation  
163 strategies assessed over the past 12 months included missing “paying an electricity, gas or utility  
164 bill on time”, “paying rent or mortgage on time”, pawning or selling something, asking for  
165 “financial help from friends or family”, asking for “help from welfare or community  
166 organizations”, all with a clause attached to establish that the behaviour was “because you were  
167 short of money”. For the purposes of this study, we excluded all households with missing data  
168 for food insecurity or food bank use, yielding an analytic sample of 1593.

169  
170 To present the socio-demographic profiles of the food secure and food insecure households in the  
171 sample, characteristics commonly known to be associated with household food insecurity in  
172 Canada (Health Canada 2007, Li, Dachner, and Tarasuk 2016, McIntyre et al. 2015, Loopstra  
173 and Tarasuk 2013b) were described using proportions and means. The characteristics included  
174 household composition, after-tax income adjusted for household size, housing tenure, living in  
175 an urban or rural area, and four binary variables describing whether the household received any  
176 income from employment, social assistance, worker’s compensation or Employment Insurance,  
177 and a public or private retirement plan (i.e., seniors’ incomes). This description enabled us to  
178 examine whether the differences in the socio-demographic profiles of the food secure and food  
179 insecure households based on the one question included in the CHPS were consistent with  
180 differences documented using the 18-item HFSSM, the measurement tool used to monitor  
181 household food insecurity in Canada (Health Canada 2007, Tarasuk, Mitchell et al. 2014).

182  
183 To determine the relationship between household food insecurity and various resource  
184 augmentation strategies, logistic regression models were conducted to estimate predicted

185 probabilities and odds ratios of using food banks and five other strategies by food secure and  
186 food insecure households. The models controlled for whether the household lived in a rural or  
187 urban area, since living in smaller and more remote areas may reduce access to food banks and  
188 limit households' options in terms of other resource augmentation strategies. To address the  
189 second objective of our study, logistic regression models were conducted among the food  
190 insecure households to estimate predicted probabilities and odds ratios of using each of the five  
191 resource augmentation strategies by those who used food banks and those who did not, while  
192 controlling for rural or urban area of residence. Predicted probabilities and odds ratios represent  
193 absolute and relative measures of association, respectively. While odds ratios are commonly used  
194 to present the strength of an association, they may overestimate the magnitude of the association  
195 when the outcome is uncommon (King, Harper, and Young 2012). In the presentation of results,  
196 we focus on the predicted probabilities for two reasons. First, two resource augmentation  
197 strategies, food bank use and pawning or selling possessions, were reported by only a small  
198 fraction of the sample compared to the other strategies, meaning that the magnitude of the  
199 association between these two uncommon strategies and food insecurity is likely inflated (King,  
200 Harper, and Young 2012). Second, and most importantly, the predicted probabilities enable us to  
201 contrast the likelihood that food insecure households use a food bank with their likelihoods of  
202 using the other five resource augmentation strategies. All the analyses were conducted with Stata  
203 15, and the significance level was set at  $p < 0.05$ .

204

## 205 **Results**

206 Table I presents the socio-demographic characteristics of the entire sample and by food  
207 insecurity. Household composition differed between the food secure and food insecure

208 households, with the latter more likely to be lone female parent families and unattached  
209 individuals, and less likely to be couples without children. Food insecure households had, on  
210 average, lower after-tax household income than their food secure counterparts. In terms of  
211 income sources, food insecure households were more likely to have received incomes from  
212 social assistance and worker's compensation or Employment Insurance, but less likely to have  
213 received senior's incomes. Although a larger proportion of food insecure households reported  
214 incomes from employment compared to food secure households, the difference did not reach  
215 statistical significance ( $p = 0.096$ ). Food insecure households were more likely to rent rather than  
216 own their dwelling and to live in an urban area, but the latter did not reach statistical significance  
217 ( $p = 0.098$ ). The socio-demographic profiles of the food insecure households in this sample were  
218 consistent with the profiles observed in population-based studies using the 18-item HFSSM  
219 (Health Canada 2007, Li, Dachner, and Tarasuk 2016, McIntyre, Bartoo, and Emery 2012,  
220 McIntyre et al. 2015, Loopstra and Tarasuk 2013b).

221  
222 Overall, 3.1% of households reported using a food bank in the past 12 months, and 65.3% of  
223 these were food insecure. Figure II presents the predicted probabilities of using food banks and  
224 the other resource augmentation strategies among food insecure and food secure households. The  
225 odds ratios from these logistic regressions are presented in Supplementary material I. The  
226 predicted probabilities of using each one of the six resource augmentation strategies were  
227 significantly higher among the food insecure households (all  $p$  values  $<0.0001$ ). The most  
228 common strategy employed by food insecure households was asking for financial help from  
229 friends and family (59.1%; 95% CI: 51.2-66.9), followed by missing a bill payment (47.7%; 95%  
230 CI: 39.8-55.7), asking for help from welfare or community organizations (29.5%; 95% CI: 22.2-

231 36.7), missing rent or mortgage payment (28.0%; 95% CI: 20.9-35.2), using food banks (20.6%;  
232 95% CI:14.2-27.1), and pawning or selling possessions (19.6%; 95% CI: 13.2-25.9). Based on  
233 the overlap of the 95% confidence intervals of the predicted probabilities, using a food bank  
234 appeared as common as pawning or selling possession, missing rent or mortgage payment, and  
235 asking help from welfare or community organizations, but less common than missing bill  
236 payment or asking for financial help from friends and family.

