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Abstract

Food insecurity—the lack of access to enough food for an active, healthy life—has many causes, including insufficient incomes, high levels of competing expenditure needs, and inadequate facilities to store and prepare food. These and other characteristics that contribute to food insecurity may also contribute to other personal and household hardships, meaning that many people may experience food insecurity as one of several co-occurring hardships. This study examines people's experiences of (1) food insecurity, (2) poor financial wellbeing, (3) poor physical health and long-term disability, (4) low levels of social support, and (5) inadequate economic resources and housing stress, using 2020 data from the Household, Income and Labour Dynamics in Australia Survey. The study finds food insecurity typically co-occurs with other hardships. Among Australians who are food insecure, nearly two thirds experience one of the other hardships that we examine, and just under one third experience multiple other hardships.

JEL classification: D12, I31
Keywords: Food insecurity, hardships, co-occurrence, Australia

Introduction

Food insecurity—the lack of access to enough food for an active, healthy life—is a critical problem in many countries. Social, policy, and scientific concern arises from several aspects of food insecurity, especially its immediate negative physical and psychological impacts and its near- and long-term health consequences (Gundersen & Ziliak, 2018). Policies to improve food security include directly increasing access to food, such as through the Supplemental Nutrition Assistance Program (SNAP) in the United States (Gregory et al., 2016), and addressing other identified causes of food insecurity, such as insufficient incomes, low levels of household skills, and competing expenditure needs (see, e.g., Barrett, 2002, and Gundersen & Ziliak, 2018, for discussions of the causes). However, policies focused narrowly on food insecurity may do little to improve people's wellbeing if food insecurity co-occurs with other problems.

Despite the enormous research literature on food insecurity, we have relatively little quantitative evidence about key elements of the context in which food insecurity is experienced, including other hardships that co-occur with food insecurity and how individuals experience food insecurity within households. Developing this evidence has been hampered by data limitations. For example, the workhorse data set for studying food security in the United States—the annual Food Security Supplement of the Current Population Survey (CPS-FSS)—asks about only a few other domains of wellbeing and measures food security at the household level (see Coleman-Jensen et al., 2022). Several studies, however, have advanced our understanding using other data sets. Joyce et al. (2012) used the Children's HealthWatch Survey to document that children's food insecurity often co-occurs with family energy and housing insecurity. Many

studies have used the National Health and Nutrition Examination Survey (NHANES) to document how food insecurity occurs with health problems (see the review by Gundersen & Ziliak, 2018). In addition, Aranda and Ribar (2023) have used person-specific questions from the NHANES to examine how person-specific indicators of food insecurity differ from household indicators of food insecurity.

The present study draws on data from the 2020 wave of the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Survey is a national, longitudinal, annual survey that standardly collects information on subjects' economic, social, and demographic situations. Unlike the CPS-FSS and many other surveys, the HILDA measures include a wide set of wellbeing indicators. Most of the wellbeing indicators are also ascertained separately for each adult in the household, rather than for the household as a whole. The 2020 wave of the HILDA Survey expanded this set of measures to include questions about people's food security and financial wellbeing. The paper uses these data to examine how Australians' food insecurity co-occurs with four other domains of hardship: (1) poor financial wellbeing, (2) poor physical health and long-term disability, (3) low levels of social support, and (4) inadequate economic resources and housing stress. The paper also examines the extent to which personal experiences of food insecurity and other problems co-occur with other household members' experiences of problems. The goal of the paper is to provide a more complete picture of the context for experiencing food insecurity.

The study is closely related to research on multidimensional poverty, which broadened the measurement and analysis of monetary poverty to include other non-monetary domains of deprivation (see, e.g., Alkire et al., 2015). Multidimensional poverty has been frequently

examined in the context of developing countries, but it has also been investigated for developed countries, including the United States (Brucker et al., 2015; White, 2020) and Australia (Martinez & Perales, 2017; Scutella et al., 2009). Indeed, the data from the HILDA Survey are used to produce a widely used multidimensional poverty measure in Australia, the Brotherhood of St. Laurence (BSL) – Melbourne Institute Social Exclusion Measure (SEM).[1] Our research builds on the concept of multidimensional poverty to examine food insecurity as a key domain of deprivation and its co-occurrence with other monetary and non-monetary domains of hardship.

Data

Our empirical analyses use data from the 2020 wave of the Household, Income and Labour Dynamics in Australia Survey. The HILDA Survey is a large national longitudinal survey that began with 19,914 people in 7,682 Australian households in 2001 and has subsequently followed those people and their families in annual interviews. In 2011 a general sample "top-up" of 5,462 people in 2,153 households was added (for full details of sample inclusion and following rules, see Summerfield et al., 2022). Each wave asks about personal and household economic and social conditions, demographic circumstances, and other characteristics through interviews about the household, in-person (person questionnaire, PQ) interviews with each household "adult" (people who are 15 years of age or older), and self-completion questionnaires (SCQs) for the same adults. Attrition has been modest; by the 20th wave, 58.7

[1] The SEM is regularly reported through the *Social Exclusion Monitor* at https://www.bsl.org.au/research/our-research-and-policy-work/social-exclusion-monitor/.

percent of the original survey respondents completed interviews (Summerfield et al., 2022). We extracted the HILDA data with the PanelWhiz add-on for Stata (Hahn & Haisken-DeNew, 2013).

