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ABSTRACT

The impact that an unforeseen event has on household welfare depends on the extent to which household members can take actions to mitigate the direct impact of the shock. In this paper, we use nine years of longitudinal data from the Household Income Labour Dynamics of Australia (HILDA) survey to examine the impact of job displacement and serious health problems on: individual labour supply and incomes, household incomes and food expenditure. We extend on the previous literature by examining whether mitigation strategies and their effectiveness differs for the native-born and immigrants. Immigrants make up nearly one-quarter of the Australian population and there are a number of reasons to suspect that they may be less able to mitigate adverse shocks than the native-born.

JEL codes:
Keywords: job loss, income, consumption, labour supply, disability

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1. Introduction

The impacts that unforeseen events (i.e. shocks) have on household welfare depend on the extent to which household members can take actions to mitigate the direct impacts of the shocks on income and consumption. For example, a shock, such as a household member losing their job, can be mitigated by some combination of i) the individual finding new work or becoming self-employed; ii) the individual receiving government benefits; iii) other household members increasing their labour supply; and/or iv) borrowing or using savings to avoid a drop in consumption.[1] A large number of studies have looked at the impact of job loss on earnings, consumption, savings and the mitigating strategies used by households affected by this shock (e.g., Topel, 1990; Stevens, 1997; Stephens, 2001).

For example, Topel (1990) employs US longitudinal data from the Panel Study of Income Dynamics (PSID) and finds that short run declines in earnings are around 40 percent for manufacturing workers (see also, Ruhm, 1991). However, as much as two-thirds of that decline can be attributed to unemployment, such that hourly wage declines are closer to 12 percent. The unemployment effect is found to be temporary but Stevens (1997), using the same data finds that earnings are 9 percent below their expected levels six or more years after displacement.[2] Stephens (2001) examines the impact of job loss and disability on consumption. He finds that the earning of the household head are 25 to 36 percent lower in the year of job displacement and that this impact is long lasting. However, the impact on food expenditure is much smaller, indicating the households are able to mitigate much of the impact of these shocks. Browning and Crossley (2001) find that households do indeed reduce their expenditures after suffering a job loss.

In this paper, we use nine years of longitudinal data from the Household Income Labour Dynamics of Australia (HILDA) survey to examine the impact of job displacement and serious health problems on individual labour supply and incomes, and household incomes and food expenditure. Our methodology is identical to Stephens (2001), but we extend on the previous literature by examining whether mitigation strategies and their effectiveness differs for the native-born and immigrants. Immigrants make up nearly one-quarter of the Australian

[1] Other mitigation strategies exist, such as changes in household composition. In this paper, we will rule out this particular pathway by focusing on 'stable' households.
[2] Using Swedish register data, Eliason and Storrie (2006) find earnings losses after job displacement persist into the long run.

population and there are a number of reasons to suspect that they may be less able to mitigate adverse shocks than the native-born.

For example, new immigrants to Australia face a stand-down period of two years before they qualify for social benefits (source: https://www.humanrights.gov.au) and it is quite possible that even longer duration immigrants know less than native-born on how to access benefits. In addition, immigrants may lack access to credit because of a lack of local credit history and may not have the type of local networks that can support risk pooling (Bonin, Constant, Tatsiramos, & Zimmermann, 2009; Amuedo-Dorantes & Pozo, 2002). Furthermore, previous research has shown that immigrants and the native-born have underlying differences in a number of dimensions that could influence the direct impact of particular shocks, the mitigating strategies used and the effectiveness of these strategies. These include: 1) culture (Carroll, Rhee, & Rhee, 1994, 1999), 2) attitudes towards risk (Amuedo-Dorantes & Pozo, 2002; Galor & Stark, 1991), and 3) preferences (Browning & Crossley, 2001).

The possibility of return migration also will influence how migrants respond to shocks (Dustmann, 1997; Galor & Stark, 1991). For example, Galor and Stark (1991) argue that immigrants having ties to other countries are more likely to emigrate in relation to the native born. Amuedo-Dorantes and Pozo (2002) suggest the reason for increased perceived risk by immigrants could be due to labour market participation, labour market progress, and health care coverage. Islam, Parasnis, and Fausten (2013) find systematic differences between immigrants and native-born in saving behaviour. They find that the immigrant population tends to save more in Australia, though it is not clear if such behaviour is in response to uncertainty about the job market or for other behavioural reasons such as preferences for saving due to culture, norm and habits as in Carroll et al. (1994).

To our knowledge, no previous research has examined whether immigrants respond to shocks differently than the native-born. We suspect this is because of a lack of suitable longitudinal data in the major immigrant-receiving countries that contains a sufficiently large sample of working age immigrants. HILDA is unique in being a large-scale representative survey in a major immigrant receiving country. Important for our analysis, it also collects information on a number of shocks to individuals and households, individual labour supply, household income and expenditure and detailed questions related to immigrant status. We focus on two shocks,

job loss and serious injury or illness, because these are the most plausibly exogenous to the individual and the focus of most of the previous literature.

We find job displacements to have limited impacts on both Australian-born or immigrant single men besides short-run reductions in working hours and income, but large long-term consequences for single women. Among single women, impacts are even larger for immigrants. It may be that single women have not yet been able to build up a buffer stock of assets, gain access to credit or have other family members living in the home who may expand labour supply to offset the effects of the job loss. This may be especially true for single immigrant women. For Australian-born couples, displacements for husbands have large negative consequences but, for immigrant households husband's job loss has little impact on either personal or household income. It may be that Australian-born men are more likely to have lost a relatively high paying job (perhaps through industrial restructuring) than immigrant men and the new job opportunities have much lower wages making it difficult for the family to fully smooth what is effectively a large permanent shock to the husband's income.