237  
238 When examining the number of resource augmentation strategies used, 84.0% of food insecure  
239 households used one or more of the six resource augmentation strategies examined compared to  
240 15.6% of food secure households. Among the 20.0% of food insecure households that reported  
241 using only one of the six resource augmentation strategies, the most common strategies were  
242 missing a bill payment and asking for financial help from friends or family followed by asking  
243 help from organizations, whereas the least common strategies were pawning or selling  
244 possessions, missing a rent or mortgage payment and using a food bank.

245  
246 Only 21.1% of food insecure households reported using food banks. On average, food insecure  
247 households using food banks had significantly lower after-tax income adjusted for household  
248 size (\$14,700; SD: 9,722) than those who reported no such use (\$26,872; SD: 13,635). Figure III  
249 presents the predicted probabilities of using different resource augmentation strategies among  
250 food insecure households who used food banks and those who did not. The odds ratios from  
251 these logistic regressions are presented in Supplementary material II. There were no significant  
252 differences in the predicted probabilities of missing a bill payment, missing rent or mortgage  
253 payment, and pawning or selling possession between these two groups. However, households

254 who used food banks were more likely to have asked for financial help from friends and family  
255 ( $p = 0.001$ ), and for help from welfare or community organizations ( $p < 0.0001$ ) compared to  
256 those who did not use food banks.

257

## 258 **Discussion**

259 While food banks remain the primary public response to food insecurity in Canada, they  
260 represent one of multiple strategies employed by households who are food insecure as they try to  
261 manage with scarce financial resources. Consistent with other Canadian studies (Loopstra and  
262 Tarasuk 2012, Roncarolo et al. 2014, Roncarolo, Bisset, and Potvin 2016, Tarasuk and Beaton  
263 1999), our results confirm that most people using food banks are moderately or severely food  
264 insecure, as indicated by reporting having to reduce their food intake due to a lack of money for  
265 food in the past 12 months. But, we also confirm the finding of earlier studies (Loopstra and  
266 Tarasuk 2012, McIntyre, Connor, and Warren 2000, Rainville and Brink 2001, Vozoris and  
267 Tarasuk 2003) that most food insecure households do not report using food banks. Using a food  
268 bank is the exception, not the norm. Despite the long history of food banks in Canada, our results  
269 do not suggest any greater acceptance of these programs among food insecure households than  
270 was observed in the 1990s; using a food bank remains a strategy of ‘last resort’.

271

272 We found that food insecure households were much more likely to delay bill payments and to  
273 ask for financial help from friends and family than to access a food bank. Previous studies have  
274 similarly demonstrated that food insecurity is associated with a broad spectrum of ‘coping  
275 strategies’ (Loopstra and Tarasuk 2013a, McIntyre et al. 2012, Rainville and Brink 2001) and  
276 that using a food bank is much less common than other behaviours like delaying bill payments

277 (Kirkpatrick and Tarasuk 2009, Rainville and Brink 2001). Among our sample, food bank use  
278 was as common as asking for help from welfare or community organizations, delaying rent  
279 payments and pawning or selling possessions, but fewer than one in three food insecure  
280 households reported using these strategies.

281  
282 The resource augmentation strategies most commonly reported by food insecure households,  
283 asking for financial help from family or friends or delaying bill payments, were private,  
284 independent actions, involving the accrual of debt. While delaying the payment of utility bills  
285 and rent or mortgage could have serious ramifications for households in the long-run, these  
286 strategies involve substantial sums of money (Fafard St-Germain and Tarasuk 2018) and thus  
287 stand to have a greater impact on household finances in the short term than could be gained from  
288 using a food bank, where the amount and selection of food distributed to clients is carefully  
289 rationed (Tarasuk et al. 2014)<sup>a</sup>. Additionally, these strategies allow households to avoid the  
290 social stigma that comes with seeking charity (Hamelin, Beaudry, and Habicht 2002, Loopstra  
291 and Tarasuk 2012, Middleton et al. 2018, Williams et al. 2012). However, such strategies cannot  
292 be invoked repeatedly. Households that have exhausted whatever capacity they have to manage  
293 financial hardships by borrowing from family and friends, incurring debts, or selling or pawning  
294 possessions have no option but to seek help from strangers.

295  
296 Our finding that food insecure households who use food banks were as likely as other food  
297 insecure households to report delaying bill or rent payments or selling or pawning possessions,  
298 but more likely to seek help from relatives and friends and much more likely to turn to welfare  
299 offices or community agencies for assistance may speak to their greater desperation – an



300 inference supported by the substantially lower incomes of food bank users. Seeking help from  
301 food banks and welfare and community agencies are very public strategies, requiring households  
302 to proclaim their needs to total strangers and potentially subject themselves to scrutiny by agency  
303 staff and volunteers who must verify that each applicant's level of deprivation is sufficient to  
304 warrant whatever assistance they have to offer. Our earlier research with food insecure families  
305 suggested that these were major deterrents to using food banks for many people (Loopstra and  
306 Tarasuk 2012).

