Exchange rate, remittances and expenditure of foreign-born households: evidence from Australia*

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Abstract

We examined the impact of the depreciation of the Australian dollar (AU$) during 2013-2015 on the expenditure of households with foreign-born members (HFBMs) in Australia. Employing the difference-in-differences method and 2013-2015 Nielson Homescan Panel Survey data, we found that HFBMs spent around 2.4 percent more on their food expenditure in 2014 and 4.0 percent more in 2015 compared to their native counterparts. Further investigation indicated that neither incomes nor food prices nor the expenditures on imported food items changed differently for any group in that period, while an analysis with HILDA survey data indicates a similar pattern for total expenditures. With reduced outward aggregate remittances from Australia over the same time, we argue that falling AU$ induces HFBMs to substitute for consumption in the home country with that in the host nation. Our empirical results provide fresh insights on how changes in the exchange rate may affect immigrants differently than natives.

1. INTRODUCTION

Exchange rates affect economic agents in many ways. At the macroeconomic level, it affects the trade balance and the inflow of foreign capital in a country (Mankiw, 2015) and consequently, productivity across different sectors in the economy (Goldberg & Pavcnik, 2007; Berka et al., 2018). Exchange rates directly affect households and individuals through the prices of traded goods and services (Goldberg & Pavcnik, 2007; Bahmani-Oskooee & Xi, 2012). This includes the prices for food which then affect household food consumption and welfare (Hasan, 2016a,b, 2017). Exchange rates can also affect the inflow or outflow of foreign remittances (Faini, 1994). For example, the sudden decline in the exchange rate of Filipino Peso during the 1997 Asian financial crisis revealed that the depreciation of migrants' home country currency against that of the host country increases international remittances in migrants' country of origin (Yang, 2008).[1] Thus, exchange rates can affect recipient individuals and the economy through remittances.

Remittances are sent by migrants and, in an increasingly globalized world, economic and social impact of immigration have received enormous attention among academics and policymakers. The economics literature largely focus on the labor market integration of immigrants (e.g., Borjas, 1994), within which one of the widely investigated topics is the wage differences between natives and immigrants (e.g., Breunig et al., 2013; To et al., 2017). Another strand of literature focus on the differences in financial decisions between immigrants and natives (e.g., Carroll et al., 1994; Cobb-Clark & Hildebrand, 2006; Sinning, 2011; Bauer & Sinning, 2011; Bertocchi et al., 2018). For remittances, a large number of studies focus on the impact on the welfare of the recipient households (e.g., Rapoport & Docquier, 2005; Dustmann & Görlach, 2016). A recent study, Nguyen & Connelly (2018), has focused on how immigrants' mental health is affected by the macroeconomic volatilities in their home country.

However, little attention has been given to how macroeconomic shocks like depreciation of exchange rates can affect immigrants and how it is different than natives. If we ignore the impact of depreciation on the prices of domestic consumption items, natives are unlikely to change their consumption while immigrants are likely to increase their consumption items. This is due to

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[1]Remittances may result from different motives – altruistic, loan repayment, insurance, inheritance, and exchange of services (Rapoport & Docquier, 2005; Dustmann & Mestres, 2010; Carling, 2008). However, as an investment is made to support future consumption, remittances can be considered as consumption for the sake of simplicity.

the fact that depreciation of the currency at the destination country makes consumption (and/or investment) relatively costly in immigrants' country of origin; if consumption at home and host countries can be considered as normal goods, migrants are likely to substitute their origin country consumption with the consumption in the destination country. On the other hand, the income effect will tend to reduce consumption in both countries and the resulting total effect on consumption in the host country will depend on the strength of those two effects.

This is depicted in Figure 1. Migrant households are characterized by the consumption of two goods – x_1, which is essentially remittances used to buy consumption goods in their home country and x_2, representing the purchase of consumption goods in their host country. Since the native households do not send remittances, with budget B_1, their spending is represented by a corner solution at point d which is invariant to the changes in exchange rates of the domestic country. On the other hand, with budget B_1, immigrants' initial equilibrium occurs at point a giving consumption mix (x_1^1, x_2^1). When the value of host country currency falls, the budget line swings to B_3, giving their ultimate equilibrium at point c with consumption mix (x_1^3, x_2^3).

[Figure 1]

The budget line B_2 is drawn to separate out the income and substitution effect by allowing migrants to keep their utility constant. Thus the consumption mix at point b, (x_1^2, x_2^2), demonstrates that both substitution effect $(x_1^1 x_1^2)$ and income effect $(x_1^2 x_1^3)$ reduces their consumption of x_1 which essentially means that migrants send less remittances. The conclusion is not straightforward for x_2; the substitution effect $(x_2^1 x_2^2)$ increases the consumption of x_2 while the income effect $(x_2^2 x_2^3)$ reduces it. In Figure 1, the total effect on x_2 is positive which may not necessarily be true in other cases and thus can be interesting to investigate empirically.

Australian dollar (AU\$) significantly reduced its' value against US\$ during 2013-2015 (Figure 2). In 2016, the top foreign countries in terms of the birthplace of Australian residents were England, New Zealand, China, India, Philippines and Vietnam (Australian Bureau of Statistics, 2016) and the observed pattern of the movement in the value of AU\$ against US\$ holds against currencies of all those countries.[2] In particular, the unweighted average exchange rate of AU\$ against US\$ in 2013 was 0.96 which then reduced to 0.90 in 2014 and 0.75 in 2015. At the same time, in line

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[2]See Appendix, Figure A.1 and Table A.1, for details.

with our understanding from economic theory we discussed earlier, migrants remittances reduced significantly in Australia during 2013-2015. Figure 3 shows that the total outflow of migrant remittances from Australia in 2013 is nearly US$7.0 billion which reduces to 6.6 billion in 2014 and 6.0 billion in 2015.[3]

[Figure 2, 3]

Against this background, this paper examines whether currency depreciation affects the expenditure of households with foreign-born members (HFBMs) differently than the natives which, to the best of our knowledge, is the first of this type of study.[4] Motivated by an understanding from microeconomic theory, we aim to empirically investigate the change in HFBMs' food expenditures, compared to natives, due to a large fall in the value of the Australian dollar. We also examine whether any such differences can be explained by changes in purchasing power (because of the change in prices or incomes) in the host country or by changes in the behavior of households with foreign-born members and whether such pattern holds for total expenditure. By providing empirical evidence on the impact of depreciation on the expenditure of households with foreign-born members, our paper makes a unique contribution to immigration economics literature where limited or little attention has been given to how macroeconomic changes like currency depreciation affects immigrants.

The rest of the paper is organized as follows. Section 2 includes a description of the data. Section 3 provides a discussion of our empirical settings and identification strategy. The results, including all the robustness checks conducted in our analysis, are discussed in Section 4. Section 5 concludes.

2. DATA

Verification of our hypothesis requires a very detailed consumption data. Unfortunately, such data is not available for all types of consumption goods but food. Therefore, in this paper, we use 2013-2015 Nielson Homescan Panel Survey (NHPS) data – a nationally representative longitudinal survey

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[3]It can be noted that outward remittances in terms of AU$ remained constant in 2014 and increased in 2015. With increasing AU$ incomes over time, remittances in AU$ are likely to increase if it is used in the purchase of normal goods. However, we presented US$ value to focus on the real rather than the nominal value of remittances.

[4]We focused on expenditure instead of income as consumption habit is persistent and smoother, which cannot be claimed for income (Barrett et al., 2000; Havranek et al., 2017).

of Australian households, collecting detail information on their food expenditures. Household level information in the survey contains socioeconomic and demographic data – household income, family size, location (postcode) of residence, home type, home ownership status and each member's sex, age, marital status, years of schooling, occupation, employment status (full time or part time), country of birth, height and weight. The grocery data contains barcode level information on daily food item purchases by the surveyed households. Barcodes can identify the category, brand, price and quantity of each item purchased. The data also contain information on the outlet from where the product has been purchased and whether the product has been on sale at the time of purchase.[5]

The NHPS includes 10,841, 10,974 and 10,961 households for 2013, 2014 and 2015 waves, respectively.[6] We construct a balanced panel of 8,026 households for our analysis. On the other hand, for grocery data, we start with 29,025,586 food purchases made by the survey participants during December 2012-December 2015. From that, we drop 780,810 transactions made during 2012 and 31,377 transactions that do not belong to food items. Then, for each household and year, we aggregate the remaining 28,213,090 transactions into 127 food categories available in our data that reduces our number of observations to 1,959,666.[7] From that, we drop 310 observations with missing price or quantity information. Then, we reshape our data to put the information on 127 categories into columns and end up with a sample of 32,441 observations. Dropping households that do not match between grocery and demographic data, missing data on the family size and those who are outside the balanced panel excludes 220, 1 and 7,248 observations, respectively. Thus our final analysis sample includes 24,972 observations.

We construct five other samples to conduct some supplementary analyses. The *second* sample is to conduct our analysis with price and quantity. To do so, we employ the sample of grocery data without reshaping. Again we retain observations of households that belong to the balanced panel. This analysis sample includes 1,598,334 observations. The *third* sample is to validate our assumption of the common trend of food expenditure between HFBMs and native households. For that, we again employ the sample of grocery data without reshaping giving a total of 1,147,035 observations from which we drop households with missing family size (12). We then fill in the data

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[5]See Nielsen Corporation (2016); Sharma et al. (2014); Harding & Lovenheim (2017); Eden (2018); Hasan & Sinning (2018), for a detailed description of the data. The program codes used in the paper, in combination with NHPS 2013-2015, can replicate the results and are available from the authors upon request.