Experiencing a serious health problem generally has smaller impacts than experiencing job displacement, and for couples, we find almost no evidence of negative effects even in the short-run. For singles, there are generally small short-run impacts on hours worked and incomes, which are larger for single immigrant men. Consequently, it appears that the health shocks can for the most part be smoothed in all types of households with the possible exception of single immigrant men.

In section 2, we describe the HILDA data, our sample selection criteria and the key variables used in our analysis. In Section 3, we discuss our methodological approach and present our empirical findings. Section 4 concludes and discusses the policy implications of our findings both for Australia and for other similar immigrant receiving countries.

2. Data and Sample Selection

2.1 The Household, Income and Labour Dynamics in Australia Survey

We examine the impact of economic shocks on labour market outcomes and good expenditure using longitudinal data from the nationally representative HILDA survey for the years 2003-2011. This survey began in 2001 and has since been administered annually. However, the data

on economic shocks, as described further below, was first collected in 2002 while food expenditure data was not collected annually until 2003; hence we start our analysis with the 2003 survey round. It collects information on economic and subjective well-being, labour market dynamics and family dynamics from a sample of more than 7,600 Australian households encompassing almost 20,000 individuals aged 15 and older (see Wooden, Freidin, & Watson, 2002). Individuals in sample households are followed over time regardless of whether they remain in the original households. Four survey instruments are included in HILDA: a Household Form and a Household Questionnaire are completed during a personal interview with one adult member of each household; a Person Questionnaire is administered to all adult household members; and a Self-Completion Questionnaire (SCQ) is provided to all respondents to the Person Questionnaire and is collected at a later date or returned by post.[3]

The labour market outcomes we examine, annual hours of work, total annual personal income and total annual household income, as well as the data we use on different income components are collected in the Person and Household questionnaires which are both collected by personal interview. On the other hand, the information on the shocks experienced by households come from the SCQ which collects detailed information on an array of sensitive questions, such as alcohol use and gender roles in the household. The two shocks that we focus on, whether an individual has been "Fired or made redundant by an employer (i.e. job displacement)" or "Serious personal injury or illness to self (i.e. serious health problem)" are two of twenty-one events that individuals are asked each wave whether they have experienced in the last wave. Besides the quarter of the year where the event was experienced no additional information is collected. We focus on these two events because they have been the focus of much of the previous literature and are the events that are most likely to be exogenous and relating directly to the individual reporting them. Food expenditure data is also collected in the SCQ, except in 2003-2005 where it was collected in the Household questionnaire, but the HILDA staff created a derived variable that is meant to be consistent over time measuring household expenditure.[4]

[3] The SCQ is not filled out by approximately 10% of individuals. We examine whether the propensity of responding is related to experiencing our two economic shocks and, once we control for individual fixed effects, find no relationship.

[4] More detailed data on household expenditure has been collected in the SCQ since 2006. We consider using this data to measure something more akin to total expenditure; however, the loss of three waves from our analysis sample reduced the precision of our estimates. Prior work (see a review by Browning, Crossley, and Winter, 2014) show that longitudinal patterns in food expenditure are a good measure of overall household wellbeing.

2.2 Analysis Samples

We begin by restricting our sample to prime-age adults aged between 25 and 64 in each round of HILDA that are not living in multiple family households. We exclude younger and older individuals, and those living in complex family arrangements because our focus is on impact of shocks on labour market outcomes and how households cope with these shocks. This results in a sample of 91,017 observations. We then exclude all individuals missing information on experiencing either of the job loss or illness in a particular round. In general, most people are missing both as well as all of the SCQ responses for a particular round. This restriction further reduces our analysis sample to 77,529 individuals. We then use the information provided about relationships within the household to match all individuals who are in a couple (either married or de-facto) in a particular wave. Three analysis samples are then created from this subset of HILDA data.

The first, called the 'Stable Single - Men' sample, contains all prime-age men who are single for at least 2 consecutive waves at any point in HILDA between wave 3 and 11. For each man who is included in this sample, only the waves that qualify are included. For example, if a man is single in waves 3, 4, 6, 8 and 9, then their information from waves 3, 4, 8 and 9 will be included in the 'Stable Single - Men' sample. Overall, 6,377 observation from 1,312 individuals are included in this sample. The second, called the 'Stable Single - Women' sample is defined similarly and contains 8,663 observation from 1,643 individuals. The third, called the 'Stable Couple' sample, contains all prime-age individuals who have the same partner (who also is in the restricted sample discussed above) for at least 2 consecutive waves at any point in HILDA. Like in the 'Stable Single' sample, for each individual who is included in this sample, only the waves that qualify are included. The records for the partners are then combined to create one couple level observation for the dyad. Overall, 20,904 observation from 3,569 couples are included in this sample.

Our analysis focuses on these two samples and thus examines the impact of economic shocks only on individuals who do not change their couple status over the time period being examined. This is done to isolate the direct impact of the shocks, since changes in couple status can be both a consequence and cause of other economic shocks. Much of the literature only focuses on couples (see Stephens 2001 for example) and hence our analysis sample is defined in a similar manner as in these papers. Individuals are then classified as being either Australian-

born or Immigrants based on their country of birth. Couples are classified as Australian-born only when both members are Australian-born. Overall, 21% of the Stable Single - Men sample are immigrants, 19% of the Stable Single – Women sample and 34% of the Stable Couple sample.

2.3 Sample Characteristics

In Table 1, we present summary statistics for key variables used in the analysis calculated for each of the three analysis samples pooled over time. The top panel contains the statistics for single men as a group and also separately by immigrant status. The first two rows contain the means of the two shock (indicator) variables used in our analysis: 1) job displacement (fired or made redundant) and 2) serious health problem (serious personal injury or illness).[5] Single immigrant men are 0.6 percent more likely to experience job loss but are 0.4 percent less likely to experience a serious health problem relative to native born men. The former difference is consistent with immigrants facing challenges becoming established in the labour market and perhaps being employed in jobs with less stability. The latter could be due to the selective nature of immigration. Specifically, the medical tests that an applicant must pass prior to being admitted as a permanent resident in Australia means that the immigrant is less likely than the typical native born person to face a serious health problem.