307  
308 Although food bank use remains the primary public response to food insecurity in Canada and  
309 legislators continue to introduce tax credits and other measures in support of these institutions  
310 (McIntyre, Lukic, et al. 2016, McIntyre, Patterson, et al. 2016), our findings suggest that this  
311 singular focus on charitable food assistance is misplaced. Food banks may be serving some of  
312 the most desperate households, but they do not reach the vast majority of food insecure  
313 households. Moreover, while charitable food assistance undoubtedly offers some important relief  
314 to those who receive it, the limited assistance that food banks can provide to any one household  
315 means that their capacity to relieve conditions of severe food insecurity is limited. High levels of  
316 food deprivation charted among families using food banks indicate persistent problems of  
317 extreme deprivation, unresolved by food bank use (Loopstra and Tarasuk 2012). It may be more  
318 effective for community groups to work with government to provide public programs that  
319 provide debt relief or direct financial assistance to households unable to pay rent or utility bills.  
320 Several such initiatives already exist in Canada (e.g., Ontario's Low-income Energy Assistance  
321 Program (Ontario Energy Board 2018), Community Emergency Funds (Social Planning Council  
322 of Sudbury)), and our results suggest that they are well aligned with food insecure households'

323 own responses to financial hardships. Additionally, these programs can target basic  
324 consumption needs that comprise much greater proportions of the household's overall budget  
325 than food (Fafard St-Germain and Tarasuk, 2018). Consequently, such interventions could have  
326 a much greater and more lasting impact on household food insecurity than small amounts of  
327 charitable food assistance could. However, there is a need to evaluate such initiatives to ensure  
328 that the supports provided are sufficient to relieve problems of food insecurity and that the  
329 programs function in tandem with other public policies to foster long-term food security among  
330 vulnerable households.

331  
332 Our study findings also lend support to calls for public policy interventions that more effectively  
333 address household food insecurity. Consistent with prior research, food insecure households in  
334 this study had significantly lower incomes, were more likely to rent than own their dwelling, and  
335 were more likely to be receiving social assistance, Employment Insurance or workers'  
336 compensation, compared to the food secure. Given evidence that household food insecurity is  
337 sensitive to federal and provincial policy interventions that improve the financial circumstances  
338 of low income households (Ionescu-Ittu, Glymour, and Kaufman 2015, Li, Dachner, and Tarasuk  
339 2016, Loopstra, Dachner, and Tarasuk 2015, Tarasuk et al. 2018), policy makers' continued  
340 focus on measures to increase donations to food charities (McIntyre, Patterson, et al. 2016,  
341 McIntyre, Lukic, et al. 2016, National Zero Waste Council 2017) that most food insecure people  
342 do not use seems misguided. In recent years, Food Banks Canada and several other civil society  
343 organisations have made calls for social policy reforms to ensure that all households have  
344 sufficient incomes to meet the basic costs of living (Dietitians of Canada 2016, Food Banks  
345 Canada 2016, Food Secure Canada 2017). Community organisations, including those providing

346 frontline food bank services, can play an important role in advocating for evidence-based,  
347 upstream policy interventions.

348

349 Our findings add strength to earlier cautionary notes about the use of food bank utilization  
350 statistics as a proxy measure of the prevalence of household food insecurity in a community or  
351 country (Loopstra and Tarasuk 2015). While our results suggest that people using food banks are  
352 very likely to be food insecure, the opposite is not true. A similar discrepancy between food bank  
353 use and food insecurity has been repeatedly charted in the US (Coleman-Jensen et al. 2017),  
354 where food banking is also very well established. Additionally, a marked discrepancy between  
355 food bank use and food insecurity has been documented in France (Agence nationale de sécurité  
356 sanitaire de l'alimentation 2017). As food bank use is treated as a measure of food insecurity,  
357 particularly in countries that do not routinely monitor food insecurity (e.g., (Carter et al. 2010,  
358 Loopstra et al. 2015)), it is important to recognize the substantial underestimation associated  
359 with this variable. However, few studies have examined these discrepancies and interrogated the  
360 drivers of food bank use among food insecure households (Daponte 2000, Martin et al. 2003).  
361 Instead, most research in the U.S. (Duffy et al. 2009, Garasky, Morton, and Greder 2004,  
362 Hoisington, Shultz, and Butkus 2002, Kaiser et al. 2015, Robaina and Martin 2013, Will and  
363 Milligan 2015) and U.K. (Garthwaite, Collins, and Bambra 2015, Loopstra and Lalor 2017,  
364 Prayogo et al. 2017) has focused on the food insecurity experiences of food bank users. Such  
365 studies inadvertently draw attention away from the much larger problem of food insecurity and  
366 can lead to the characteristics of food bank users being used to describe the problem of food  
367 insecurity. However, as this and other studies from Canada have shown, households using food  
368 banks are a unique subset of the food insecure population. More research is needed in other

369 country contexts to understand who, among food insecure households, use food banks and  
370 whether reasons for people not using food banks, such as stigma and wanting to manage without  
371 help from charity (Loopstra and Tarasuk 2012), are also common in these country contexts.