[6]See Appendix, Table A.2, for a detailed distribution of households over the years.

[7]See Appendix, Table A.3, for a list of all food categories in our data.

for weekly values and again drop observations belonging to the unbalanced panel (797,160), missing expenditure (305,800) and 2014 and 2015 wave of the data (662,721). Thus this analysis sample includes 330,023 observations. To check whether an analysis with the weekly exchange rate and the proportion of immigrant member makes any difference, we construct a *fourth* sample following the steps of the third sample but now keep observations for 2014 and 2015 which gives a sample of size 991,060. Next, to check the robustness of our results with the unbalanced panel, we followed the process of selecting our *main* sample but this time retaining households not belonging to all panel years. This *fifth* sample includes a total of 32,220 observations.

Finally, to check the pattern of total household expenditure, we use data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey – a nationally representative panel survey that has been collecting socioeconomic, demographic and labor market data of Australian households since 2001. HILDA is recognized as a good source of data on household expenditure pattern and employed in many important studies in Australian and internationally. With HILDA, we start with 9,555, 9,538 and 9,631 households for 2013, 2014 and 2015, respectively. From that, we drop 4,917 observations for missing or nil household expenditure to get our final analysis sample of 23,807 households.[8]

Table 1 presents annual household food expenditure in our main analysis sample, separately for households with and without foreign-born member(s). Both mean and median expenditure indicates that household food expenditure increases between 2013 and 2014 and drops in 2015. The increase in 2014 is higher for HFBMs while the reduction in the next period is lower than their native counterpart indicating a differential impact of exchange rate on the food expenditure of HFBMs and natives.

[Table 1]

3. EMPIRICAL FRAMEWORK AND IDENTIFICATION

For an Australian household with foreign-born member, let x_1 be a basket of (normal) goods consumed in the country of origin with price p_1 and x_2 be a basket of (normal) goods consumed

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[8]Details of HILDA can be found from (Wilkins & Lass, 2018).

in Australia with price p_2 (all in AU\$).[9] A fall (rise) in the value of AU\$ would raise (reduce) p_1 as less (more) x_1 will be purchased by the endowment. Ignoring the effect of the fall in AU\$ on the prices in Australia at this moment, this indicates that the consumption of x_1 will fall both due to the substitution and income effect.[10] On the other hand, the increase in p_1 will mean that the consumption of x_2 will reduce due to income effect but will increase due to the substitution effect. Thus the consumption of x_2 may increase or decrease depending on which of the income and substitution effect dominates.

However, the change in the exchange rate will cause the domestic prices in Australia to change through foreign trade. Therefore, for any analysis, it is important to exclude such effects. Thus, the impact of the change in exchange rate on a household with foreign-born members can be identified by $\frac{\partial x_1}{\partial p_1}, \frac{\partial x_1}{\partial p_2}, \frac{\partial x_2}{\partial p_1}$ and $\frac{\partial x_2}{\partial p_2}$. The first two terms give the direct and indirect impact of exchange rate on the consumption in the country of origin of foreign-born Australians while the last two terms give the direct and indirect impact of the exchange rate on their consumption in Australia, respectively. For a native Australian, the only relevant case is the last term as, for them, x_1 is zero and the exchange rate has no direct effect on their consumption (x_2).

Thus, comparing domestic consumption of foreign-born households with natives will offset the effect of domestic price changes in Australia and will identify the direct effect of exchange rate on the consumption of the former group in their host country ($\frac{\partial x_2}{\partial p_1}$). As a result, we use a difference-in-differences (DD) model to identify the impact of exchange rate on consumption of households with foreign-born Australians, in their host country. While the pattern is likely to hold for all types of consumption, we particularly investigate the case of food because of the availability of high-quality data. We primarily focus on expenditure since using quantity generated from expenditure in household data can be problematic as it ignores the issue of quality (Deaton, 1988, 1997; Gibson & Kim, 2019). Our DD model is as follows:

$$y_{it} = \alpha + \beta z_{it} + \sum_{t=2014}^{2015} \left(\gamma_t d_t + \delta_t z_{it} \times d_t \right) + \boldsymbol{\theta} \boldsymbol{X_{it}} + \psi_s + u_{it}, \tag{1}$$

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[9]Here, x_1 can be thought of representing goods consumed in the origin country financed by the remittances of foreign-born Australians which, after discounting, can be considered as their consumption.

[10]Which, in our case, will essentially mean that remittances outflow from Australia will fall.

where, for each household i and year t, y represents (the log of) household's food expenditure, z is a dummy indicating whether the household has a foreign-born member, d is a dummy taking the value of one for period t and zero for the reference period (i.e., 2013), $\boldsymbol{X}$ is a vector of control variables included in the regression and u is the error term.[11] The vector $\boldsymbol{X}$ includes variables like household size, annual household income, home type and home ownership status that can affect households' food consumption behavior. We additionally control for the State fixed effects (ϕ_s) to net out the effect of location-specific factors (like employment opportunity and price level).

Thus, in our model, the coefficients δ_t are the difference-in-differences estimates, indicating the impact of the depreciation of domestic currency on the food expenditure behavior of Australian HFBMs ($\frac{\partial x_2}{\partial p_1}$). Interestingly, the direct impact of the depreciation of domestic currency on the food consumption behavior of HFBMs can be divided into income and substitution effect by using the Slutsky equation

$$\frac{\partial x_2}{\partial p_1} = \frac{\partial h_2}{\partial p_1} - \left(\frac{\partial x_2}{\partial I}\right)\left(\frac{\partial E}{\partial p_1}\right), \tag{2}$$

where, h, I and E indicate the compensated (or Hicksian) demand, income and expenditure, respectively. The first part of the right-hand side of equation (2) indicates the positive substitution effect while the second part exhibits the negative income effect. Thus the DD estimates in our case indicate the resulting differences between the two effects.

It is possible that the HFBMs are different than their native counterpart. The longitudinal nature of our data allows us to control for individual heterogeneity and therefore we employ household fixed effects for our estimation technique.

The DD model relies on comparing the difference in food expenditure between HFBMs and native households before and after the change in the exchange rate of the Australian dollar. The identifying assumption of this approach is that the difference in food expenditure between HFBMs (treatment) and native households (control) would have remained the same without the change in the exchange rate of the Australian dollar.

We cannot test our identifying assumption directly but we are able to examine the historical trend for both the groups. In particular, if we use more disaggregated weekly food expenditure

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[11]Immigrant households can also be identified by the country of birth of household head, as they usually allocate food expenditures. We repeated the entire analysis with that definition of immigrant households and find similar results which are available from the authors upon request. However, we presented the results with household member based definition as we believe that members can indicate their connection with the home country.

data for 2013, we should see a similar trend for both the HFBMs and natives as the movement of the exchange rate has been really limited in that period. We use the *third* analysis sample to test whether HFBMs households have a different trend of food expenditure than their native counterpart.

4. RESULTS AND DISCUSSION

As a preliminary check of any difference in food expenditure between HFBMs and native households, we start with a cross-tabulation of mean food expenditures (Table 2). The upper panel of the table compares the numbers for 2013 and 2014 while the lower panel does the same for 2013 and 2015. The rows split the data by time while the columns split the data by household type – natives versus HFBMs. Each cell shows the mean food expenditure of the group in the column for the period in the row. We have also reported the standard error of the mean as well as the number of observations.

[Table 2]

In Table 2, natives have higher food expenditure than HFBMs in 2013, although the difference is not significant. Food expenditures of both group increase in 2014 but their difference disappears. As a result, the increase in food expenditure for the HFBMs is around 2.5 percent higher than the natives. However, the standard error of 0.021 makes the overtime difference, of the differences in means between HFBMs and native households, statistically insignificant.

As the value of AU\$ has been much lower in 2015 compared to the same for 2014, we expect a higher impact when we compare food expenditures of 2013 with that of 2015. The bottom panel of Table 2 repeats the previous analysis and finds that HFBMs' food expenditure increase by 4.2 percent which is higher than the impact we observe for 2014. However, the effect is only valid at the 10 percent level of significance, indicating the need for a better model to make the estimates precise.

One of the potential reasons for the lower significance of the Difference-in-differences (DD) estimates is the differences in the characteristics of the HFBMs, compared to the households who do not have any foreign-born member. Summary statistics of such variables, as listed in Section 3,

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are presented in Table 3. We see significant differences between those two types of households in some characteristics for all the years, 2013-2015. As a result, in examining the differences in food expenditure between HFBMs and native households, we employ household fixed effects in our estimation. We further control for some important household characteristics in our models.

[Table 3]

The main set of results from our analysis is presented in Table 4. Column 1 presents the results that use the model in equation (1) but excludes both the variables listed in vector $\boldsymbol{X}$ and the State fixed effects. The results indicate that HFBMs have higher food expenditures in 2013 which increase in 2014 but reduce in 2015. However, as the DD coefficients indicate, HFBMs households' experience a positive impact on food expenditures in both periods, compared to that of their native counterpart.[12]

[Table 4]

As other variables may have a significant impact on food expenditure, we now incorporate them into the model. The corresponding results are presented in column 2 of Table 4 which indicate that, in the reference period, there is no significant difference in food expenditure between HFBMs and native households. Also, food expenditure increases in 2014 but reduces in 2015. However, the DD estimates remain largely similar in both specifications. Among other variables, a positive impact of household size reveals the fact that larger households are likely to spend more.