The next set of variables relate to hours of work[6], income and food expenditure[7]. The income and expenditure items are expressed in 2001 dollars. Single immigrant men have lower annual hours of work than their single male native born counterparts, with the difference being less than one hour per week. However, incomes of single immigrant men are higher than those of the equivalent Australian-born with the difference being $4,814 at the individual level and $5,448 at the household level. Similarly, single immigrant men have $532 higher annual expenditure on food than single native born men. The final set of variables relates to the respondent's age[8] and the number of children present in the household by age grouping. Single immigrant men are on average 1.2 years older than single Australian-born men. The immigrant

[5] In is worth noting that the prevalence rates for these shocks are quite similar to those for the full sample of single men, single women and couples before the limiting to 'stable' relationships. See Appendix Table 1.
[6] The annual hours of work variable is calculated based on usual hours on all jobs per week multiplied by our estimate of the percentage of the previous tax year spent employed. The latter is calculated using the per cent of time spent in jobs in the last financial year multiplied by the number 52.14, with this product rounded to the nearest integer.
[7] Real annual food expenditure includes household annual expenditure on groceries and food eaten out.
[8] Age is at the respondent's last birthday prior to the date of interview.

men are as likely to have children under the age of 5 but are less likely to have children older than age 5 than are single Australian-born men.

The next panel of Table 1 contains the equivalent sample means but for the case of single women. Single immigrant women have very similar rates of job loss to Australian-born single women and somewhat higher rates of serious personal injury or illness (10.4 percent compared to 10.1 percent for Australian-born single women). Single immigrant women have on average 142 fewer hours of work per year, $2,633 less personal income, $276 more household income, and $682 more annual household food expenditure than do single Australian-born women. Single immigrant women are 3.7 years older and are less likely to have children under the age of 12 and somewhat more likely to have children over the age of 12 than are single Australian-born women.

The final panel of Table 1 contains the equivalent sample means but for the case of couples. Immigrant men in couples have a 0.6 percent higher probability of experiencing a job displacement and have similar rates of serious health problems than do their Australian-born counterparts. The immigrant/non-immigrant differences are similar for women in couples but with lower rates of these events than is the case for men in couples. Immigrant husbands and wives work fewer hours than do their Australian-born counterparts. Immigrant husbands have lower income than do Australian-born husbands while immigrant wives have higher income than do Australian-born wives. Overall, average household income is higher for immigrant couples. Finally, immigrant husbands and wives are older than their Australian-born counterparts and are less likely to have children in each of the age ranges.

3. Empirical Methodology

Following Stephens (2001), we estimate reduced form regression models of the impact of job displacement and serious health problems on hours of work, personal income, household income and household food expenditure.[9] The general specification for each outcome is:

$$Y_{it} = \alpha_i + X_{it}\beta + \sum_{j=1}^{T} \gamma_j year_j + \sum_{k=k_l}^{k_u} \eta_k D_{it}^k + \varepsilon_{it} \qquad (1)$$

where Y_{it} is an outcome for individual or household i in year t. X_{it} is a vector of time-varying regressors that represent each individual or household's preferences, in particular age in

[9] Singles may live with other household members who are not their spouse/partner; hence household income will often differ from personal income even for singles.

quadratic form, and the number of children in three age groups. The $year_j$ term is intended to capture macro-level year-specific effects, the D_{it}^K indicator variables capture the impact of a particular shock on the outcome, and ε_{it} represents the unexplained component in the outcome. Since the error term for a given household is likely to be serially correlated across time, we employ Huber-White standard errors to account for arbitrary forms of serial correlation within individuals and households over time, as well as heteroskedasticity across households.

The longitudinal nature of our data allows us to employ a fixed effects or within estimator. Importantly, this means that the impact of either job displacement or a serious health problem is identified by comparing outcomes after the event occurs to those prior to the event occurring for the *same individual*. Individuals who do not experience a particular event only contribute to the estimation in so far as helping to identify the relationship between the preference shifters (age and number of children) and each outcome as well as the macro-level trends in outcomes. This approach will produce unbiased estimates of the impact of each economic shock as long as all unobserved characteristics (e.g. individual heterogeneity) that are correlated with both the likelihood of experiencing a job displacement or serious health problem and each of our outcome variables are time-invariant.

Furthermore, a distributed lag model is employed to allow the impacts of each shock to change over time since experiencing the event. To allow for potential 'anticipation' effects, we also include a control variable for the event occurring 1-2 years in the future. The impact of each shock is hence measured by comparing outcomes at a particular time to those for the same individual or household 3 years or more prior to the event occurring. In general, we do not find evidence of anticipation effects which is consistent with our (and the literature's) apriori decision to focus on job displacements and serious health problems as these are the shocks that are most likely to be exogenous to individuals.