We focus on the 2020 wave of the HILDA Survey because it introduced questions about people's food security and financial wellbeing. The survey adapted eight questions from the Food Insecurity Experience Scale (FIES), which was originally developed by the United Nations' Food and Agriculture Organization (Ballard et al., 2013). Respondents were asked (yes or no) in the SCQ, "During the last 12 months, was there a time when, because of a lack of money:

1. You were worried you would not have enough food to eat?
2. You were unable to eat healthy and nutritious food?
3. You ate only a few kinds of foods?
4. You had to skip a meal?
5. You ate less than you thought you should?
6. Your household ran out of food?
7. You were hungry but did not eat?
8. You went without eating for a whole day?"[2]

The FIES was developed and psychometrically analyzed to be comparable internationally and across different cultural contexts.

The 2020 wave of the HILDA Survey also asked the five items of the Commonwealth Bank-Melbourne Institute Reported Financial Wellbeing Scale, or CBA-MI-5 (Botha et al., 2020). The CBA-MI-5 is a validated scale that measures

[2] The HILDA questions differ from the standard FIES questions by (1) asking about conditions only in terms of money instead of "money and other resources" and (2) asking whether respondents worried they would "not have enough food to eat" instead of "run out of food."

> the extent to which people both perceive and have (i) financial outcomes in which they meet their financial obligations, (ii) financial freedom to make choices that allow them to enjoy life, (iii) control of their finances, and (iv) financial security—now, in the future, and under possible adverse circumstances (Comerton-Forde et al., 2018).

The CBA-MI-5 consists of five categorical items. Two items ask the applicability (0 – "not at all" to 4 – "completely") of the statements:

1. I can enjoy life because of the way I'm managing my money.
2. I could handle a major unexpected expense.

Three other items ask agreement (0 – "disagree" to 4 – "agree strongly") with the statements:

3. I feel on top of my day-to-day finances.
4. I am comfortable with my current levels of spending relative to the funds I have coming in.
5. I am on track to have enough money to provide for my financial needs in the future.

The CBA-MI-5 is calculated by summing the numerical values and multiplying by 5 to form a 0-100 scale with higher values indicating better financial wellbeing. For our analyses, we reverse the financial wellbeing scale items so that higher values indicate worse financial wellbeing.

We also consider several items from the HILDA that are included in the Brotherhood of St Laurence – Melbourne Institute Social Exclusion Measure. The SEM is a multidimensional wellbeing measure that includes domains of material resources, employment, education and skills, health and disability, social interactions, community conditions, and personal safety (see Scutella et al., 2009). We include yes/no indicators of whether

1. The household's equivalized income is below 60 percent of the median;
2. The person is unemployed;
3. No members of the household were employed, where at least one household member is of working age;
4. The Short-Form 36 (SF-36) general health score was below 37;
5. The SF-36 physical health score was below 37;
6. The SF-36 mental health score was below 52;
7. The person has long-term disability or health condition;
8. The score on a 10-item (10-70) scale of social support was below 30;
9. The person was dissatisfied with their community, with a score of 4 or lower on a 0-10 scale;
10. The person was dissatisfied with their neighborhood, with a score of 4 or lower on a 0-10 scale; and
11. The person was dissatisfied with their personal safety, with a score of 4 or lower on a 0-10 scale.

These items cover all the SEM domains except education and skills, which we consider to be a background characteristic. We omit several SEM measures, such as a count of financial strains, because they overlap with other included measures. We also dropped several SEM measures after preliminary tests indicated that they had low correlations with the listed measures.

In addition to these measures, we also include as a measure of housing payment stress an indicator of whether the household's mortgage or rent payments were greater than 30 percent of its income and its income was in the bottom two quintiles of the income distribution

(see, e.g., Ong ViforJ et al., 2022). We also examined a measure of household overcrowding but dropped it from our final set of measures because it was only weakly correlated with the other measures.

Some of our analyses also consider personal and household characteristics of the respondents. The personal characteristics include the respondent's gender, age, education, Indigenous background, non-English-speaking migrant background, and marital status. The household characteristics are the number of other adults in the household, the presence and number of children, and the age of the youngest child.

It is important to note that interviews for the 2020 wave of the HILDA Survey began in August 2020, during the COVID-19 emergency in Australia. Unlike other waves of the survey, telephone interviewing was the primary method for collecting the "in-person" and "household" questionnaire components. The SCQ component was administered in the same way as other waves.