Next, we add the State fixed effects into model (1) to estimate our final and preferred specification. Our results largely remain unchanged with the modification in the specification (column 3). In that, while food expenditure increases in 2014, HFBMs' expenditure increases 2.4 percent more in that period compared to the native households. On the other hand, while food expenditure reduces in 2015 (compared to 2013) by 8.5 percent for the native households, it only reduces 4.5 percent for the households with foreign-born members making the overall change 4.0 percent higher for HFBMs. The reasonable F-stats in all cases indicate that our models explain the variation in the dependent variable reasonably well. Thus, the overall result in Table 4 indicates that the devaluation of the Australian dollar increases HFBMs' food expenditure.[13]

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[12]All tests are conducted at the 5 percent significance level.

[13]We find similar results when we use per capita food expenditure as the dependent variable in our model. This is due to the control for household fixed effects in our models.

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Our findings are valid only in case we can confirm the parallel trend assumption. One such validation can be done by doing a placebo test e.g., comparing food expenditure between 2012 and 2013 for both groups. Unfortunately, our data are not available earlier than 2013, restricting us to do such tests. Instead, we compare the weekly food expenditure pattern in 2013 for both the HFBMs and native households. Figure 4 plots the food expenditure of both groups together with their non-parametric local linear fit. We have also presented the confidence interval of the non-parametric fit for the food expenditure of native households. The figure reveals that there is no significant difference between the food expenditures of the two groups. This is particularly so as the local linear fit of HFBMs' food expenditure lies completely inside of the 95 percent confidence interval of the local linear fit of that for native households. We have also employed a regression-based analysis to investigate the impact of the presence of foreign-born members on the weekly food expenditure in 2013 and arrive at a similar conclusion. See Appendix, Table A.4 and Figure A.2, for coefficient estimates using a linear model and their plot.

[Figure 4]

One of the potential reasons for HFBMs to spend more on food, compared to their counterpart, is the possibility of an increase in earning for the former group in the later period. While we control for income in our previous analysis, we now investigate explicitly whether there is any impact of the devaluation of the Australian dollar on HFBMs' incomes against their native counterpart.[14] To do so, we again use the framework in equation (1) but now use household income as the dependent variable.

Results in column 1 of Table 5 indicate that HFBMs have higher incomes than natives in the reference period. Incomes of the native households increase over time, both in 2014 and 2015. However, the two insignificant DD estimates indicate that the increases in incomes are similar for the HFBMs and natives. The results remain largely similar as we add more explanatory variables (as listed in vector $\boldsymbol{X}$) in the model (column 2). We also arrive at a similar conclusion when we include State fixed effects as an explanatory variable (column 3). Thus, the overall results in Table 5 demonstrate that the devaluation of the Australian dollar has no differential effect on the

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[14]Analyzing both income and expenditure may also show the pattern of consumption-smoothing mechanisms (Attanasio & Pistaferri, 2016).

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incomes of HFBMs and native households in Australia. One potential concern of this analysis with income can be the low F-stats for our models which are expected as our income data are reported only in (a total of 21) slabs. We also model income on the previous set of explanatory variables using an ordered logit model and arrive at similar conclusions.[15]

[Table 5]

Another reason for spending more on food by HFBMs can be their expenditure on imported food in a larger proportion, compared to the natives. Cultural and social backgrounds may induce migrant households to consume a larger proportion of imported goods from their country of origin. Since devaluation is likely to put upward pressure on the prices of imported goods, migrant households may end up spending more on food. Since we do not have any information about the imported food items, we examine this case by creating a proxy for imported food items using the commodity group that are inspected and tested by the Department of Agriculture.[16] The group is composed of beverages, cereals, flours and milled products, dairy, eggs, honey, horticulture, meat and seafood.

We use a triple difference (DDD) model to examine whether there is any difference in the expenditure pattern on imported goods (non-imported goods are the reference category) in 2014 and 2015 (against 2013) between HFBMs and native households.[17] In that model, the DDD estimate will be positive if expenditures on imported food items increase more for HFBMs.

Table 6 presents the results of our triple difference model. Column 1 results are from the model that only uses basic DDD set up (and thus excludes State fixed effects and the explanatory variables listed in vector $\boldsymbol{X}$). The results show a DDD estimate that is insignificant at any conventional level of significance, indicating that over time changes in expenditures on imported goods are similar for both groups of households. Our results remain unchanged as we add other covariates (column 2) and, in addition, State fixed effects (column 3) in the model. In all cases, the high F-stats indicate that our models are reasonably strong. Since the classification of imported goods may appear subjective, we examine another categorization in which we make the imported food group by

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[15]Results are available from the authors upon request.

[16]For detail, see Table 1 in https://goo.gl/XVFhpc.

[17]The model can be written as $Y_{it} = \alpha + \beta Z_{it} + \eta I + Z_{it} \times I + \sum_{t=2014}^{2015} (\gamma_t D_t + \delta_t Z_{it} \times D_t + +\pi_t I \times D_t + \mu_t Z_{it} \times I \times D_t) + \theta X_{it} + \psi_s + u_{it}$, where, in addition to the notations described earlier, I is a dummy variable taking the value of 1 if the purchased good is imported and 0 otherwise.

using the fact that Thailand, China and Vietnam dominate in the frozen and processed seafood import while China dominates the fruit and vegetable imports to Australia.[18] We again obtain at a conclusion that the prices of imported food items cannot explain higher food expenditure by HFBMs.[19]

[Table 6]

Previous literature has found that, in times of crisis, people may spend more time on searching for better prices and thus can offset the impact of higher food prices.[20] As locals may have more information about the market price of food, they can be more efficient in buying food at cheaper prices. Such behavioral pattern will result in showing a relatively higher food expenditure for the HFBMs. Using the previous DD set up but now using our *second* analysis sample and price as the dependent variable, we examine whether HFBMs pay higher prices for the food items they purchase.[21] Results from the model are presented in Table 7. Column 1 indicates that HFBMs may pay a higher food price but the coefficient is significant only at the 10 percent level of significance. The coefficients for the two treatment years 2014 and 2015 indicates that food prices in Australia have increased in 2014 and more so in 2015. However, the DD estimate confirms that both groups experience price increases in the same way.

[Table 7]

Again, we add more control variables in the model. Results in column 2 of Table 7 indicate that, when we control for the household characteristics, HFBMs and native households pay similar prices for food items. Furthermore, prices increase over time but similarly for both groups. Column 3 presents results from our final model that adds the State fixed effects into the specification. Again we observe similar results – while food prices increase on average 2.5 percent in 2014 and 3.0 percent in 2015 (compared to 2013), there are no overtime differences in the prices paid by HFBMs and native households.[22] The F-stats also remain reasonable in all specifications. Finally, as mean

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[18]See https://goo.gl/Mnvjt4, for detail.

[19]Results are available from the authors upon request.

[20]Households affected by economic shocks may reduce real food expenditure while maintaining calorie purchase and nutritional quality by adjusting shopping effort and the characteristics of their shopping baskets (Griffith et al., 2016; Hasan, 2019).

[21]We control for the category fixed effects into the model to net out the differences in prices across categories.

[22]Against such large depreciation of AU\$ between 2013 and 2015, these price increases appear low but not unlikely as, for many countries, retail prices of traded goods are sticky in national currencies (Chen et al., 2018).

price can be affected by extreme values, we repeated the same analysis with median price and obtain similar results.[23] Overall, our analysis with prices offers support to reject the hypothesis that HFBMs in Australia pay higher food prices compared to the native households.

Next, we examine whether increases in the purchase of food items are responsible for the higher food expenditure of HFBMs. We again use the previous DD set up but now use the quantity of food consumption as the dependent variable and include the category fixed effects to net out the differences in the purchase of different categories. Results from this analysis are presented in Table 8. Again, column 1 presents results with the basic DD set up. It indicates that HFBMs purchase more food items in 2013 and the food consumption of native households significantly reduces in both 2014 and 2015. However, for HFBMs, food consumption increases in 2014 while the reduction in food consumption is much lower in 2015 compared to the natives, resulting in significantly positive DD estimates.

[Table 8]

Adding other control variables in the model (column 2) and further adding State fixed effects in the specification (column 3) provide similar results. The final and preferred model indicates that native households consume 2.3 percent less food in the reference period. Their consumption reduces 0.3 percent in 2014 and 7.5 percent in 2015. The DD coefficients indicate that HFBMs purchase 1.5 percent more food items in 2014 and 2.1 percent more in 2015, when we compare theirs over time increase in food purchases with that of the native households. The F-stats in all cases validate our models. Thus we conclude that HFBMs increase their food consumption compared to their native counterpart, as a result of the reduction in the value of the Australian dollar.

We conduct our final analysis to confirm whether total consumption of HFBMs, compared to that of natives, also increase in 2014 and 2015 against 2013. To do so, we repeat our main analysis in Table 4 with HILDA survey data but now using (log of) total household expenditure as the dependent variable. Results from that analysis, presented in Table 9, are similar to our previous analysis with food expenditure. In column 1, when we use no control other than the basic DD setting, we find that household expenditures of the natives increase significantly in 2014 and insignificantly in 2015, compared to the reference period. On the other hand, HFBMs has

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[23]Results are available from the authors upon request.

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higher household expenditures than natives in the reference period that significantly increases both in 2014 and 2015. HFBMs higher expenditures are explained by socioeconomic and demographic factors when we control for those factors in the model while other results largely remain unchanged with such modifications (column 2). We also find similar results when we add State fixed effects in our model (column 3). In this preferred specification, the DD estimates indicate that HFBMs, compared to natives, increase their annual expenditure by 3.1 percent in 2014 and 3.8 percent in 2015. Thus, our results with HILDA survey data support our hypothesis that HFBMs increase their expenditure in the host country as a result of a currency devaluation in that country. This observed pattern of increasing consumption at the time of falling exchange rates is consistent with our theoretical understanding that we discussed earlier.