372  
373 Both the design of our analysis and interpretation of our results stand in stark contrast to a recent  
374 examination of food insecurity among a large sample of food bank clients in the US (Gundersen,  
375 Engelhard, and Hake 2017). We conceptualized the various behaviours measured here (including  
376 food bank use) as strategies used by food insecure households to augment scarce financial  
377 resources, consistent with the understanding of food insecurity as a managed process (Campbell  
378 and Desjardins 1989), but Gundersen et al. (2017) framed similar behaviours among food bank  
379 users as determinants of food insecurity. They found a higher probability of food insecurity  
380 among food bank users who failed to pay bills and used other ‘coping strategies’ such as selling  
381 or pawning possessions or seeking help from family and friends, and they interpreted the positive  
382 associations as an indication that helping households to change those behaviours could mitigate  
383 food insecurity (Gundersen, Engelhard, and Hake 2017). Neither our study nor that of Gundersen  
384 et al (2017) was designed to determine the time ordering of events (i.e., are households food  
385 insecure because they fail to pay their bills and accrue debt, or is their failure to pay bills  
386 indicative of the poverty that also underlies their food insecurity?), and both conceptualizations  
387 are potentially plausible.

388  
389 It is important to recognize that our assessment of household food insecurity was based on a  
390 single question that captured a relatively severe level of deprivation. We were thus unable to  
391 examine households’ resource augmentation strategies in relation to the severity of their food

392 insecurity. Based on the results of a recent examination of reported food security among food  
393 bank users in the US (Heflin and Olson 2017), it seems likely that most of those who reported  
394 food bank use but were not classified as food insecure based on this single question were in fact  
395 experiencing some level of food insecurity. Undoubtedly, there is also variation in the chronicity  
396 and severity of food insecurity among those classified as food insecure based on our single  
397 question and that may have influenced their use of resource augmentation strategies. It is  
398 possible that households using food banks were experiencing more severe food insecurity than  
399 the food insecure households who did not report this strategy. Canadian research applying the  
400 full 18-item scale is needed to assess these potential differences.

401

402 Although the low prevalence of food bank use among food insecure households in this study is  
403 consistent with previous research (Vozoris and Tarasuk 2003, McIntyre, Connor, and Warren  
404 2000, Rainville and Brink 2001, Loopstra and Tarasuk 2012), it is important to recognize the  
405 potential for underreporting of food insecurity, food bank use and the other resource  
406 augmentation strategies examined because of the social stigma associated with such indicators of  
407 deprivation. Ambiguity in the question about seeking help from ‘welfare and community  
408 organizations’ limited interpretation of this resource augmentation strategy. Additional  
409 limitations of our study relate to the size and nature of the survey sample. The CHPS included  
410 only four provinces, and our results cannot be considered generalizable to the population of the  
411 four provinces surveyed, because CHPS was a pilot survey used to assess the feasibility of a  
412 general panel survey in Canada and no sampling weights were estimated. Given that there was  
413 no subsequent cycle to CHPS, it is not possible to examine whether the association between food  
414 insecurity and food bank use or other resource augmentation strategies changed in more recent

415 years. However, national statistics on food bank use and food insecurity indicate minimal change  
416 over time in the substantial gaps between the number of Canadians living in food insecure and  
417 the number of those assisted by food bank (see Figure I).

418

## 419 **Conclusion**

420

421 Food banks have been the only direct response to household food insecurity in Canada for more  
422 than three decades now, but our study confirms earlier research that challenges the premise that  
423 food banks use is a normative strategy to augment resources among food insecure households.

424 We conclude with three remarks on the public health implications of our results and the prior  
425 Canadian research in this area. First, the low propensity of food insecure households to use food  
426 banks cautions against using statistics of food bank use to monitor household food insecurity  
427 within communities and countries. Second, policies and programs designed to promote and  
428 expand charitable food assistance as a means to mitigate food insecurity are misaligned with the  
429 reality of most food insecure households, and consequently likely to be ineffective at reducing  
430 the magnitude of the problem at the population-level. Lastly, long-term policy actions ultimately  
431 need to focus on the upstream determinants of household food insecurity. While more research is  
432 needed to elucidate the specific mix of policy interventions required to address the problem,  
433 emerging evidence supports the role of social policies that improve the adequacy and stability of  
434 household incomes in reducing the prevalence of household food insecurity in Canada.

435

## 436 **Notes:**

437 <sup>a</sup>In their 2013 HungerCount, Food Banks Canada reported that most agencies tried to provide  
438 clients with five days' worth of food per month, but in that same report they noted that 38% of  
439 food banks were forced to cut back on the amount of food that they gave clients and 8% turned  
440 people away at times because they did not have enough food (Food Banks Canada 2013).