The observations in our analysis are selected from people aged 15 years and older who responded to the 2020 wave of the HILDA Survey and completed the SCQ. We drop a small number of observations who did not respond to particular items or provided answers of "don't know." All our analyses incorporate sampling weights provided with the HILDA Survey that account for survey and SCQ non-response. Our final analysis dataset has observations for 12,198 people in 7,845 households. Means of the 25 hardship measures and the personal and household characteristics for our sample are reported in the first column of Table 1.

The estimates from Table 1 reveal that the percentages of people who report specific food problems are low and range from 8.6 percent of people reporting that they ate less than

they should to 2.8 percent reporting that their household ran out of food. Averages for the financial wellbeing measures are consistent with moderately good financial wellbeing. Rates of health problems are relatively low; however, more than a quarter of people report a long-term condition. Rates of most social problems are very low; however, 11.4 percent of people report being dissatisfied with their communities. The poverty rate is moderate at 15.5 percent. Rates of unemployment, joblessness, and housing payment stress are lower.

Scales and Indicators

We performed an exploratory factor analysis (EFA) that was adjusted for categorical responses on all 25 indicators of interest to determine how the measures relate to each other and fit together in different scales. The EFA indicated that a five-factor solution fits the data. Appendix Table A1 reports the EFA factor loadings from a rotated five-factor solution.

Among the items that we examine, the eight food hardship items are from the previously validated FIES, and the five financial wellbeing items are from the previously validated CBA-MI-5 scale. Consistent with previous analyses of these items by Ballard et al. (2013) and Botha et al. (2020), we find that the eight FIES items strongly align on a single factor (the loadings range from 0.88 to 0.97), and the five CBA-MI-5 items strongly align on a single factor (the loadings range from 0.74 to 0.86). The factors are separate, and no other items strongly align on these factors. Thus, we confirm that the FIES and CBA-MI-5 scale relationships appear in our data and that the scales are distinct from each other and from the other items that we consider.

The EFA indicates that five items—the SF-36 mental health item, the social support item, the neighborhood and community satisfaction items, and the personal safety item—

strongly align on the third factor. Four items—the poverty indicator, personal unemployment indicator, household unemployment indicator, and housing payment stress indicator—strongly align on the fourth factor. Three items—the SF-36 general health item, the SF-36 physical health item, and the long-term disability or health condition item—align on the fifth factor. Each of these alignments also appears to be distinct. We interpret the third factor as representing problems with mental health and social support, the fourth factor as representing problems with income and housing, and the fifth factor as representing poor physical health and long-term disability.

We construct five summative scales for the items that align with each of the distinct factors from the EFA. Specifically, we sum

1. The eight binary food hardship measures to form the FIES (range 0-8);
2. The five categorical financial wellbeing measures and multiply by five to form a reverse-coded version of the CBA-MI-5 (range 0-100);
3. The five binary mental health and social support problem measures (range 0-5);
4. The four binary income and housing stress measures (range 0-4); and
5. The three physical health and long-term disability measures (range 0-4).

All the scales are coded so that higher values indicate more hardships in the given domain. Reliability for the FIES and CBA-MI-5 scale are excellent, as both have Cronbach alpha coefficients of 0.91. Reliability for the other scales is moderate, with Cronbach alpha values of 0.46 for the mental health and social support scale, 0.51 for the scale measuring income and housing hardships, and 0.62 for physical health problems and long-term disability. The

moderate reliability coefficients for the last three scales are consistent with analyses by Martinez and Perales (2017) who also used many of the SEM measures we consider.

Based on an inspection of each constructed scale's distribution of possible values, we create binary indicator variables that reflect whether an individual experiences a substantial deprivation in that specific dimension. We define a person as being food insecure, having substantially poor physical health or disability, having very low mental health and social support, and having very low income or housing affordability if two or more items are affirmed in each dimension. We categorize a person as having very low financial wellbeing if the reversed CBA-MI-5 score is 80 or higher (this corresponds to the threshold that Botha et al., 2020, established for people "having trouble" with their financial wellbeing).

For our analyses, we further create indicators for (i) the count of the five defined deprivations, (ii) whether an individual reports any (one or more) of the five deprivations, and (iii) whether an individual reports multiple instances of the five deprivations. We also create household-level indicators for each dimension to indicate whether (i) no members in the household report a deprivation, (ii) some household members report a deprivation, and (iii) all household members report a deprivation.

Results

The second and third columns of Table 1 list the percentages of people reporting each individual hardship item conditional on people being identified as being food insecure or food secure. As expected, reports of each hardship item are much higher for people who also are identified as being food insecure. People who are food insecure are also more likely to be

women, younger, less educated, and unmarried; have Indigenous and non-migrant backgrounds; and have children and younger children in their households.