[Table 9]

We further conduct a bunch of robustness checks to verify our results. First, our definition of HFBMs is based on all members while only heads may have real controls on the purchase of foods in the households. As a result, we repeat the entire analysis by considering households as migrant if the head is born in a different country. We find results that are similar to what we have observed earlier. Second, households' food consumption pattern can be changed between 2014 and 2015 and thus aggregating both years can provide a misleading result. We repeat the entire analysis separately for 2014 and 2015 while taking 2013 as the reference period in both cases. In all cases, we arrive at a conclusion that is similar to that of our previous analysis.[24] We also arrive at similar conclusions when we conduct our analysis with the unbalanced household panel data. See, Appendix, Table A.5, for the results.

It could be argued that a continuous treatment variable (like exchange rate) and a continuous treatment group (like the ratio of overseas-born members in households) could also indicate the impact of the exchange rate. However, since the exchange rate affects prices with a lag – the length of which we are not necessarily sure – such models may not indicate the effect we want to capture.[25]

We argue that HFBMs' higher expenditure is due to the change in their remitting behavior. Substantial depreciation of the Australian dollar during 2013-2015 was likely to induce HFBMs to

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[24]All the results are available from the authors upon request.
[25]Results from such models, which indicate insignificant DD estimates, are available from the authors upon request.

send lower remittances to their country of origin. Lower outward remittances and higher expenditure locally may mean that they substituted home country consumption with that of the host country.[26] Unfortunately, our data or any other Australian household level data we are aware of, do not include information on remittances that restricts us to empirically confirm the fact with microdata. However, we observe this case in the aggregate data, as presented in Figure 3. Since microdata must be congruent with this macroeconomic fact, we argue that this is sufficient to confirm that migrant households increase their expenditure by reducing remittances to their country of origin.

5. CONCLUSION

We investigated the impact of currency depreciation on the expenditure of households with foreign-born members in Australia. Our investigation revealed that the depreciation of the Australian dollar in 2014 and 2015 increased the food expenditure of immigrant households compared to the native households. Our analysis further revealed that the increased food expenditures by migrants are not due to higher food prices or incomes but for the higher consumption of food items. A similar pattern is also observed in the case of total expenditure.

Our analysis is the first study to empirically confirm that, the increase in the relative price of consumption (and/or investment) in the home country resulting from the falling exchange rate in the host country, induces migrants to consume more in their destination/host country and less in the country of origin. This indicates that the expenditure and consumption can be a poor measure of welfare for migrant households. This is because, while depreciation of host country currency will always lower migrant households' welfare by reducing their real income, higher consumption relative to their native counterpart may indicate otherwise. With the expectation of more immigrant population around the world, we contribute to the migration literature by highlighting how macroeconomic shocks can affect natives and non-natives differently.

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[26]Which of course, more than offsets the opposing income effect.

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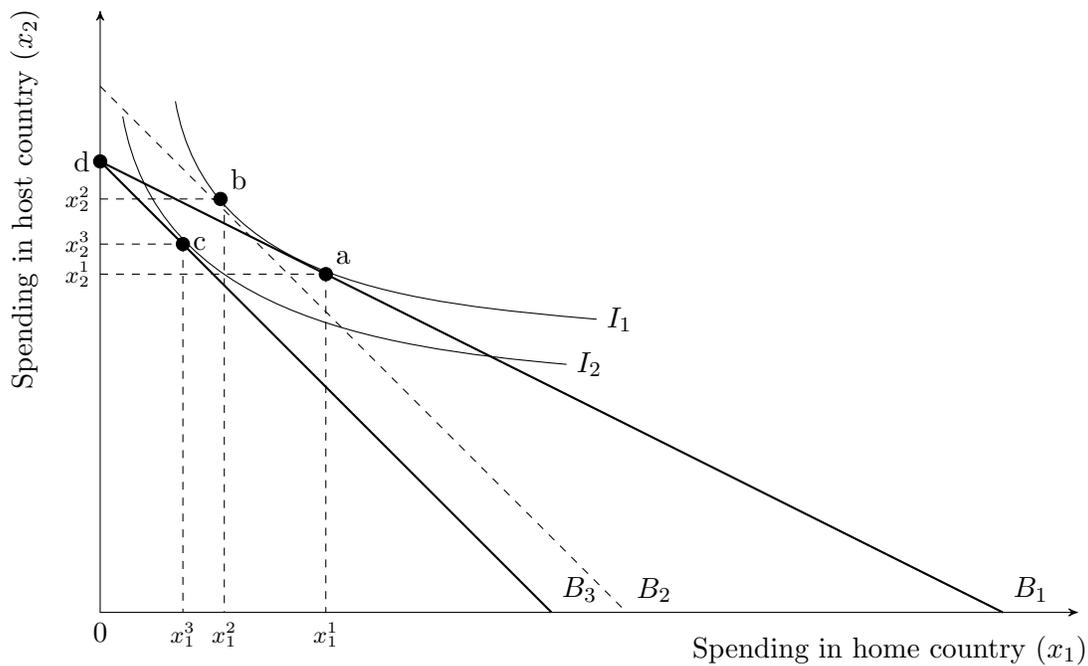
Figure 1: **Impact of a host country currency depreciation**
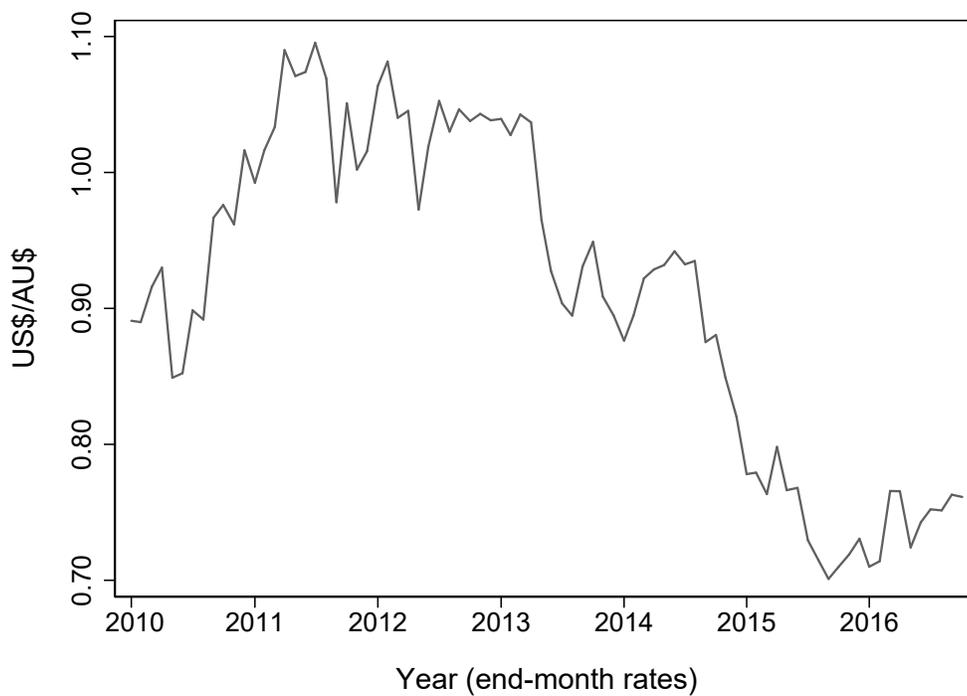
Source: Reserve Bank of Australia, Web: https://goo.gl/UH27Pt

Figure 2: **Exchange Rate of Australian dollar, 2010-2016**
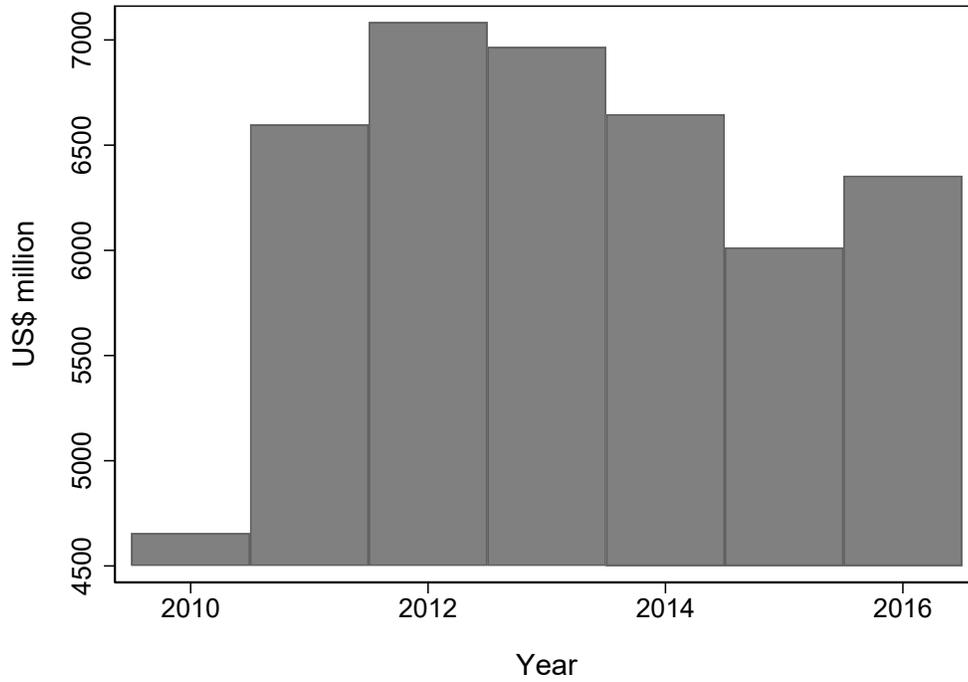
Source: World Bank, Web: https://goo.gl/V5Au26