4. Results

4.1 Impacts of Shocks on Singles

In Table 2, we present estimates of the impact of job displacement (upper panel) and serious health problem (lower panel) on the wellbeing of single men. We pool the sample of immigrant and native-born single individuals and interact immigrant status with each of the 'shock' variables. Level differences in outcomes by immigrant status are already captured by the

individual fixed effect. The left panel of the table shows the coefficients on five variables that measure the time distance since experiencing one of the shocks and the right panel lists the coefficients of the corresponding variables interacted with the immigrant indicator variable. The baseline case is the outcome for each person 3 or more years prior to experiencing one of the shocks and so each of the indicator variables identify years after that date.[10]

First, examining the impact of job displacement on Australian-born single men, we find a larger drop in annual hours worked in the year of displacement (a 40% decline) and in the following year (a 24% decline) with a corresponding drop in personal (a 12% decline) and household income (a 11% decline) in the year following displacement.[11] There is some evidence for these negative impacts persisting 2 to 3 years after job displacement but at a much smaller scale and, by four years after the event, outcomes are nearly back to where they were prior to displacement. We also find no evidence that job displacement leads to reductions in food expenditure for this group. One might expect a reduction in food expenditure if households are unable to access either credit markets or use assets to smooth the loss in income.[12] Hence, the results suggest that Australian-born single men do have the ability to smooth consumption when faced with a short-run decline in income. Next, examining the interaction terms for immigrants, we find no evidence that the impact of job displacement is different for immigrant single men than it is for the Australian-born. Overall, likely because of the strong economy during our sample period, job displacements seem to have limited impacts on either Australian-born or immigrant single men besides short-run reductions in working hours and income.

The story is quite similar for Australian-born single men when examining the impact of a serious health problem, with only small short-run declines in annual hours of work (of around 7%) found with no corresponding declines in either income or expenditure. However, for immigrant single men, the impact of a serious health problem is significantly larger and longer

[10] We began by estimating an even more unrestricted distributed lag model and then used these results to decide on useful aggregations for the longer-run impacts of each shock,

[11] Because our annual hours of work measure relies on the information on usual hours worked at the time of the interview, which is by definition after the event occurred, impacts on hours worked will show up earlier than impacts on income which cover the entire tax year of the event likely including time before the event occurred.

[12] However, food expenditure may not be as responsive to the loss in income as other forms of expenditure (such as luxury goods). That said, food expenditure includes both food purchased for consumption at home and food bought at restaurants. The latter would be more expensive and so one response that households might make to a job displacement would be to reduce the amount of food purchased at restaurants and replace it with more meals made at home. This would be expected to reduce the food expenditure variable and may represent an important part of a household's optimal response to job displacement in the absence of assets or credit which could be used to fully smooth consumption.

lasting. In the year of the health problem, hours of work drop by 18%. Impacts are even larger one year later with a 20% decline in hours work, 23% decline in personal income and a 20% decline in household income. Similar to the impact of job displacement, there do not appear to be longer-run impacts of serious health problems or impacts on food expenditure for immigrant single men.

Table 3 presents analogous results for single women. Compared to Australian-born single men, the impacts of job displacement for Australian-born single women are quite similar in the short-run with a 44% decline in work hours in the year of job loss and a 13% decline in personal income in the year after job loss. However, unlike for men, these declines in labour market attachment and income persist in the longer-run; after four years, work hours are down by 14%, personal income by 17% and household income by 15%. Furthermore, household food expenditure is also down by 10% in the long-run. The negative impact of job displacement is even larger for immigrant single women. For example, in the (two to three) years after displacement, their work hours are down by 28% and their household income by 26%. In the longer-run, the impacts are not statistically significant. Hence, unlike for single men, it appears that job displacements have large long-term consequences single women, perhaps because of their general lower levels of labour market attachment.

Next, turning to the impact of the onset of serious health problems, the results for Australian-born single women are quite similar to those for Australian-born single men, with a 9% (6%) decline in hours worked in the year of (after) the event and a 3% decline in personal income and 7% decline in household income in the year after the event. As for men, we find no evidence of longer-run impacts or impacts on household expenditure. However, unlike for single men, the impacts of serious health problems on immigrant single women, appears to be the same as that for Australian-born women.

4.2 Impact of Shocks on Couples

In Table 4, we examine the impact of job displacement on married/de-facto couples. We examine shocks to both members of the couple (husband and wife for short) and consider the labour supply and income responses of both the person who experiences the job displacement and that person's spouse since the spouse could raise his/her hours of work to at least partially

offset the loss in income.[13] In the upper panel, the results presented are for the case of the husband experiencing the displacement. Job displacement for the husband has significant negative impacts on his hours of work in the year of the displacement (a 28% decline) and also over the next three years (a 14% and 8% decline, in 1 year and 2-3 years later, respectively). Job displacement for the husband also leads to large decreases in their own income of 21% in the year after displacement and 20% in the longer-run.

At the same time, we find an increase in hours worked for the wives over the next two to three years (an 11% increase) and in the long-run (a 16% increase). Along with this we find a corresponding increase in personal income for wives of 9% over the next two to three years and 12% in the long-run. Hence, like Stephens (2001), we find evidence of an added worker effect where households adjust the labour supply of other household members to at least partially offset the effect of the husband's job loss on both family income and expenditure. Interestingly, even with the additional income of the wife, household income following job displacement of the husband declines substantially, by 13% in the year after the job loss, 10% in the following 2-3 years and 9% in the longer-run. This occurs because women's incomes make up less than 1/3rd of household income in Australian couples. However, these effected households are able to avoid large declines in food expenditure through other consumption smoothing methods.[14]

In the lower panel, the equivalent results are presented but for the case of the wife experiencing the job loss. Similar to what was found for men, wives' hours of work are lowered in the year of the displacement and in the first three years after the shock and this translates to a 14% decline in women's income in the year after job loss. However, because women make up a smaller share of household income, we do not find evidence that job loss by the wife impacts household resources. Interestingly, there is some evidence for an added worker among husbands in the longer-run as their hours increase by about 10% four years after the wife loses her job.

[13] The age of each spouse as well as the number of children in the three age groups and year dummies are all included as control variables along with couple fixed effects in each model.
[14] For example, Browning and Crossley (2009) find that households respond by delaying the purchase of durable consumption goods when faced with income loss due to job displacement.