Table 2 reports the incidence of the study's summary deprivation indicators unconditionally and conditional on each type of hardship. The results in the first row reveal that the incidence of deprivations is low. Specifically, 9.1 percent of Australian adults are identified as being food insecure; 6.1 percent have poor mental health and/or low social support; 11.6 have poor physical health or a long-term disability; 8.8 percent have low incomes or housing payment stress; and 4.6 percent have low financial wellbeing. When we consider the deprivations together, 26.9 percent of Australian adults experience at least one of the deprivations, and 8.9 percent experience multiple deprivations. The average number of deprivations reported is 0.4.

The next two rows report the incidence of deprivations conditional on the person being food insecure (row 2) or food secure (row 3). Food insecurity is positively associated with experiencing other deprivations, with the incidence of each type of deprivation being much higher among people who are food insecure than those who are not. Rates of experiencing each of the other deprivations range from 25.2 to 28.2 percent. Overall, nearly two-thirds (63.0 percent) of adults who are food insecure experience at least one other hardship, and just under one third (30.0 percent) of food insecure adults have multiple other hardships. In contrast, only 19.5 percent of adults who are food secure experience other deprivations, and 3.5 percent experience multiple deprivations.

Similar patterns appear in the subsequent rows that report results conditional on other deprivations. Of the five domains, adults experiencing physical health problems report the

lowest incidence of other deprivations, while adults experiencing low financial wellbeing report the highest. Specifically, among adults with low financial wellbeing, more than three quarters report another deprivation, and nearly half report multiple other deprivations. Rates of food insecurity are especially high for this group, with 55.9 percent of people with low financial wellbeing reporting food insecurity.

Table 3 summarizes the co-occurrence of each of the five summary deprivation measures among adults living in the same households. The proportion of households with members reporting each type of hardship is low, though the incidence of household reports is higher than the incidence of individual reports. For example, while only 9.1 percent of individuals report being food insecure, 13.1 percent of households have one or more members who are food insecure. Like the results for the individual reports from Table 2, the incidence of household hardships is lowest for financial wellbeing and social support and highest for physical health problems.

The second and third columns of Table 3 report the percentages of households in which some members report a given deprivation but other members do not (that is households in which there are differences in reports) and households in which all the members report a deprivation. The results indicate that experiences of hardships are frequently shared among adult members of households but that there are also many occurrences of experiences differing. Among the households experiencing food insecurity, 55.8 percent have all their adult members reporting this hardship, while 44.2 percent only have some adult members reporting the hardship. We see similar patterns for all the deprivations except for low income and housing stress, which incorporates three household-level measures and only one individual-

level measure. Botha and Ribar (2023) and Breunig et al. (2007) also found high rates of intra-household co-occurrence and differences in individual reports of financial stresses.

Table 4 reports percentages of people living in households in which they or other adults report deprivations. The first row reports unconditional statistics of the percentage living in households in which someone reports hardships. The table reveals that 13.3 percent of Australian adults live in a household where someone reports food insecurity; 9.9 percent live in households where someone reports poor mental health and/or low social support; 18.2 live in households where someone reports physical health problems; 9.4 percent live in households with low incomes and/or housing payment stress; and 7.2 percent live in households where someone reports low financial wellbeing. Approximately two in five Australian adults live in household where someone reports a deprivation, and about one in seven live in households with reports of multiple deprivations.

The next two rows show how household hardships co-occur with individual reports of food insecurity. The first column for these two rows lists the percentage of people who live in households where *someone else* reports food insecurity. The next four columns list whether the person or other people in the household report other hardships. Among people who are food insecure, 22.0 percent live in households where someone else reports food insecurity, and 28.5 to 34.8 percent live in households where people report other hardships. Overall, 75.7 percent of adults who are food insecure live in households where other members report food hardship or where any of the members report any other deprivations, and 44.7 percent are in households where there are multiple other indications of deprivations.

Statistics are calculated similarly in the subsequent rows, with the estimates in the column that matches the conditioning deprivation representing percentages of people living in households where someone else reports that deprivation and the columns for the other deprivations representing percentages living in households where anyone (including the respondent) reports the deprivation. Like the patterns noted in Table 2, the proportion of people reporting other household deprivations is lowest for those experiencing physical health problems and highest for those experiencing low financial wellbeing.

Overall, the results reported in Tables 1-4, indicate that individuals' food insecurity is not an isolated event but instead co-occurs with other problems and often manifests as a shared experience with other household members.

We next examine how reports of food insecurity and other deprivations vary with the observed characteristics of people and their households. Table 5 reports estimated marginal effects and standard errors from logit models of reporting different types of deprivations. The marginal effects are calculated as the (weighted) average of the marginal effects for each person. The first column in Table 5 reports marginal effects of characteristics on reports of food insecurity. Reports of food insecurity are lower among people who are aged 65 years and older, more educated, married, and living with other adults, but they are higher among people with Indigenous backgrounds, children, and younger children. Many of these associations are similar to results reported for the U.S. (see, e.g., Gundersen & Ziliak, 2018).