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444 **References:**2014. *First World Hunger Revisited*. Basingstoke UK: Palgrave Macmillan.  
445 Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail  
446 (Anses). 2017. Étude individuelle nationale des consommations alimentaires 3 (INCA 3).  
447 Maisons-Alfort, FR: Sante Publique France.

448 Bickel, G., M. Nord, C. Price, W.L. Hamilton, and J. Cook. 2000. *Guide to Measuring*  
449 *Household Food Security*: United States Department of Agriculture, Food and Nutrition  
450 Service, Office of Analysis, Nutrition and Evaluation. Reprint, In File.

451 Booth, S., and J Whelan. 2014. "Hungry for change: the food banking industry in Australia."  
452 *British Food Journal* 116 (9):1392-1404.

453 Campbell, CC, and E Desjardins. 1989. "A model and research approach for studying the  
454 management of limited food resources by low income families." *J. Nutr. Educ* 21  
455 (4):162-171.

456 Carter, KN, T Lanumata, K Kruse, and D Gorton. 2010. "What are the determinants of food  
457 insecurity in New Zealand and does this differ for males and females?" *Australian and*  
458 *New Zealand Journal of Public Health* 34 (6):602-608.

459 Coleman-Jensen, A, MP Rabbitt, CA Gregory, and A Singh. 2017. Statistical Supplement to  
460 Household Food Security in the United States in 2016.

461 Dachner, N, L Ricciuto, S. Kirkpatrick, and V. Tarasuk. 2010. "Food purchasing and food  
462 insecurity among low-income families in Toronto." *Can J Diet Prac Res* 71 (3):e50-e56.

463 Daponte, B.O. 2000. "Private versus public relief: use of food pantries versus food stamps  
464 among poor households." *J Nutr Educ Behav* 32:72-83.

465 Daponte, B.O., and S Bade. 2006. "How the private food assistance network evolved:  
466 interactions between public and private responses to hunger." *Nonprofit and Voluntary*  
467 *Sector Quarterly* 35 (4):668-690.

468 De Schutter, O. 2012. Report of the Special Rapporteur on the right to food on his mission to  
469 Canada (6 to 16 May 2012). edited by Human Rights Council.

470 Dietitians of Canada. 2016. Addressing Household Food Insecurity in Canada: Position  
471 Statement and Recommendations from Dietitians of Canada. Dietitians of Canada.

472 Dowler, E. 2003. "Food and poverty in Britain: rights and responsibilities." *Social Policy &*  
473 *Administration* 36 (6):698-717.

474 Dowler, E.A., and D O'Connor. 2012. "Rights-based approaches to addressing food poverty and  
475 food insecurity in Ireland and UK." *Soc Sci Med* 74:44-51.

476 Duffy, Patricia, Claire Zizza, Jocelynn Jacoby, and Francis A. Tayie. 2009. "Diet Quality is Low  
477 among Female Food Pantry Clients in Eastern Alabama." *Journal of Nutrition Education*  
478 *and Behavior* 41 (6):414-419.

479 Fafard St-Germain, A.A., and V Tarasuk. 2018. "Prioritization of the essentials in the spending  
480 patterns of Canadian households experiencing food insecurity." *Public Health Nutrition*  
481 21 (11):1-14. doi: 10.1017/S1368980018000472.

482 Farahbakhsh, J, M Hanbasasa, GDC Ball, AP Farmer, K Maximova, and ND Willows. 2017.  
483 "Food insecure student clients of a university-based food bank have compromised health,  
484 dietary intake and academic quality." *Nutrition and Dietetics* 74 (1):67-73.

485 Food Banks Canada. 2012a. HungerCount 2012. Toronto ON.

486 Food Banks Canada. 2012b. Real People. A focus on solutions. 2012 Annual Report. Toronto  
487 ON.

488 Food Banks Canada. 2013. HungerCount 2013. Toronto ON.

489 Food Banks Canada. 2016. HungerCount 2016. Toronto ON.



490 Food Banks Canada. 2017. "Links and Resources." Food Banks Canada, accessed 20 Nov 2017.  
491 <https://www.foodbankscanada.ca/Hunger-in-Canada/Links-and-resources.aspx>.

492 Food Secure Canada. 2017. From Patchwork to Policy Coherence: Principles and Priorities of  
493 Canada's National Food Policy. Montreal, QC: Food Secure Canada,.

494 Ford, J, MP Lardeau, and W Vanderbilt. 2012. "The characteristics and experience of  
495 community food program users in Arctic Canada: a case study from Iqaluit, Nuanvut."  
496 *BMC Public Health* 12:464. doi: 10.1186/1471-2458-12-464.

497 Garasky, S., L. W. Morton, and Kimberly Greder. 2004. "The food environment and food  
498 insecurity: Perceptions of rural, suburban, and urban food pantry clients in Iowa."  
499 *Family Economics and Nutrition Review* 16 (2):41-48.

500 Garthwaite, K. A., P. J. Collins, and C. Bamba. 2015. "Food for thought: An ethnographic study  
501 of negotiating ill health and food insecurity in a UK foodbank." *Social Science &*  
502 *Medicine* 132:38-44.

503 Gonzalez-Torre, PL, and J Coque. 2016. "How is a food bank managed? Different profiles in  
504 Spain." *Agriculture and Human Values* 33 (1):89-100.