Turning to the results for immigrants, we find little difference in response in immigrant households when women experience job displacement, however, when men experience job displacement, outcomes are very different than those found for Australian-born households. Specifically, while hours of work still decline substantially for immigrant men in the short-run, male income declines by a much smaller amount (9% instead of 21%) in the year after job displacement and return to pre-displacement levels after that. We also find no evidence for an added worker effect among wives. We find no longer-run impacts of male job displacement on household income and smaller impacts in the year after displacement than for the Australian-born.

In Table 5, an equivalent set of estimates are presented to those of Table 4 but where the economic shock is experiencing a serious health problem. The upper panel provides the estimates for the models where the health shock occurred to the husband. A serious health shock leads to small declines in hours of work in the year of the shock (3%) and in the year after the shock (5%) and lower personal income in all years after the shock of 6-7%. We do not find any evidence of an added worker effect or any impacts on household income (taken at face value, the estimated coefficients imply small added worker effects and small declines in household income but neither are significantly different from zero). Turning to the lower panel, we see that serious health shocks to wives have even less impact on household wellbeing, with just a 9% decline in female income found in the year after the shock and no consistent evidence found of reduced hours or work or impacts on household outcomes. Few of the interaction terms are significant for immigrant households; hence the impact of serious health problems appears to be the same for the Australian-born and immigrants.

Overall, we find that job displacements for husbands in native households have long-run impacts on both personal and household income even though we also find substantial added worker effects for these households. On the other hand, displacements for husbands in immigrant households have little impact on either personal or household income and we find no evidence of added worker effects in these households. While job displacements for wives have large impacts on their hours worked and personal income, these do not lead to declines in household incomes for either native or immigrant households. Unlike in some single households, experiencing a serious illness has little impact on either individual or household

outcomes in couples. This suggests that having a spouse can help diminish the impacts of serious health problems.[15]

5. Summary and Concluding Remarks

We find job displacements to have limited impacts on either Australian-born or immigrant single men besides short-run reductions in working hours and income, but large long-term consequences for single women and, among single women, impacts are even larger for immigrants. It may be that single women have not yet been able to build up a buffer stock of assets, gain access to credit or have other family members living in the home who may expand labour supply to offset the effects of the job loss. This may be especially true for single immigrant women. For Australian-born couples, displacements for husbands lead to large consequences when the husband is displaced but in immigrant households the husband's job loss has little impact on either personal or household income. It may be that the husband in the Australian couple has lost a relatively high paying job (perhaps through industrial restructuring) and the new job opportunities have much lower wages making it difficult for the family to fully smooth what is effectively a large permanent shock to the husband's income. Immigrant couples may not experience the same permanent shock to the husband's income if immigrant men are less likely to initially have high paying jobs so the drop in the offered wage resulting from the job loss is not as great.

Experiencing a serious health problem generally has smaller impacts than experiencing job displacement, and for couples, we find almost no evidence of negative effects even in the short-run. For singles, there are generally small short-run impacts on hours worked and incomes, but these are larger for single immigrant men. Consequently, it appears that the health shocks can for the most part be smoothed in all types of households with the possible exception of single immigrant men.

Our analysis sheds light on our over-arching question of whether households (native born and immigrant) can cope with either job loss or health shocks. Across all of our analyses of job displacement and injury or illness, virtually no evidence is found of significantly lower food expenditure either at the time of the shock or in the years that follow. Despite severe declines in labour income associated with job loss for the husband (which persist for years in the case

[15] We further examined different pathways through which households adjust to shocks such as receipt of benefit income or change in business income, but our estimates are generally imprecise without any consistent patterns.

of the native born), household food consumption expenditure appears to be unaffected. This is broadly consistent with the findings of Stephens (2001) where declines in consumption are of a smaller scale than the income declines. However, we in fact do not find declines in food expenditure. It may be that households are able to smooth consumption through borrowing or the use of buffer stocks of accumulated assets intended to offset the effects of job loss. For the case of job loss for Australian-born men, the evidence suggests that wives increase their labour supply to generate income to reduce the need to affect consumption expenditure.

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Table 1: Summary Statistics for Stable Singles and Couples

	All	Australian-born	Immigrants
Stable Singles - Men			
Fired or Made Redundant	5.4%	5.3%	5.9%
Had a Serious Personal Injury/Illness	10.5%	10.6%	10.2%
Annual Hours Worked	1,595	1,603	1,564
Real Total Annual Personal Income	41,715	40,768	45,582
Real Total Annual Household Income	50,975	49,904	55,352
Real Annual Food Expenditure	6,982	6,879	7,401
Age	43.8	43.5	44.7
Number of Kids Aged 0-5	0.02	0.02	0.02
Number of Kids Aged 6-12	0.06	0.06	0.04
Number of Kids Aged 13-15	0.04	0.04	0.03
Observations	6,377	5,123	1,254
Individuals	1,312	1,041	271
Stable Singles - Women			
Fired or Made Redundant	3.4%	3.4%	3.5%
Had a Serious Personal Injury/Illness	10.2%	10.1%	10.4%
Annual Hours Worked	1,169	1,197	1,055
Real Total Annual Personal Income	34,778	35,288	32,655
Real Total Annual Household Income	43,415	43,361	43,637
Real Annual Food Expenditure	7,208	7,076	7,758
Age	45.6	44.9	48.6
Number of Kids Aged 0-5	0.13	0.14	0.09
Number of Kids Aged 6-12	0.26	0.27	0.22
Number of Kids Aged 13-15	0.13	0.13	0.15
Observations	8,663	6,985	1,678
Individuals	1,643	1,329	314
Stable Couples			
Male Fired or Made Redundant	3.4%	3.2%	3.8%
Male Serious Personal Injury/Illness	7.4%	7.3%	7.5%
Female Fired or Made Redundant	2.2%	2.0%	2.5%
Female Serious Personal Injury/Illness	6.7%	6.7%	6.7%
Male Annual Hours Worked	1,998	2,057	1,877
Female Annual Hours Worked	1,105	1,109	1,098
Male Real Total Personal Income	57,019	57,228	56,591
Female Real Total Personal Income	30,073	29,569	31,107
Real Total Annual Household Income	92,155	91,695	93,101
Real Annual Food Expenditure	10,974	11,007	10,907
Male Age	45.4	44.4	47.3
Female Age	43.1	42.4	44.5
Number of Kids Aged 0-5	0.37	0.39	0.33
Number of Kids Aged 6-12	0.44	0.46	0.38
Number of Kids Aged 13-15	0.20	0.21	0.18
Observations	20,904	14,063	6,841
Couples	3,569	2,372	1,197

Note: Real Values are in 2001 Dollars.