FIGURE 3: **Migrant Remittance Outflow from Australia, 2010-2016**
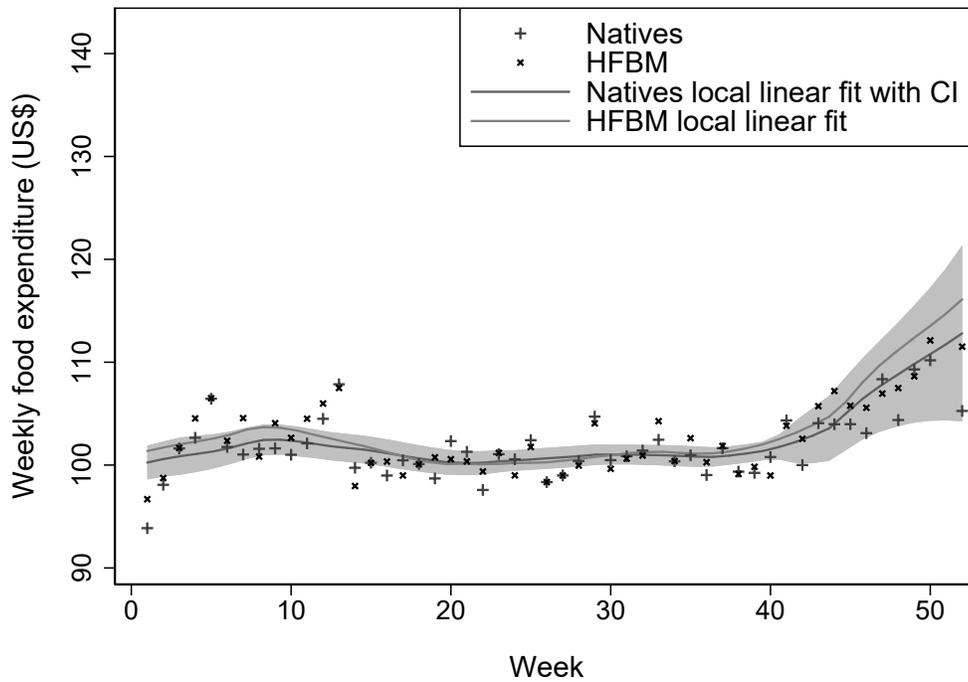
FIGURE 4: **Food expenditure weekly trend by household type in 2013**

TABLE 1: MEAN AND MEDIAN FOOD EXPENDITURE

Household type	2013 (1)	2014 (2)	2015 (3)	All (4)
Natives				
Mean food expenditure	4,084	4,258	3,999	4,114
Median food expenditure	3,618	3,783	3,568	3,656
N	[5,580]	[5,610]	[5,611]	[16,801]
HFBMs				
Mean food expenditure	4,063	4,296	4,061	4,140
Median food expenditure	3,628	3,859	3,691	3,730
N	[2,744]	[2,714]	[2,713]	[8,171]
All				
Mean food expenditure	4,077	4,270	4,019	4,122
Median food expenditure	3,623	3,807	3,608	3,685
N	[8,324]	[8,324]	[8,324]	[24,972]

Note: Number of observations are in square brackets.

TABLE 2: THE EFFECT OF EXCHANGE RATE CHANGES ON HFBMs' FOOD EXPENDITURE

	Household type		
	Natives (1)	HFBMs (2)	Difference (3)
2014 vs. 2013			
January-December, 2013	8.135	8.110	-0.025
	(0.009)	(0.013)	(0.015)
	[5,580]	[2,744]	[8,324]
January-December, 2014	8.189	8.189	0.000
	(0.008)	(0.012)	(0.015)
	[5,610]	[2,714]	[8,324]
2014-2013	0.054	0.080	0.025
	(0.012)	(0.018)	(0.021)
	[11,190]	[5,458]	[16,648]
2015 vs. 2013			
January-December, 2013	8.135	8.110	-0.025
	(0.009)	(0.013)	(0.015)
	[5,580]	[2,744]	[8,324]
January-December, 2015	8.049	8.066	0.017
	(0.011)	(0.016)	(0.020)
	[5,611]	[2,713]	[8,324]
2015-2013	-0.086	-0.044	0.042*
	(0.014)	(0.021)	(0.025)
	[11,191]	[5,457]	[16,648]

Note: Number of observations are in square brackets.

Variable	2013			2014			2015		
	HFBMs (1)	Natives (2)	p-val. (3)	HFBMs (4)	Natives (5)	p-val. (6)	HFBMs (7)	Natives (8)	p-val. (9)
Household size	2.889 (1.243)	2.647 (1.310)	0.00	2.871 (1.249)	2.635 (1.316)	0.00	2.886 (1.261)	2.639 (1.315)	0.00
Free Standing House	0.773 (0.419)	0.831 (0.375)	0.00	0.776 (0.417)	0.836 (0.370)	0.00	0.780 (0.415)	0.834 (0.372)	0.00
Terrace/townhouse/ villa/semi detached	0.114 (0.318)	0.094 (0.292)	0.01	0.116 (0.320)	0.090 (0.286)	0.00	0.117 (0.321)	0.091 (0.287)	0.00
Low-rise flats/units (2 or 3 storeys)	0.077 (0.266)	0.060 (0.238)	0.00	0.071 (0.256)	0.059 (0.236)	0.05	0.067 (0.250)	0.060 (0.238)	0.24
High rise flats/units (4 or more storeys)	0.031 (0.172)	0.012 (0.107)	0.00	0.031 (0.174)	0.011 (0.106)	0.00	0.031 (0.174)	0.012 (0.109)	0.00
Mobile or improvised dwelling	0.005 (0.069)	0.003 (0.052)	0.13	0.006 (0.077)	0.003 (0.053)	0.04	0.006 (0.074)	0.003 (0.058)	0.15
Owned outright	0.306 (0.461)	0.332 (0.471)	0.02	0.323 (0.468)	0.341 (0.474)	0.11	0.336 (0.472)	0.349 (0.477)	0.26
Owned with a mortgage	0.258 (0.438)	0.254 (0.436)	0.73	0.244 (0.430)	0.244 (0.430)	0.99	0.234 (0.423)	0.240 (0.427)	0.57
Rented	0.435 (0.496)	0.414 (0.493)	0.07	0.433 (0.496)	0.415 (0.493)	0.12	0.430 (0.495)	0.412 (0.492)	0.11
Annual household income	79,647 (47,231)	70,787 (43,877)	0.00	80,410 (48,389)	71,946 (44,915)	0.00	80,934 (49,223)	72,277 (45,548)	0.00
N	2,744	5,580		2,714	5,610		2,713	5,611	

Notes: 1. Standard deviations are in parentheses.

2. *p*-values indicate the significance level of the difference in means between treatment and control group.

TABLE 4: IMPACT OF EXCHANGE RATE ON HFBMS'
FOOD EXPENDITURE

	(1)	(2)	(3)
HFBMs	0.1314**	0.0473	0.0473
	(0.0544)	(0.0569)	(0.0570)
Year 2014	0.0555***	0.0557***	0.0557***
	(0.0053)	(0.0053)	(0.0053)
HFBMs	0.0233**	0.0238**	0.0238**
× Year 2014	(0.0099)	(0.0100)	(0.0100)
Year 2015	-0.0845***	-0.0849***	-0.0849***
	(0.0090)	(0.0091)	(0.0091)
HFBMs	0.0395**	0.0401**	0.0399**
× Year 2015	(0.0156)	(0.0156)	(0.0156)
Log(household size)		0.1601***	0.1588***
		(0.0252)	(0.0251)
Terrace/townhouse/		-0.0238	-0.0222
villa/semi detached		(0.0404)	(0.0404)
Low-rise flats/units		0.0360	0.0358
(2 or 3 storeys)		(0.0401)	(0.0399)
High rise flats/units		0.0357	0.0334
(4 or more storeys)		(0.0511)	(0.0517)
Mobile or improvised		0.0100	0.0102
dwelling		(0.1302)	(0.1303)
Owned outright		-0.0074	-0.0074
		(0.0230)	(0.0230)
Owned with a		-0.0217	-0.0246
mortgage		(0.0225)	(0.0225)
Constant	8.0833***	7.8734***	7.9262***
	(0.0180)	(0.0609)	(0.0806)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	24,972	24,972	24,972
F	136.2	23.5	19.4

Notes: 1. All models control for the household fixed effects.