The next two columns of Table 5 report estimated marginal effects of characteristics on the incidence of reporting any of the five deprivations (column 2) and reporting multiple deprivations (column 3). As with analyses of food insecurity, general reports of deprivations are

lower among people who are more educated, married, and living with other adults, and they are higher among people with Indigenous backgrounds and with younger children. However, there are also some differences. For example, reports of any deprivations are higher for people who are age 55 years and older, and reports of multiple deprivations are lower for men and higher for people who are 35-64 years old.

The final two columns of Table 5 report marginal effects of reporting any or multiple deprivations other than food insecurity among people who are food insecure. There are only two significant predictors for the incidence of any other deprivations among people who are food insecure, with men and college-educated people being less likely to report these. For multiple deprivations, there are more significant predictors. Migrants from non-English-speaking countries and married people are less likely to report multiple other deprivations if they are food insecure, while people aged 35-64 years old and people with young children are more likely to report multiple other deprivations.

As a sensitivity analysis, we ran the same multivariate models but examined household reports of hardships described in Table 4 among the subset of people who were in households that returned multiple SCQs (that is, people for whom household reports might have differed from personal reports). The estimated marginal effects from these analyses, which are reported in Appendix Table A2, are qualitatively similar to the results from Table 5.

Conclusion

This study uses data from the 2020 wave of the HILDA Survey to investigate how Australians' food security co-occurs with four other types of hardships: poor financial wellbeing, poor physical health and long-term disability, low levels of social support, and inadequate

economic resources and housing stress. The study also examines the extent to which personal experiences of food insecurity and other problems co-occur with other household members' experiences of problems.

The study constructs multi-item scales for its five domains of hardships, and it uses these to create binary indicators of experiencing substantial deprivations. Consistent with the severity of the indicators, the study finds that the incidence of hardships among Australian adults is low, with only 26.9 percent experiencing any of the five hardships and 8.9 percent experiencing multiple hardships. The rate of personal food insecurity is also low, with an incidence of 9.1 percent.

However, among adults who are food insecure, the co-occurrence of other hardships is very high. Nearly two-thirds of Australian adults who are food insecure report experiencing other hardships, with just under a third reporting multiple other hardships. Thus, food insecurity does not appear to be an isolated deprivation but instead often presents with other personal hardships.

Hardships also frequently co-occur among adults in the same household. For example, 13.3 percent of Australian households have at least one adult member who reports being food insecure. Within these households, 55.8 percent have all their adult members reporting food insecurity, but 44.2 percent have one or more members not reporting this condition. Among individuals who report being food insecure, 75.7 percent are in households where other members report that problem or where any of the members report other problems. This reinforces our central finding that individuals' food insecurity co-occurs with other problems.

The findings suggest that policies that narrowly target food insecurity, such as directly providing people with food or quarantining social benefits so that funds are spent primarily on food, may leave many aspects of wellbeing unaddressed. The findings also suggest that research on the consequences of food insecurity needs to carefully account for the context in which food insecurity occurs and the other hardships that may accompany it.

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Table 1. Percentages and Means of Hardship Measures, Personal Characteristics, and Household Characteristics

Specific hardship	All	Food insecure	Food secure
Food hardships (%)			
Ate only a few kinds of foods	8.6	79.1	1.6
Unable to eat healthy and nutritious foods	7.3	65.4	1.4
Ate less than thought they should	6.2	63.8	0.4
Worried not enough food to eat	5.7	57.6	0.5
Hungry but did not eat	5.2	54.2	0.2
Had to skip a meal	4.8	51.7	0.1
Went without eating for a whole day	3.4	35.3	0.2
Household ran out of food	2.8	29.6	0.1
Mental health and social support problems (%)			
SF-36 mental health score below 50	13.5	39.0	11.0
Social support score below 30	1.7	8.1	1.0
Dissatisfied with community	11.4	28.4	9.7
Dissatisfied with neighborhood	3.0	11.6	2.1
Dissatisfied with safety	2.0	9.5	1.2
Physical health problems (%)			
SF-36 general health score below 50	9.9	22.8	8.6
SF-36 physical health score below 50	9.3	17.2	8.5
Person has long-term disability or health condition	28.6	46.9	26.8
Income and housing hardships (%)			
Equivalized HH income below 60% of median	15.5	29.5	14.1
Person unemployed	3.5	10.4	2.8
No member of household employed	10.0	27.8	8.2
Housing payment stress	7.7	20.5	6.4
Financial wellbeing problems (average [0-4])			
Cannot enjoy life because of finances	1.5	2.5	1.4
Cannot handle major unexpected expense	1.8	3.0	1.6
Do not feel on top of finances	1.3	2.4	1.2
Not comfortable with current levels of spending	1.4	2.4	1.3
Not on track to provide for future financial needs	1.6	2.7	1.5
Personal and household characteristics			
Male (%)	48.3	45.8	48.6
Age (years)	47.4	41.0	48.1
Completed year 12 of schooling (%) [A]	16.2	19.6	15.9