Table 2: Impacts of Economic Shocks on Wellbeing for Stables Single Men by Immigrant Status

	Annual Hours Worked	Real Total Personal Income (1000s)	Real Total Household Income (1000s)	Real Food Expenditure (1000s)	Annual Hours Worked	Real Total Personal Income (1000s)	Real Total Household Income (1000s)	Real Food Expenditure (1000s)
	Australian-born Men - 5,123 Observations, 1,041 Individuals				Interaction: Immigrant Men - 1,254 Observations, 271 Individuals			
Impact of Being Fired or Made Redundant								
1-2 years ago	63.2	0.83	-0.45	0.10	135.0	11.60	10.60	0.59
	(82.7)	(1.63)	(2.22)	(0.22)	(193.0)	(7.28)	(8.23)	(0.62)
Current wave	-637***	-2.08	-3.32	-0.43	-122.0	2.18	2.81	0.22
	(95.1)	(1.80)	(2.14)	(0.26)	(193.0)	(5.69)	(6.04)	(0.54)
1 year later	-318***	-5.00**	-5.38**	0.21	186.0	-7.00	-10.50	-0.77
	(84.9)	(2.08)	(2.60)	(0.33)	(180.0)	(6.96)	(7.68)	(0.53)
2-3 years later	-173*	-2.68	-2.85	-0.01	81.4	-6.53	-5.57	0.45
	(91.7)	(2.12)	(2.50)	(0.32)	(187.0)	(7.51)	(8.18)	(0.62)
4+ years later	-101.0	-1.90	-1.10	0.00	6.86	2.02	6.64	1.51**
	(118.0)	(2.99)	(3.40)	(0.40)	(224.0)	(8.40)	(8.70)	(0.71)
Impact of Having a Serious Injury/Illness								
1-2 years ago	58.9	1.08	1.79	0.14	-178**	-7.99*	-7.24	-0.47
	(38.4)	(1.41)	(1.63)	(0.17)	(86.4)	(4.10)	(5.75)	(0.42)
Current wave	-112**	0.83	1.10	-0.07	-167*	-7.66	-8.06	-0.35
	(47.1)	(2.10)	(2.30)	(0.17)	(89.5)	(5.27)	(5.99)	(0.37)
1 year later	-64.2	-1.21	0.25	0.03	-242**	-9.18**	-11.5***	0.01
	(50.5)	(1.42)	(1.68)	(0.19)	(101.0)	(3.62)	(3.94)	(0.37)
2-3 years later	-98.5*	0.14	0.74	-0.45**	-36.0	-6.43	-8.61*	0.47
	(54.0)	(2.46)	(2.65)	(0.20)	(113.0)	(4.54)	(5.05)	(0.44)
4+ years later	-85.8	2.25	2.55	0.17	-44.6	-0.48	-1.61	-0.14
	(81.8)	(2.54)	(2.78)	(0.32)	(138.0)	(6.38)	(6.80)	(0.60)
Mean Outcome	1,603	40.8	49.9	6.88	1,564	45.6	55.4	7.40

Note: *** p<0.01, ** p<0.05, * p<0.1. All impacts are relative to 3 years or more prior to the event. Real values are in 2001 dollars. Robust standard errors clustered at the individual level are in parentheses. Age, number of children in different age groups, survey year and individual fixed effects are controlled for but not reported.

Table 3: Impacts of Economic Shocks on Wellbeing for Stables Single Women by Immigrant Status

	Annual Hours Worked	Real Total Personal Income (1000s)	Real Total Household Income (1000s)	Real Food Expenditure (1000s)	Annual Hours Worked	Real Total Personal Income (1000s)	Real Total Household Income (1000s)	Real Food Expenditure (1000s)
	Australian-born Women - 6,985 Observations, 1,329 Individuals				Interaction: Immigrant Women - 1,678 Observations, 314 Individuals			
Impact of Being Fired or Made Redundant								
1-2 years ago	-34.6	1.55	1.09	0.46**	131.0	1.07	-0.19	-0.97*
	(60.3)	(1.18)	(1.59)	(0.22)	(148.0)	(2.54)	(3.00)	(0.50)
Current wave	-528***	-2.58	-2.76	-0.13	43.7	-0.45	-1.81	-0.55
	(82.7)	(1.69)	(1.97)	(0.27)	(170.0)	(3.29)	(3.95)	(0.50)
1 year later	-108.0	-4.48***	-2.72	-0.15	-183.0	-7.04**	-8.77**	-0.46
	(77.7)	(1.64)	(1.99)	(0.30)	(157.0)	(3.23)	(4.37)	(0.66)
2-3 years later	-54.9	-3.79*	-3.00	0.36	-302*	-2.79	-9.74**	-0.49
	(77.9)	(1.95)	(2.35)	(0.40)	(172.0)	(3.65)	(4.77)	(0.68)
4+ years later	-173**	-5.96***	-6.57***	-0.73*	28.9	3.10	-2.96	-0.31
	(83.4)	(2.10)	(2.46)	(0.40)	(186.0)	(4.32)	(4.30)	(0.79)
Impact of Having a Serious Injury/Illness								
1-2 years ago	57.5	0.24	-1.77*	0.17	-60.9	-1.07	1.28	-0.91**
	(37.5)	(0.76)	(0.94)	(0.14)	(68.2)	(1.55)	(2.14)	(0.41)
Current wave	-106***	-0.61	-0.49	0.00	-70.9	-1.56	-2.39	-0.44
	(37.5)	(0.84)	(1.06)	(0.15)	(86.2)	(1.74)	(2.37)	(0.43)
1 year later	-74.5**	-1.22*	-2.85***	-0.19	11.5	-2.81*	-0.95	0.11
	(37.5)	(0.70)	(0.98)	(0.17)	(73.8)	(1.61)	(2.54)	(0.41)
2-3 years later	-67.9*	-0.35	0.18	-0.10	40.2	-1.10	1.02	-0.55
	(40.7)	(0.86)	(1.13)	(0.17)	(73.8)	(1.78)	(2.69)	(0.42)
4+ years later	-42.3	0.46	-0.32	0.37	9.5	-2.36	-1.14	-0.32
	(56.0)	(1.27)	(1.60)	(0.32)	(128.0)	(2.33)	(2.98)	(0.56)
Mean Outcome	1,197	35.3	43.4	7.08	1,055	32.7	43.6	7.76