2. Robust standard errors are in parentheses.

3. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE 5: IMPACT OF EXCHANGE RATE ON HFBMs' INCOME

	(1)	(2)	(3)
HFBMs	0.1359***	0.0781**	0.0785**
	(0.0355)	(0.0366)	(0.0366)
Year 2014	0.0121***	0.0132***	0.0132***
	(0.0037)	(0.0037)	(0.0037)
HFBMs	-0.0063	-0.0057	-0.0059
× Year 2014	(0.0064)	(0.0064)	(0.0064)
Year 2015	0.0139***	0.0155***	0.0156***
	(0.0046)	(0.0045)	(0.0045)
HFBMs	-0.0065	-0.0061	-0.0064
× Year 2015	(0.0081)	(0.0080)	(0.0080)
Log(household size)		0.1133***	0.1131***
		(0.0186)	(0.0186)
Terrace/townhouse/		-0.0656**	-0.0643**
villa/semi detached		(0.0285)	(0.0284)
Low-rise flats/units		-0.0414	-0.0409
(2 or 3 storeys)		(0.0447)	(0.0442)
High rise flats/units		-0.0208	-0.0187
(4 or more storeys)		(0.0380)	(0.0381)
Mobile or improvised		-0.1336	-0.1337
dwelling		(0.1122)	(0.1122)
Owned outright		-0.1074***	-0.1067***
		(0.0291)	(0.0291)
Owned with a		-0.0464**	-0.0487**
mortgage		(0.0220)	(0.0219)
Constant	10.9486***	10.9253***	10.9169***
	(0.0119)	(0.0225)	(0.0401)
State fixed effect	No	No	Yes
N	24,972	24,972	24,972
F	5.3	8.2	5.7

Notes: 1. All models control for the household fixed effects.
2. Robust standard errors are in parentheses.
3. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE 6: IMPACT OF EXCHANGE RATE ON HFBMS'
EXPENDITURE OF IMPORTED FOOD

	(1)	(2)	(3)
HFBMs	0.0820	0.0047	0.0050
	(0.0545)	(0.0573)	(0.0575)
Year 2014	0.0282***	0.0284***	0.0283***
	(0.0059)	(0.0059)	(0.0059)
Year 2015	-0.1270***	-0.1274***	-0.1274***
	(0.0098)	(0.0099)	(0.0099)
Imported items	0.7013***	0.7013***	0.7013***
	(0.0068)	(0.0068)	(0.0068)
HFBMs	0.0189*	0.0192*	0.0192*
× Year 2014	(0.0113)	(0.0113)	(0.0113)
HFBMs	0.0348**	0.0349**	0.0346**
× Year 2015	(0.0168)	(0.0168)	(0.0168)
HFBMs	0.1079***	0.1079***	0.1079***
× imported items	(0.0123)	(0.0123)	(0.0123)
Year 2014	-0.0259***	-0.0259***	-0.0259***
× imported items	(0.0042)	(0.0042)	(0.0042)
Year 2015	-0.0381***	-0.0381***	-0.0381***
× imported items	(0.0053)	(0.0053)	(0.0053)
HFBMs × Year 2014	0.0012	0.0012	0.0012
× imported items	(0.0080)	(0.0080)	(0.0080)
HFBMs × Year 2015	0.0069	0.0069	0.0069
× imported items	(0.0097)	(0.0097)	(0.0097)
Log(household size)		0.1534***	0.1516***
		(0.0265)	(0.0264)
Terrace/townhouse/		-0.0078	-0.0060
villa/semi detached		(0.0441)	(0.0441)
Low-rise flats/units		0.0376	0.0376
(2 or 3 storeys)		(0.0423)	(0.0421)
High rise flats/units		0.0601	0.0582
(4 or more storeys)		(0.0585)	(0.0589)
Mobile or improvised		0.0220	0.0221
dwelling		(0.1517)	(0.1517)
Owned outright		-0.0027	-0.0027
		(0.0251)	(0.0251)
Owned with a		-0.0408*	-0.0435*
mortgage		(0.0246)	(0.0245)
Constant	6.3131***	6.1366***	6.1630***
	(0.0183)	(0.0624)	(0.0840)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	49,944	49,944	49,944
F	1762.3	513.0	433.7

Notes: 1. All models control for the household fixed effects.
2. Robust standard errors are in parentheses.
3. Number of observations is twice of the main sample as food expenditure is divided into imported and non-imported food categories.
4. * p <0.10, ** p <0.05, *** p <0.01.

TABLE 7: IMPACT OF EXCHANGE RATE ON HFBMs'
FOOD PRICE

	(1)	(2)	(3)
HFBMs	0.0094*	0.0036	0.0037
	(0.0049)	(0.0050)	(0.0050)
Year 2014	0.0251***	0.0249***	0.0249***
	(0.0007)	(0.0007)	(0.0007)
HFBMs	-0.0010	-0.0009	-0.0009
× Year 2014	(0.0013)	(0.0013)	(0.0013)
Year 2015	0.0302***	0.0301***	0.0301***
	(0.0008)	(0.0008)	(0.0008)
HFBMs	-0.0003	-0.0001	-0.0001
× Year 2015	(0.0014)	(0.0014)	(0.0014)
Log(household size)		0.0083***	0.0080***
		(0.0023)	(0.0023)
Terrace/townhouse/		-0.0044	-0.0041
villa/semi detached		(0.0036)	(0.0036)
Low-rise flats/units		-0.0046	-0.0041
(2 or 3 storeys)		(0.0048)	(0.0048)
High rise flats/units		-0.0015	-0.0011
(4 or more storeys)		(0.0076)	(0.0077)
Mobile or improvised		-0.0103	-0.0103
dwelling		(0.0178)	(0.0178)
Owned outright		-0.0042	-0.0041
		(0.0029)	(0.0029)
Owned with a		0.0041	0.0034
mortgage		(0.0025)	(0.0025)
Constant	1.0303***	1.0110***	1.0246***
	(0.0016)	(0.0056)	(0.0073)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,598,334	1,598,334	1,598,334
F	521.6	85.0	70.8

Notes: 1. All models control for the household and category fixed effects.
2. Robust standard errors are in parentheses.
3. * p <0.10, ** p <0.05, *** p <0.01.

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TABLE 8: IMPACT OF EXCHANGE RATE ON HFBMs'
FOOD CONSUMPTION

	(1)	(2)	(3)
HFBMs	0.0829***	0.0223**	0.0228**
	(0.0111)	(0.0114)	(0.0114)
Year 2014	-0.0033**	-0.0027*	-0.0027*
	(0.0015)	(0.0015)	(0.0015)
HFBMs	0.0152***	0.0154***	0.0154***
× Year 2014	(0.0028)	(0.0028)	(0.0028)
Year 2015	-0.0749***	-0.0746***	-0.0745***
	(0.0018)	(0.0018)	(0.0018)
HFBMs	0.0208***	0.0211***	0.0208***
× Year 2015	(0.0032)	(0.0032)	(0.0032)
Log(household size)		0.1249***	0.1234***
		(0.0053)	(0.0052)
Terrace/townhouse/		-0.0237***	-0.0224***
villa/semi detached		(0.0083)	(0.0083)
Low-rise flats/units		0.0233**	0.0241**
(2 or 3 storeys)		(0.0105)	(0.0105)
High rise flats/units		0.0456***	0.0456***
(4 or more storeys)		(0.0162)	(0.0163)
Mobile or improvised		0.0429	0.0431
dwelling		(0.0352)	(0.0352)
Owned outright		-0.0021	-0.0018
		(0.0062)	(0.0062)
Owned with a		-0.0123**	-0.0144***
mortgage		(0.0055)	(0.0055)
Constant	2.0278***	1.8954***	1.8986***
	(0.0037)	(0.0128)	(0.0169)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,598,334	1,598,334	1,598,334
F	670.3	127.4	105.6

Notes: 1. All models control for the household and category fixed effects.
2. Robust standard errors are in parentheses.
3. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

(Using HILDA data)

	(1)	(2)	(3)
HFBMs	0.0828***	-0.0270	-0.0266
	(0.0212)	(0.0217)	(0.0217)
Year 2014	0.0290***	0.0272***	0.0271***
	(0.0083)	(0.0083)	(0.0082)
HFBMs	0.0337***	0.0312***	0.0314***
× Year 2014	(0.0112)	(0.0112)	(0.0112)
Year 2015	0.0070	0.0054	0.0056
	(0.0090)	(0.0088)	(0.0088)
HFBMs	0.0447***	0.0383***	0.0381***
× Year 2015	(0.0123)	(0.0121)	(0.0121)
Ln(household size)		0.2333***	0.2351***
		(0.0242)	(0.0242)
Terrace/townhouse/		-0.0318	-0.0303
villa/semi detached		(0.0209)	(0.0210)
Low-rise flats/units		-0.0487**	-0.0494**
(2 or 3 storeys)		(0.0210)	(0.0209)
High rise flats/units		-0.0481	-0.0475
(4 or more storeys)		(0.0334)	(0.0335)
Mobile or improvised		-0.0892	-0.0803
dwelling		(0.0726)	(0.0723)
Owned outright		0.0796***	0.0794***
		(0.0235)	(0.0234)
Owned with a		0.0760***	0.0756***
mortgage		(0.0179)	(0.0179)
Constant	10.2096***	10.3175***	10.3008***
	(0.0116)	(0.1053)	(0.1111)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	19,356	19,356	19,356
F	23.2	13.1	10.7

Notes: 1. All models control for the household fixed effects.