Completed certificate or diploma (%) [A]	33.8	42.6	32.9
Completed bachelors degree or more (%) [A]	23.5	14.9	34.3
Indigenous background (%)	2.0	5.6	1.7
Non-English-speaking migrant (%)	18.9	16.4	19.1
Married (%)	66.2	44.3	68.4
Number of other adults in household (people)	0.6	0.6	0.6
Any children in household (%)	34.2	38.2	33.8
Number of children in household (people)	0.6	0.7	0.6
Age of youngest child (years) [B]	7.4	6.9	7.4
Observations	12,198	1,123	11,075

Notes: Weighted person-level data from the 2020 HILDA. Several items reverse-coded from original items to indicate hardships.

[A] Omitted category is completed year 11 or less.

[B] Average age of youngest child only calculated for people living in households with children.

Table 2. Percentages of People Reporting Deprivations

Group	Specific deprivations					Summary of deprivations		
	Food insecurity	Low social support	Health problems	Low income	Low financial wellbeing	Any (other) deprivations	Multiple (other) deprivations	Average number of (other) deprivations
All	9.1	6.1	11.6	8.8	4.6	26.9	8.9	0.4
Food insecure	-	25.2	24.9	27.7	28.2	63.0	30.0	1.1
Food secure	-	4.2	10.2	6.9	2.2	19.5	3.5	0.2
Low social support	37.7	-	31.3	22.6	21.9	61.6	33.9	1.1
Adequate social support	7.3	-	10.3	7.9	3.5	22.1	5.5	0.3
Health problems	19.7	16.6	-	19.3	12.6	41.5	18.2	0.7
Adequate health	7.8	4.7	-	7.5	3.6	17.3	4.7	0.2
Low income	28.7	15.6	25.2	-	15.0	50.3	23.5	0.8
Adequate income	7.3	5.2	10.2	-	3.6	19.8	4.9	0.3
Low financial wellbeing	55.9	28.9	31.5	28.6	-	77.1	43.6	1.4
Adeq. financial wellbeing	6.9	5.0	10.6	7.9	-	23.3	5.6	0.3

Notes: Weighted person-level data from the 2020 HILDA. For the first (unconditional) row, the measures for any deprivations, multiple deprivations, and the count of deprivations are calculated using all five deprivations. For the other (conditional) rows, the measures for any deprivations, multiple deprivations, and the count of deprivations are calculated using the four deprivations other than the conditioning deprivation.

Table 3. Percentages of Households with Members Reporting Deprivations

Type of Deprivation	No members report deprivation	Some but not all members report deprivation	All members report deprivation
Food insecurity	86.9	5.4	7.7
Poor mental health and low social support	90.7	4.9	4.4
Physical health problems	83.0	8.5	8.6
Low income and housing payment stress	88.7	0.8	10.5
Low financial wellbeing	93.1	3.2	3.7

Notes: Weighted household-level data from the 2020 HILDA.

Table 4. Percentages of People in Households or with Other Members Reporting Deprivations

Group	Specific deprivations					Summary of deprivations		
	Food insecurity	Low social support	Health problems	Low income	Low financial wellbeing	Any (other) deprivations	Multiple (other) deprivations	Average number of (other) deprivations
All	13.3	9.9	18.2	9.4	7.2	36.5	13.7	0.6
Food insecure	22.0[a]	32.0	32.6	28.5	34.8	75.7	44.7	1.5
Food secure	4.6[a]	7.7	16.7	7.5	4.4	30.1	8.0	0.4
Low social support	44.2	12.2[a]	35.7	24.0	26.3	72.0	42.0	1.4
Adequate social support	11.3	4.0[a]	17.0	8.5	6.0	32.3	10.2	0.5
Health problems	25.0	19.6	17.9[a]	20.6	16.4	54.7	26.7	1.0
Adequate health	11.8	8.6	7.5[a]	8.0	6.0	28.1	9.4	0.4
Low income	33.8	19.3	33.0	40.9[a]	18.3	74.2	39.9	1.5
Adequate income	11.3	9.0	16.7	0.7[a]	6.1	30.3	9.5	0.4
Low financial wellbeing	62.8	36.4	40.4	29.1	14.7[a]	83.2	56.1	1.8
Adeq. financial wellbeing	10.9	8.6	17.1	8.5	2.7[a]	33.4	10.4	0.5

Notes: Weighted person-level data from the 2020 HILDA. For the first (unconditional) row, the measures indicate any members reporting a deprivation. For the other (conditional) rows, the measure for the conditioning deprivation indicates another household member reporting that deprivation, and the measures for any deprivations, multiple deprivations, and the count of deprivations are calculated using another household member reporting the conditioning deprivation and any member reporting the remaining deprivations.