Note: *** p<0.01, ** p<0.05, * p<0.1. All impacts are relative to 3 years or more prior to the event. Real values are in 2001 dollars. Robust standard errors clustered at the individual level are in parentheses. Age, number of children in different age groups, survey year and individual fixed effects are controlled for but not reported.

Table 4: Impacts of Job Displacement on Household Wellbeing for Stables Couples by Immigrant Status

		Male Hours Worked	Female Hours Worked	Male Income (1000s)	Female Income (1000s)	Hhold Income (1000s)	Food Expend (1000s)	Male Hours Worked	Female Hours Worked	Male Income (1000s)	Female Income (1000s)	Hhold Income (1000s)	Food Expend (1000s)
		Both Australian-born: 14,063 observations, 2,372 couples						Interaction: At Least One Immigrant: 6,841 observations, 1,197 couples					
Shocks to Men	1-2 years ago	-37.5	-10.8	5.03**	-0.65	3.43	0.07	15.8	-60.1	0.43	-3.03*	-2.42	0.08
		(43.6)	(35.6)	(2.11)	(0.98)	(2.36)	(0.20)	(71.9)	(70.2)	(3.80)	(1.82)	(4.05)	(0.49)
	Current wave	-571***	37.6	-1.55	-0.81	-2.47	-0.01	-94.6	-113.0	2.22	-0.92	-0.53	-0.60*
		(53.0)	(40.3)	(1.97)	(0.99)	(2.30)	(0.20)	(91.2)	(73.4)	(4.60)	(1.96)	(5.05)	(0.34)
	1 year later	-282***	70.8	-12.1***	1.03	-11.7***	-0.16	61.8	-101.0	6.93*	-2.90	3.82	0.29
		(57.3)	(45.1)	(2.34)	(1.20)	(2.73)	(0.21)	(93.9)	(79.6)	(3.79)	(2.07)	(4.71)	(0.58)
	2-3 years later	-167***	125***	-11.9***	2.52**	-9.04***	-0.15	57.0	-176**	14.7***	-5.66***	7.42*	-0.08
		(58.5)	(46.0)	(2.27)	(1.25)	(2.60)	(0.24)	(88.3)	(82.8)	(3.79)	(1.98)	(4.39)	(0.43)
	4+ years later	-98.4	175***	-11.5***	3.65*	-8.16**	-0.35	54.6	-254**	12.3**	-5.89**	6.37	-0.24
		(76.0)	(60.3)	(2.99)	(1.92)	(3.94)	(0.27)	(127.0)	(107.0)	(5.14)	(2.93)	(6.32)	(0.47)
Shocks to Women	1-2 years ago	25.8	-7.2	0.03	1.38	1.37	0.22	-2.1	174*	1.13	4.58**	7.16*	0.10
		(49.1)	(55.0)	(1.82)	(1.22)	(2.42)	(0.26)	(74.1)	(99.8)	(2.82)	(2.25)	(3.91)	(0.55)
	Current wave	58.4	-359***	1.29	-0.23	0.72	-0.17	-116.0	10.4	-0.78	6.29**	8.43*	0.13
		(52.3)	(63.3)	(1.99)	(1.38)	(2.63)	(0.30)	(85.2)	(130.0)	(3.43)	(2.47)	(4.70)	(0.45)
	1 year later	58.1	-134**	2.35	-4.08***	-1.46	-0.37	-113.0	-1.0	-4.43	2.46	2.12	0.63
		(49.6)	(58.6)	(2.51)	(1.31)	(2.94)	(0.27)	(98.0)	(129.0)	(3.61)	(2.80)	(4.88)	(0.47)
	2-3 years later	100.0	-125*	-1.26	-0.61	-2.59	-0.69***	3.2	205.0	-2.27	1.35	3.00	0.83*
		(62.5)	(69.8)	(2.09)	(1.63)	(2.68)	(0.25)	(105.0)	(129.0)	(3.42)	(3.01)	(4.76)	(0.46)
	4+ years later	208***	-49.7	2.81	0.04	0.93	-0.22	-156.0	32.4	-5.59	2.46	-1.35	0.62
		(73.2)	(85.4)	(3.78)	(1.89)	(4.12)	(0.40)	(119.0)	(143.0)	(5.15)	(3.52)	(6.34)	(0.63)
Mean outcome		2,057	1,109	57.2	29.6	91.7	11.0	1,877	1,098	56.6	31.1	93.1	10.9

Note: *** p<0.01, ** p<0.05, * p<0.1. All impacts are relative to 3 years or more prior to the event. Real values are in 2001 dollars. Robust standard errors clustered at the couple level are in parentheses. The age of both members of the couple, number of children in different age group, survey year and couple fixed effects are controlled for but not reported.