2. Robust standard errors are in parentheses.

3. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Reserve Bank of Australia, Web: https://goo.gl/UH27Pt
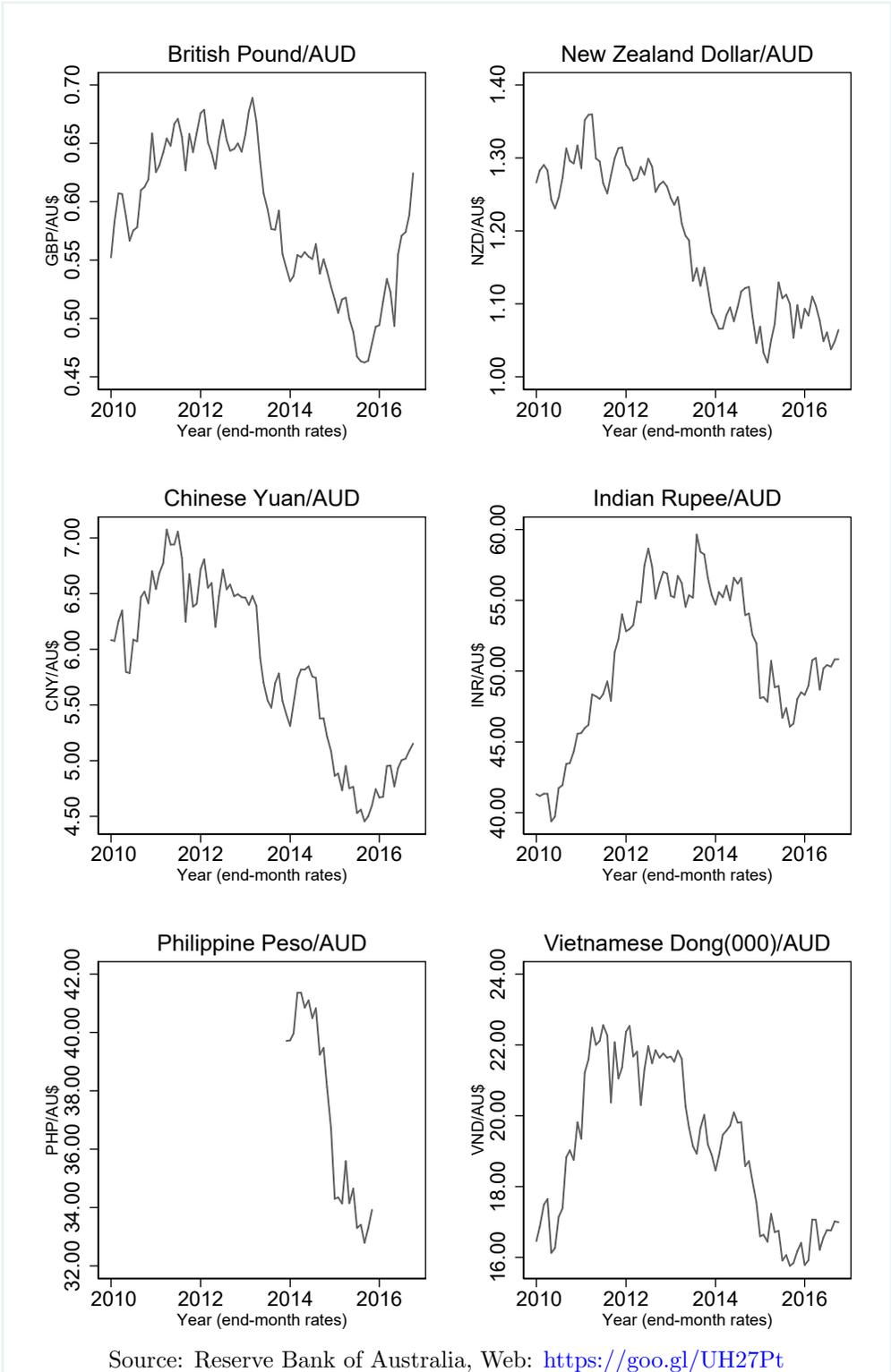
FIGURE A.1: **Exchange rate of Australian dollar, 2010-2016**
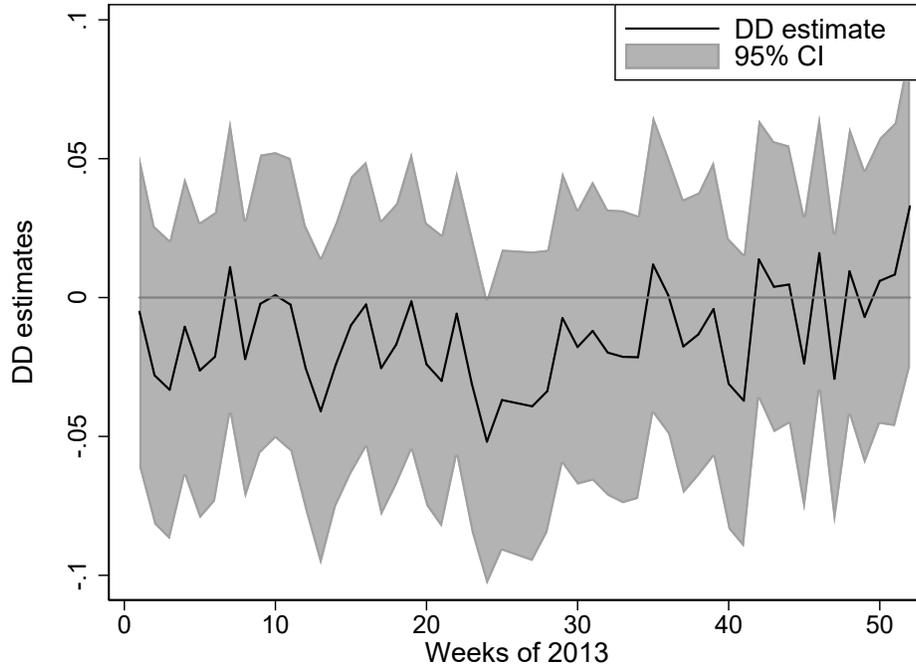
FIGURE A.2: **Distribution of DD coefficients across weeks of 2013**

Table A.1: Movement of exchange rates of major currencies against AU$

Years	United States Dollar	British Pound	New Zealand Dollar	Chinese Yuan	Indian Rupee	Philippine Peso	Vietnamese Dong(000)
2010	0.85	0.57	1.23	5.79	39.73	.	16.26
2011	1.07	0.67	1.30	6.94	48.04	.	22.11
2012	1.02	0.65	1.28	6.48	57.46	.	21.30
2013	0.93	0.61	1.19	5.70	55.36	.	19.67
2014	0.94	0.55	1.08	5.85	56.59	41.10	20.10
2015	0.77	0.49	1.13	4.77	48.95	34.65	16.75
2016	0.74	0.55	1.05	4.93	50.19	.	16.56

Source: Reserve Bank of Australia, Web: https://goo.gl/UH27Pt
Notes: 1. End-June rates.

Table A.2: Distribution of households over years

Years available	No of households
All 2013, 2014 & 2015	8,026
Only 2013 &2014	1,032
Only 2013 & 2015	1
Only 2013	1,382
Only 2014 & 2015	1,281
Only 2014	235
Only 2015	1,253

TABLE A.3: FOOD CATEGORIES IN THE NHPS DATA

1	Artificial Sweeteners	65	Frozen Meat and Poultry
2	Asian/japan Cooking Misc.	66	Frozen Pastry
3	Baby Food	67	Frozen Pizza
4	Baby Rusks	68	Frozen Rice
5	Baked Beans and Spaghetti	69	Frozen Snacks
6	Baking Powder	70	Frozen Vegetables
7	Biscuits	71	Fruit Juices and Drinks
8	Bottled and Canned Sauces	72	Gelatine
9	Bread	73	Golden Syrup/treacle/molasses
10	Breadcrumbs/coating and Stuffing	74	Herbs and Spices/curry Pwd/pepp
11	Breakfast Cereals	75	Honey
12	Butter and Margarine	76	Ice Cream
13	Cake Decorations	77	Ice Cream Cones and Wafers
14	Cakes/pies and Pasties Fresh	78	Icings and Marzipan
15	Canned Beans/salads	79	Indian Foods
16	Canned Corned Meats	80	Infant Formulas
17	Canned Fish and Seafood	81	Jam and Marmalade
18	Canned Fruit/fruit Snacks	82	Marinades
19	Canned Hams/franks and Hot Dogs	83	Meat and Fish Pastes
20	Canned Meals	84	Mexican Food
21	Canned Vegetables	85	Milk Additives/tonic Food Drink
22	Carbonated Beverages	86	Milk White Fresh and Longlife
23	Carbonated Fruit Juice	87	Mixes and Batters
24	Cheese	88	Mustard
25	Chewing Gum and Bubble Gum	89	New Age Beverges
26	Chilled Cream	90	Non Carbonated Bev Cordial Syrup
27	Chilled Meals	91	Non Carbonated Mineral Water
28	Chilled Meat and Poultry	92	Oils and Fats
29	Chilled Pasta	93	Packaged and Prepared Meals
30	Chilled Savoury Pastry	94	Pasta/noodles
31	Chilled Seafood	95	Pastry Sheets
32	Chilled Vegetable Protein	96	Pate
33	Chocolate Confectionery	97	Peanut Butter
34	Christmas Confectionery	98	Pickles and Relishes
35	Citric Acid/baking Soda/crm Tar	99	Prepacked Smallgoods
36	Cocoa and Cooking Chocolate	100	Prepared Dips
37	Coconut	101	Processed Milk Products
38	Coconut Crm and Milk	102	Ready Made Custard
39	Coffee	103	Rice
40	Coffee Substitutes	104	Salad Dressings
41	Cooking Wine	105	Salt
42	Dr Ck/pudd/chsck Mixes	106	Sauce and Gravy Mixes
43	Dried Fruit	107	Savoury Spreads
44	Dried Vegetables	108	Shelf Stable Desserts
45	Drink Mixers	109	Snack Foods
46	Drink Whiteners	110	Soup
47	Easter Confectionery	111	Soup Mix and Pulses
48	Eggs	112	Stocks and Flavourings
49	Essences and Colourings	113	Sugar
50	Flavoured Milk	114	Sugar Confectionery
51	Flour	115	Sweet Spreads
52	Fresh Bulk Nuts/dried Fruits	116	Tea
53	Fresh Chilled Soup	117	Tomato Juice
54	Fresh Convenience Produce	118	Tomato Paste and Puree
55	Fresh Fruit	119	Toppings
56	Fresh Herbs and Sprouts	120	Unprocessed and Baking Nuts
57	Fresh Salad Produce	121	Vegetable and Yeast Extracts
58	Fresh Seafood	122	Vegetable Juice
59	Fresh Vegetables	123	Vinegar
60	Frozen Chilled Desserts	124	Whole Pickles
61	Frozen Drinks	125	Wrapped Health Snacks
62	Frozen Fish/seafood	126	Yogurt and Dairy Dessert
63	Frozen Fruit	127	Yogurt Drinks
64	Frozen Meals		