[a] Percentage calculated for any other household members reporting the deprivation.

Table 5. Estimated Marginal Effects of Personal and Household Characteristics on Reported Deprivations

	All respondents			Food insecure respondents	
	Food insecure	Any deprivation	Multiple deprivations	Any other deprivation	Multiple other deprivations
Male	-0.012	-0.013	-0.014*	-0.101**	0.021
	(0.007)	(0.011)	(0.007)	(0.036)	(0.031)
Age 25-34 years	0.005	0.001	0.008	-0.020	-0.026
	(0.017)	(0.022)	(0.012)	(0.065)	(0.040)
Age 35-44 years	-0.007	0.013	0.033*	-0.006	0.140**
	(0.019)	(0.025)	(0.014)	(0.072)	(0.053)
Age 45-54 years	-0.008	0.024	0.048***	-0.112	0.247***
	(0.017)	(0.022)	(0.014)	(0.064)	(0.056)
Age 55-64 years	-0.032	0.091***	0.054***	-0.019	0.261***
	(0.017)	(0.024)	(0.015)	(0.075)	(0.059)
Age 65 or more years	-0.085***	0.080***	0.001	0.094	0.082
	(0.015)	(0.023)	(0.012)	(0.087)	(0.063)
Completed year 12	-0.060***	-0.120***	-0.060***	0.017	-0.041
	(0.015)	(0.021)	(0.014)	(0.061)	(0.049)
Completed cert. or diploma	-0.030*	-0.093***	-0.037**	0.084	-0.070
	(0.014)	(0.017)	(0.012)	(0.047)	(0.040)
Completed bachelors degree	-0.107***	-0.203***	-0.104***	-0.120*	-0.026
	(0.013)	(0.018)	(0.011)	(0.055)	(0.054)
Indigenous background	0.077***	0.205***	0.109***	0.023	0.102
	(0.021)	(0.032)	(0.025)	(0.061)	(0.060)
Non-Eng.-speaking migrant	0.013	0.043*	-0.008	-0.001	-0.158***
	(0.014)	(0.020)	(0.012)	(0.069)	(0.041)
Married	-0.089***	-0.182***	-0.107***	0.041	-0.145***
	(0.009)	(0.013)	(0.009)	(0.036)	(0.034)
Number of other adults	-0.011*	-0.023**	-0.008	0.029	-0.019
	(0.005)	(0.009)	(0.005)	(0.026)	(0.021)
Any children	0.041*	0.053	0.038*	-0.076	0.036
	(0.019)	(0.031)	(0.018)	(0.082)	(0.080)
Number of children	-0.001	-0.001	0.001	0.028	-0.010
	(0.006)	(0.011)	(0.006)	(0.030)	(0.028)
Age of youngest child	-0.002*	-0.004*	-0.003**	0.001	-0.011*
	(0.001)	(0.002)	(0.001)	(0.006)	(0.005)
Observations	12,198	12,198	12,198	1,123	1,123

Notes: Weighted person-level data from the 2020 HILDA. Estimated marginal effects from logit models of the listed outcomes. Standard errors appear in parentheses.
* Significant at 0.1 level. ** Significant at 0.05 level. *** Significant at 0.01 level.

Appendix Table A1. Exploratory Factor Analysis of Food Insecurity and Other Hardship Measures