505 Gundersen, C., E Engelhard, and M Hake. 2017. "The determinants of food insecurity among  
506 food bank clients in the United States." *Journal of Consumer Affairs*. doi:  
507 10.1111/joca.12157.

508 Hamelin, A.M., M. Beaudry, and J-P. Habicht. 2002. "Characterization of household food  
509 insecurity in Quebec: food and feelings." *Social Science & Medicine* 54 (1):119-132.

510 Hamilton, WL, JT Cook, WW Thompson, LF Buron, EA Frongillo, CM Olson, and CA Wehler.  
511 1997. Household Food Security in the United States in 1995. Technical Report of the  
512 Food Security Measurement Project. Alexandria VA.

513 Health Canada. 2007. Canadian Community Health Survey, Cycle 2.2, Nutrition (2004) -  
514 Income-Related Household Food Security in Canada. Ottawa: Office of Nutrition Policy  
515 and Promotion, Health Products and Food Branch, Health Canada.

516 Heflin, C, and K Olson. 2017. "Unpacking an anomaly: analyzing the 2005-2012 Current  
517 Population Survey to understand why many emergency food assistance users report being  
518 food secure." *Journal of Hunger and Environmental Nutrition* 12 (1):64-76.

519 Heisz, A. 2013. Evaluation of the Canadian Household Panel Survey Pilot Content. In  
520 *Longitudinal and International Study of Adults Research Paper Series*. Ottawa, ON:  
521 Statistics Canada.

522 Hoisington, Anne, Jill Armstrong Shultz, and Sue Butkus. 2002. "Coping Strategies and  
523 Nutrition Education Needs Among Food Pantry Users." *Journal of Nutrition Education*  
524 *and Behavior* 34 (6):326-333.

525 Ionescu-Ittu, R, MM Glymour, and JS Kaufman. 2015. "A difference-in-difference approach to  
526 estimate the effect of income-supplementation on food insecurity." *Preventive Medicine*  
527 70:108-116.

528 Kaiser, L., V Chaidez, S Algert, M Horowitz, A Martin, C Mendoza, M Neelon, and DC  
529 Ginsburg. 2015. "Food resource management education with SNAP participation  
530 improves food security." *J Nutr Educ Behav* 47 (4):374-378.

531 King, Nicholas B, Sam Harper, and Meredith E Young. 2012. "Use of relative and absolute  
532 effect measures in reporting health inequalities: structured review." *BMJ : British*  
533 *Medical Journal* 345:e5774.

534 Kirkpatrick, S., and V. Tarasuk. 2009. "Food insecurity and participation in community food  
535 programs among low-income Toronto families." *Canadian Journal of Public Health* 100  
536 (2):135-139.

537 Kirkpatrick, SI, and V. Tarasuk. 2011. "Housing circumstances are associated with household  
538 food access among low-income urban families." *Journal of Urban Health* 88 (2):284-  
539 296.

540 Lambie-Mumford, H. 2017. *Hungry Britain. The Rise of Food Charity*. Briston UK: Policy  
541 Press.

542 Lambie-Mumford, H, and E. Dowler. 2014. "Rising use of "food aid" in the United Kingdom."  
543 *British Food Journal* 116 (9):1418-1425.

544 Li, N, N Dachner, and V. Tarasuk. 2016. "The impact of changes in social policies on household  
545 food insecurity in British Columbia, 2005-2012." *Preventive Medicine* 93:151-158.

546 Loopstra, R, N Dachner, and Valerie Tarasuk. 2015. "An exploration of the unprecedented  
547 decline in the prevalence of household food insecurity in Newfoundland and Labrador,  
548 2007-2012." *Canadian Public Policy* 41 (3):191-206.

549 Loopstra, R, A Reeves, D Taylor-Robinson, B Barr, M McKee, and D Stuckler. 2015.  
550 "Austerity, sanctions, and the rise of food banks in the UK." *British Medical Journal*  
551 350:h1775.

552 Loopstra, R, and V. Tarasuk. 2012. "The relationship between food banks and household food  
553 insecurity among low-income Toronto families." *Canadian Public Policy* 38 (4):497-  
554 514.

555 Loopstra, R, and V. Tarasuk. 2013a. "Severity of household food insecurity is sensitive to  
556 change in household income and employment status among low-income families."  
557 *Journal of Nutrition* 143:1316-1323.

558 Loopstra, R, and V. Tarasuk. 2013b. "What does increasing severity of food insecurity indicate  
559 for food insecure families? Relationship between severity of food insecurity and  
560 indicators of material hardship and constrained food purchasing." *Journal of Hunger and*  
561 *Environmental Nutrition* 8:337-349.

562 Loopstra, R, and V. Tarasuk. 2015. "Food bank use is a poor indicator of food insecurity:  
563 insights from Canada." *Social Policy and Society* 14 (3):443-455.

564 Loopstra, Rachel, and Doireann Lalor. 2017. "Financial insecurity, food insecurity, and  
565 disability: the profile of people receiving emergency food assistance from The Trussell  
566 Trust Foodbank Network in Britain." The Trussell Trust.