Table 5: Impacts of Having a Serious Injury/Illness on Household Wellbeing for Stables Couples by Immigrant Status

		Male Hours Worked	Female Hours Worked	Male Income (1000s)	Female Income (1000s)	Hhold Income (1000s)	Food Expend (1000s)	Male Hours Worked	Female Hours Worked	Male Income (1000s)	Female Income (1000s)	Hhold Income (1000s)	Food Expend (1000s)
		Both Australian-born: 14,063 observations, 2,372 couples						Interaction: Immigrant Hhold: 6,841 observations, 1,197 couples					
Shocks to Men	1-2 years ago	21.1	7.3	-1.31	0.23	-0.83	0.12	-26.6	-7.7	-3.77	-1.18	-4.35	0.27
		(30.9)	(27.8)	(1.35)	(0.64)	(1.61)	(0.13)	(49.1)	(44.9)	(2.82)	(1.14)	(3.18)	(0.34)
	Current wave	-70.5**	15.8	1.64	1.05	2.95	0.04	-41.1	-53.9	-3.60	-2.36*	-5.31*	0.33
		(32.1)	(24.7)	(1.41)	(0.98)	(1.95)	(0.13)	(55.8)	(45.5)	(2.67)	(1.30)	(3.11)	(0.34)
	1 year later	-106***	-7.6	-4.08***	1.73	-1.69	-0.08	-18.9	-21.0	3.82	-1.62	2.68	0.30
		(34.7)	(28.6)	(1.35)	(1.40)	(2.12)	(0.14)	(55.7)	(46.3)	(3.27)	(1.80)	(4.04)	(0.28)
	2-3 years later	-49.2	14.5	-3.30*	0.44	-2.17	0.00	-7.7	-9.2	0.81	-0.85	-0.01	-0.32
		(34.8)	(31.0)	(1.79)	(0.90)	(2.27)	(0.15)	(61.0)	(57.7)	(3.67)	(1.42)	(4.06)	(0.29)
	4+ years later	-68.7	58.4	-4.18*	0.64	-2.87	-0.20	-22.2	-122*	3.60	-0.72	3.33	0.09
		(48.0)	(40.3)	(2.35)	(1.09)	(2.96)	(0.20)	(89.8)	(71.9)	(4.27)	(1.66)	(5.22)	(0.48)
Shocks to Women	1-2 years ago	13.2	19.6	0.67	-0.80	0.63	-0.10	-29.3	73.0	0.39	1.81	1.24	0.15
		(28.4)	(26.7)	(2.20)	(0.79)	(2.62)	(0.16)	(51.4)	(50.1)	(2.86)	(1.18)	(3.27)	(0.30)
	Current wave	26.8	-27.1	-0.77	-0.94	-2.64	-0.17	-63.1	-36.4	0.27	0.82	2.43	0.26
		(25.0)	(27.4)	(1.69)	(0.79)	(2.12)	(0.17)	(47.2)	(48.0)	(2.84)	(1.19)	(3.42)	(0.31)
	1 year later	8.4	-49.4	-1.44	-2.59***	-4.41*	-0.15	-89.0*	12.5	3.52	0.77	5.47	0.21
		(30.6)	(30.2)	(1.76)	(0.87)	(2.35)	(0.16)	(52.6)	(55.8)	(3.33)	(1.34)	(4.02)	(0.37)
	2-3 years later	-23.5	-18.1	-2.93	-1.51	-4.72*	-0.36**	34.0	-25.2	3.72	-0.04	5.12	0.52
		(35.9)	(35.7)	(2.19)	(1.14)	(2.67)	(0.16)	(55.6)	(58.7)	(4.75)	(1.58)	(5.01)	(0.37)
	4+ years later	-11.3	-26.5	-2.44	0.51	-2.28	-0.28	13.6	-50.3	3.67	-2.98	1.03	0.43
		(48.9)	(48.8)	(2.03)	(1.97)	(2.73)	(0.20)	(77.6)	(82.5)	(4.20)	(2.45)	(4.74)	(0.44)
Mean outcome		2,057	1,109	57.2	29.6	91.7	11.0	1,877	1,098	56.6	31.1	93.1	10.9

Note: *** p<0.01, ** p<0.05, * p<0.1. All impacts are relative to 3 years or more prior to the event. Real values are in 2001 dollars. Robust standard errors clustered at the couple level are in parentheses. The age of both members of the couple, number of children in different age groups, survey year and couple fixed effects are controlled for but not reported.

Appendix Table 1: Characteristics of the Analysis Samples

	% Missing Shocks in HILDA Waves 3 - 11	% Yes Among Overall Non-Missing Sample	% Yes in Stable Samples
	Single Men		
Fired or Made Redundant	24.3%	5.5%	5.4%
Serious Personal Injury/Illness	24.3%	10.6%	10.5%
Observations	10,914	8,259	6,377
	Single Women		
Fired or Made Redundant	20.1%	3.6%	3.4%
Serious Personal Injury/Illness	20.1%	10.4%	10.2%
Observations	13,626	10,884	8,663
	Couples - Men		
Fired or Made Redundant	19.0%	3.7%	3.4%
Serious Personal Injury/Illness	19.0%	7.6%	7.4%
Observations	34,459	27,914	20,904
	Couples - Women		
Fired or Made Redundant	17.7%	2.1%	2.2%
Serious Personal Injury/Illness	17.7%	6.9%	6.7%
Observations	37,018	30,472	20,904