	1st factor	2nd factor	3rd factor	4th factor	5th factor
Food hardships					
Ate only a few kinds of foods	0.8801	0.0828	-0.0178	0.0165	0.0071
Unable to eat healthy and nutritious foods	0.8692	0.0345	0.0427	-0.0172	-0.0175
Ate less than thought they should	0.9670	-0.0030	-0.0201	0.0021	-0.0032
Worried not enough food to eat	0.8942	0.0807	-0.0312	0.0409	-0.0138
Hungry but did not eat	0.9581	-0.0202	0.0353	0.0072	-0.0374
Had to skip a meal	0.9557	0.0075	0.0240	-0.0033	-0.0260
Went without eating for a whole day	0.8767	-0.0033	0.0780	-0.0244	0.0144
Household ran out of food	0.9587	0.0080	-0.1039	0.0207	0.0074
Mental health and social support problems					
SF-36 mental health score below 50	0.1567	0.1069	0.4344	-0.0811	0.2341
Social support score below 30	0.1958	0.0616	0.3941	0.0477	0.0837
Dissatisfied with community	-0.0300	-0.0733	0.7923	0.0341	-0.0041
Dissatisfied with neighborhood	0.0011	-0.0791	0.8680	0.0357	-0.0443
Dissatisfied with safety	0.0153	0.0926	0.7020	-0.0137	0.0632
Physical health problems					
SF-36 general health score below 50	-0.0308	0.1146	0.1166	-0.0617	0.8120
SF-36 physical health score below 50	-0.0527	0.0399	-0.0329	0.0219	0.8390
Has long-term disability or health cond.	0.0365	-0.0973	-0.0361	0.1462	0.8080
Income and housing hardships					
Equiv. HH income below 60% of median	-0.0309	-0.0546	-0.0842	0.6764	0.3214
Person unemployed	-0.0293	0.1718	0.1696	0.6502	-0.3935
No member of household employed	0.1008	-0.1001	0.0519	0.7414	0.1180
Housing payment stress	0.0651	0.0901	-0.0818	0.5574	0.0583
Financial wellbeing problems					
Cannot enjoy life because of finances	0.0798	0.7803	-0.0060	-0.0455	0.0677
Cannot handle major unexpected expense	0.1994	0.7365	-0.0767	0.0035	0.0435
Do not feel on top of finances	0.0534	0.8734	-0.0148	-0.0036	-0.0026
Not comfortable with curr. levels of spending	0.0203	0.8637	0.0374	-0.0295	-0.0568
Not on track to provide for future fin. needs	0.0345	0.8489	-0.0443	0.0533	0.0336
Eigenvalues	11.3794	2.2630	1.6464	1.4114	1.1361

Notes: Loadings and eigenvalues (last row) from exploratory factor analyses with five-factor structures applied to polychoric correlation matrices of the listed hardship measures calculated using weighted person-level data from the 2020 HILDA. Highlighted cells indicate factor with highest loading.

Appendix Table A2. Estimated Marginal Effects of Personal and Household Characteristics on Reported Deprivations among Household Members

	All respondents			Food insecure respondents	
	Food insecure	Any deprivation	Multiple deprivations	Any other deprivation	Multiple other deprivations
Male	0.002	0.000	0.000	0.000	-0.010
	(0.011)	(0.015)	(0.010)	(0.038)	(0.050)
Age 25-34 years	0.004	0.046	0.011	0.112	-0.031
	(0.023)	(0.030)	(0.018)	(0.076)	(0.089)
Age 35-44 years	-0.008	0.066	0.031	0.228**	0.121
	(0.027)	(0.035)	(0.022)	(0.071)	(0.099)
Age 45-54 years	-0.006	0.081**	0.051**	0.119	0.097
	(0.023)	(0.029)	(0.019)	(0.084)	(0.092)
Age 55-64 years	-0.009	0.178***	0.081***	0.222*	0.237*
	(0.025)	(0.031)	(0.022)	(0.091)	(0.106)
Age 65 or more years	-0.073**	0.184***	0.029	0.166	0.167
	(0.022)	(0.030)	(0.020)	(0.116)	(0.130)
Completed year 12	-0.057*	-0.106***	-0.058**	0.067	-0.175*
	(0.023)	(0.030)	(0.021)	(0.060)	(0.088)
Completed cert. or diploma	-0.040*	-0.108***	-0.041*	0.001	-0.166**
	(0.020)	(0.026)	(0.018)	(0.056)	(0.063)
Completed bachelors degree	-0.121***	-0.218***	-0.123***	-0.093	-0.157
	(0.020)	(0.026)	(0.018)	(0.072)	(0.081)
Indigenous background	0.095**	0.226***	0.156***	0.068	0.085
	(0.034)	(0.044)	(0.039)	(0.061)	(0.092)
Non-Eng.-speaking migrant	0.011	0.031	-0.022	-0.003	-0.260***
	(0.019)	(0.027)	(0.017)	(0.063)	(0.073)
Married	-0.088***	-0.192***	-0.130***	0.040	-0.043
	(0.023)	(0.027)	(0.021)	(0.055)	(0.060)
Number of other adults	0.020**	0.033**	0.022**	0.079	0.041
	(0.007)	(0.012)	(0.007)	(0.043)	(0.040)
Any children	0.069*	0.062	0.062*	-0.054	0.008
	(0.027)	(0.039)	(0.026)	(0.088)	(0.108)
Number of children	-0.002	-0.012	-0.008	-0.018	0.027
	(0.008)	(0.013)	(0.008)	(0.024)	(0.036)
Age of youngest child	-0.004**	-0.005*	-0.003	-0.000	-0.008
	(0.001)	(0.002)	(0.001)	(0.006)	(0.007)
Observations	8,188	8,188	8,188	582	582

Notes: Weighted person-level data from the 2020 HILDA for people in households with multiple people completing the SCQ. Estimated marginal effects from logit models of the listed outcomes. Standard errors appear in parentheses.

* Significant at 0.1 level. ** Significant at 0.05 level. *** Significant at 0.01 level.


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