567 Martin-Fernandez, J, F Grillo, I Parizot, F Caillavet, and P Chauvin. 2013. "Prevalence and  
568 socioeconomic and geographical inequalities of household food insecurity in the Paris  
569 region, France, 2010." *BMC Public Health* 13:486.

570 Martin, K.S., J.T. Cook, BL Rodgers, and H.M. Joseph. 2003. "Public versus private food  
571 assistance: barriers to participation differ by age and ethnicity." *J Nutr Educ Behav*  
572 2003 (35):249-254.

573 Matern, R, and H Iman. 2016. Who's Hungry 2016. Toronto ON: Daily Bread Food Bank.

574 McIntyre, L, PB Patterson, LC Anderson, and CL Mah. 2016. "Household food insecurity in  
575 Canada: problem definition and potential solutions in the public policy domain."  
576 *Canadian Public Policy* 42 (1):83-93. doi: 10.3138/cpp.2015-066.

577 McIntyre, L., AC Bartoo, and JCH Emery. 2012. "When working is not enough: food insecurity  
578 in the Canadian labour force." *Public Health Nutrition* 17 (1):49-57.

579 McIntyre, L., AC Bartoo, J Pow, and ML Potestio. 2012. "Coping with child hunger in Canada:  
580 have household strategies changed over a decade?" *Canadian Journal of Public Health*  
581 103 (6):428-432.

582 McIntyre, L., S.K. Connor, and J. Warren. 2000. "Child hunger in Canada: results of the 1994  
583 National Longitudinal Survey of Children and Youth." *Can. Med. Assoc. J* 163 (8):961-  
584 965.

585 McIntyre, L., R Lukic, PB Patterson, LC Anderson, and CL Mah. 2016. "Legislation debated as  
586 responses to household food insecurity in Canada, 1995-2012." *Journal of Hunger and*  
587 *Environmental Nutrition* 11 (4):441-455.

588 McIntyre, L., X Wu, VC Fleisch, and JCH Emery. 2015. "Homeowner versus non-homeowner  
589 differences in household food insecurity in Canada." *J Hous and the Built Environ* 31  
590 (2):349-366.

591 Middleton, G, K Mehta, D McNaughton, and S. Booth. 2018. "The experiences and perceptions  
592 of food banks amongst users in high-income countries: an international scoping review."  
593 *Appetite* 120:698-708.

594 National Zero Waste Council. 2017. National Food Waste Reduction Strategy. National Zero  
595 Waste Council

596 Ontario Energy Board. 2018. "Low-income Energy Assistance Plan." Queen's Printer for  
597 Ontario, accessed Dec 3. [https://www.oeb.ca/rates-and-your-bill/help-low-income-  
598 consumers/low-income-energy-assistance-program](https://www.oeb.ca/rates-and-your-bill/help-low-income-consumers/low-income-energy-assistance-program).

599 Perez de Armino, K. 2014. "Erosion of Rights, Uncritical Solidarity and Food Banks in Spain."  
600 In *First World Hunger Revisited*, edited by G. Riches and T Silvasti, 131-145.  
601 Basingstoke, Hampshire: Palgrave Macmillan.

602 Poppendieck, J. 1998. *Sweet Charity? Emergency Food and the End of Entitlement*. New York  
603 NY: Penguin Putnam Inc. Reprint, In File.

604 Poppendieck, J. 2014. "Food Assistance, Hunger and the End of Welfare in the USA." In *First*  
605 *World Hunger Revisited*, edited by G. Riches and T Silvasti, 176-190. Basingstoke,  
606 Hampshire: Palgrave Macmillan.

607 Poppendieck, Jan. 1994. "Dilemmas of emergency food: A guide for the perplexed." *Agriculture*  
608 *and Human Values* 11 (4):69-76.

609 Prayogo, Edwina, Angel Chater, Sarah Chapman, Mary Barker, N. Rahmawati, T. Waterfall, and  
610 G. Grimble. 2017. "Who uses foodbanks and why? Exploring the impact of financial  
611 strain and adverse life events on food insecurity." doi:  
612 <https://doi.org/10.1093/pubmed/fox133>.

613 Rainville, B., and S. Brink. 2001. Food Insecurity in Canada, 1998-1999. Hull, Quebec.

614 Riches, G. 2002. "Food banks and food security: welfare reform, human rights and social policy.  
615 Lessons from Canada?" *Social Policy & Administration* 36 (6):648-663.

616 Riches, Graham. 1986. *Food banks and the welfare crisis*. Toronto: James Lorimer & Company.

617 Robaina, Kate A., and Katie S. Martin. 2013. "Food Insecurity, Poor Diet Quality, and Obesity  
618 among Food Pantry Participants in Hartford, CT." *Journal of Nutrition Education and*  
619 *Behavior* 45 (2):159-164.

620 Roncarolo, F, C Adam, S Bisset, and L Potvin. 2014. "Traditional and alternative community  
621 food security interventions in Montreal, Quebec: different practices, different people."  
622 *Journal of Community Health* 40 (2):199-207.

623 Roncarolo, F, S Bisset, and L Potvin. 2016. "Short-term effects of traditional and alternative  
624 community interventions to address food insecurity." *PLoS One* 11 (3):e0150250.

- 625 Rush, TJ, V Ng, J.D. Irwin, LW Stitt, and M. He. 2007. "Food insecurity and dietary intake of  
626 immigrant food bank users." *Can J Diet Prac Res* 68 (2):73-78.
- 627 Salonen, AS. 2016. "Food for the soul or the soul for food: users' perspectives on religiously  
628 affiliated food charity in a Finnish city." Faculty of Theology, University of Helsinki.
- 629 Silvasti, T, and J Karjalainen. 2014. "Hunger in a Nordic Welfare State: Finland." In *First World*  
630 *Hunger Revisited*, edited by G. Riches and T Silvasti, 72-86. Basingstoke, Hampshire:  
631 Palgrave Macmillan.
- 632 Social Planning Council of Sudbury. "Community Emergency Fund." Social Planning Council of  
633 Sudbury, accessed Dec 3. <https://spcsudbury.ca/cef/>.
- 634 Tarasuk, V, and B Davis. 1996. "Responses to food insecurity in the changing Canadian welfare  
635 state." *J. Nutr. Educ* 28 (2):71-75.
- 636 Tarasuk, V, N Li, N Dachner, and A. Mitchell. 2018. "Household food insecurity in Ontario  
637 during a period of poverty reduction, 2005-2014." *Canadian Public Policy* forthcoming.
- 638 Tarasuk, V, T Li, A. Mitchell, and N Dachner. 2017. "The case for more comprehensive data on  
639 household food insecurity." *Health Promotion and Chronic Disease Prevention in*  
640 *Canada*:forthcoming.
- 641 Tarasuk, V., N Dachner, A.M. Hamelin, A. Ostry, P Williams, E Bocskei, B Poland, and K.  
642 Raine. 2014. "A survey of food bank operations in five Canadian cities." *BMC Public*  
643 *Health* 14:1234.
- 644 Tarasuk, V., A. Mitchell, and N Dachner. 2014. Household food insecurity in Canada, 2012.  
645 Toronto ON: Research to Identify Policy Options to Reduce Food Insecurity (PROOF).
- 646 Tarasuk, V.S., and G.H. Beaton. 1999. "Household food insecurity and hunger among families  
647 using food banks." *Can. J. Public Health* 90 (2):109-113.
- 648 Tsang, S, AM Holt, and E Azevedo. 2011. "An assessment of the barriers to accessing food  
649 among food-insecure people in Cobourg, Ontario." *Chronic Diseases and Injuries in*  
650 *Canada* 31 (3):121-128.
- 651 Vozoris, N, and V. Tarasuk. 2003. "Household food insufficiency is associated with poorer  
652 health." *Journal of Nutrition* 133 (1):120-126. doi: 10.1093/jn/133.1.120.
- 653 Will, Jeffry A., and Tracy A. Milligan. 2015. "Toward an Understanding of Food Pantry Food  
654 Recipients and the Agencies that Serve Them." *Journal of Applied Social Science* 9  
655 (1):65-74.
- 656 Williams, P.L., RB Macaulay, B.J. Anderson, K Barro, DE Gillis, C.P. Johnson, LL Langille, S  
657 Moran, and DE Reimer. 2012. "'I would have never thought that I would be in such a  
658 predicament": voices from women experiencing food insecurity in Nova Scotia, Canada."  
659 *Journal of Hunger and Environmental Nutrition* 7:253-270.
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677 **Figure I.** Number of individuals living in food insecure households and number of individuals  
678 assisted by food banks in March of the respective year<sup>a</sup>

679 <sup>a</sup> Number of individuals living in food insecure households estimated using the Canadian  
680 Community Health Survey 2007, 2008, 2011, 2012. Number of individuals assisted by food  
681 banks retrieved from the “HungerCount” report (Food Banks Canada 2012a).

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684

685 **Table I.** Sociodemographic characteristics by food insecurity

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687

688 **Figure II.** Predicted probabilities of reporting food bank use and other resource augmentation  
689 strategies

690 by food secure and food insecure households<sup>a,b</sup>

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692 <sup>a</sup> Predicted probabilities (95% confidence intervals) estimated while conditioning on observed  
693 values of living in rural or urban areas.

694 <sup>b</sup> Sample sizes differ slightly for some resource augmentation strategies due to missing responses  
695 to the questions.

696 <sup>c</sup> *p* value for the difference in the predicted probabilities between food secure and food insecure  
697 households.

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702 **Figure III.** Predicted probabilities of reporting different resource augmentation strategies by  
703 food insecure households who used food bank and those who did not<sup>a,b</sup>

704

705 <sup>a</sup> Predicted probabilities (95% confidence intervals) estimated while conditioning on observed  
706 values of living in rural or urban areas.

707 <sup>b</sup> Sample sizes differ slightly for some resource augmentation strategies due to missing responses  
708 to the questions.

709 <sup>c</sup> *p* value for the difference in the predicted probabilities between food insecure households who  
710 used food bank and those who did not.