	(1)	(2)	(3)
HFBMs × week=1	-0.0051	-0.0051	-0.0051
	(0.0286)	(0.0286)	(0.0286)
HFBMs × week=2	-0.0280	-0.0280	-0.0280
	(0.0274)	(0.0274)	(0.0274)
HFBMs × week=3	-0.0332	-0.0332	-0.0332
	(0.0275)	(0.0275)	(0.0275)
HFBMs × week=4	-0.0105	-0.0105	-0.0105
	(0.0274)	(0.0274)	(0.0274)
HFBMs × week=5	-0.0262	-0.0262	-0.0262
	(0.0272)	(0.0272)	(0.0272)
HFBMs × week=6	-0.0213	-0.0213	-0.0213
	(0.0265)	(0.0265)	(0.0265)
HFBMs × week=7	0.0110	0.0110	0.0110
	(0.0270)	(0.0270)	(0.0270)
HFBMs × week=8	-0.0221	-0.0221	-0.0221
	(0.0256)	(0.0256)	(0.0256)
HFBMs × week=9	-0.0022	-0.0022	-0.0022
	(0.0274)	(0.0274)	(0.0274)
HFBMs × week=10	0.0009	0.0009	0.0009
	(0.0263)	(0.0263)	(0.0263)
HFBMs × week=11	-0.0026	-0.0026	-0.0026
	(0.0269)	(0.0269)	(0.0269)
HFBMs × week=12	-0.0254	-0.0254	-0.0254
	(0.0262)	(0.0262)	(0.0262)
HFBMs × week=13	-0.0409	-0.0409	-0.0409
	(0.0282)	(0.0282)	(0.0282)
HFBMs × week=14	-0.0241	-0.0241	-0.0241
	(0.0261)	(0.0261)	(0.0261)
HFBMs × week=15	-0.0100	-0.0100	-0.0100
	(0.0273)	(0.0273)	(0.0273)
HFBMs × week=16	-0.0025	-0.0025	-0.0025
	(0.0263)	(0.0263)	(0.0263)
HFBMs × week=17	-0.0254	-0.0254	-0.0254
	(0.0271)	(0.0271)	(0.0271)
HFBMs × week=18	-0.0169	-0.0169	-0.0169
	(0.0259)	(0.0259)	(0.0259)
HFBMs × week=19	-0.0014	-0.0014	-0.0014
	(0.0274)	(0.0274)	(0.0274)
HFBMs × week=20	-0.0240	-0.0240	-0.0240
	(0.0260)	(0.0260)	(0.0260)
HFBMs × week=21	-0.0300	-0.0300	-0.0300
	(0.0269)	(0.0269)	(0.0269)
HFBMs × week=22	-0.0058	-0.0058	-0.0058
	(0.0262)	(0.0262)	(0.0262)
HFBMs × week=23	-0.0310	-0.0310	-0.0310
	(0.0273)	(0.0273)	(0.0273)
HFBMs × week=24	-0.0519**	-0.0519**	-0.0519**
	(0.0262)	(0.0262)	(0.0262)
HFBMs × week=25	-0.0369	-0.0369	-0.0369
	(0.0276)	(0.0276)	(0.0276)
HFBMs × week=27	-0.0392	-0.0392	-0.0392
	(0.0284)	(0.0284)	(0.0284)
HFBMs × week=28	-0.0337	-0.0337	-0.0337
	(0.0259)	(0.0259)	(0.0259)
HFBMs × week=29	-0.0074	-0.0074	-0.0074
	(0.0268)	(0.0268)	(0.0268)
HFBMs × week=30	-0.0178	-0.0178	-0.0178
	(0.0253)	(0.0253)	(0.0253)

(Continued next page ....)

	(1)	(2)	(3)
HFBMs × week=31	-0.0120	-0.0120	-0.0120
	(0.0275)	(0.0275)	(0.0275)
HFBMs × week=32	-0.0198	-0.0198	-0.0198
	(0.0263)	(0.0263)	(0.0263)
HFBMs × week=33	-0.0213	-0.0213	-0.0213
	(0.0269)	(0.0269)	(0.0269)
HFBMs × week=34	-0.0215	-0.0215	-0.0215
	(0.0260)	(0.0260)	(0.0260)
HFBMs × week=35	0.0119	0.0119	0.0119
	(0.0273)	(0.0273)	(0.0273)
HFBMs × week=36	0.0009	0.0009	0.0009
	(0.0255)	(0.0255)	(0.0255)
HFBMs × week=37	-0.0176	-0.0176	-0.0176
	(0.0270)	(0.0270)	(0.0270)
HFBMs × week=38	-0.0132	-0.0132	-0.0132
	(0.0260)	(0.0260)	(0.0260)
HFBMs × week=39	-0.0041	-0.0041	-0.0041
	(0.0271)	(0.0271)	(0.0271)
HFBMs × week=40	-0.0310	-0.0310	-0.0310
	(0.0267)	(0.0267)	(0.0267)
HFBMs × week=41	-0.0371	-0.0371	-0.0371
	(0.0269)	(0.0269)	(0.0269)
HFBMs × week=42	0.0137	0.0137	0.0137
	(0.0257)	(0.0257)	(0.0257)
HFBMs × week=43	0.0039	0.0039	0.0039
	(0.0267)	(0.0267)	(0.0267)
HFBMs × week=44	0.0047	0.0047	0.0047
	(0.0255)	(0.0255)	(0.0255)
HFBMs × week=45	-0.0237	-0.0237	-0.0237
	(0.0272)	(0.0272)	(0.0272)
HFBMs × week=46	0.0160	0.0160	0.0160
	(0.0254)	(0.0254)	(0.0254)
HFBMs × week=47	-0.0293	-0.0293	-0.0293
	(0.0268)	(0.0268)	(0.0268)
HFBMs × week=48	0.0095	0.0095	0.0095
	(0.0265)	(0.0265)	(0.0265)
HFBMs × week=49	-0.0070	-0.0070	-0.0070
	(0.0270)	(0.0270)	(0.0270)
HFBMs × week=50	0.0060	0.0060	0.0060
	(0.0263)	(0.0263)	(0.0263)
HFBMs × week=51	0.0083	0.0083	0.0083
	(0.0279)	(0.0279)	(0.0279)
HFBMs × week=52	0.0329	0.0329	0.0329
	(0.0295)	(0.0295)	(0.0295)
State fixed effect	No	No	Yes
Other controls	No	Yes	Yes
N	330,023	330,023	330,023
F	14.1	14.1	14.1

Notes: 1. HFBMs are identified by birth country of members.

2. Week 26 is the reference week.

3. Robust standard errors are in parentheses.

4. * p <0.10, ** p <0.05, *** p <0.01.

TABLE A.5: IMPACT OF EXCHANGE RATE ON HFBMs'
EXPENDITURE ON FOOD
(WITH UNBALANCED PANEL DATA)

	(1)	(2)	(3)
HFBMs	0.0996*	0.0088	0.0091
	(0.0568)	(0.0597)	(0.0597)
Year 2014	-0.0963***	-0.0966***	-0.0966***
	(0.0085)	(0.0086)	(0.0086)
HFBMs	0.0191	0.0192	0.0192
× Year 2014	(0.0152)	(0.0152)	(0.0152)
Year 2015	-0.1125***	-0.1138***	-0.1139***
	(0.0096)	(0.0097)	(0.0097)
HFBMs	0.0401**	0.0401**	0.0403**
× Year 2015	(0.0167)	(0.0167)	(0.0167)
Log(household size)		0.1681***	0.1662***
		(0.0271)	(0.0270)
Terrace/townhouse/		-0.0711*	-0.0692*
villa/semi detached		(0.0419)	(0.0420)
Low-rise flats/units		0.0272	0.0267
(2 or 3 storeys)		(0.0533)	(0.0531)
High rise flats/units		0.0517	0.0507
(4 or more storeys)		(0.0597)	(0.0600)
Mobile or improvised		0.0327	0.0331
dwelling		(0.1187)	(0.1187)
Owned outright		-0.0154	-0.0164
		(0.0261)	(0.0261)
Owned with a		-0.0369	-0.0392
mortgage		(0.0242)	(0.0243)
Constant	7.9196***	7.7036***	7.7721***
	(0.0194)	(0.0599)	(0.0820)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	32,220	32,220	32,220
F	44.6	9.0	7.5

Notes: 1. All models control for the household fixed effects.
2. Robust standard errors are in parentheses.
3. * p <0.10, ** p <0.05, *** p <0.01.

For the referees:

Robustness check results

(Not intended for publication)

Appendix B: Results with head based definition

Table B.1: Mean and median food consumption

Household type	2013 (1)	2014 (2)	2015 (3)	All (4)
Natives				
Mean consumption	4,123	4,309	4,054	4,162
Median consumption	3,675	3,835	3,641	3,731
N	[6,489]	[6,500]	[6,497]	[19,486]
HFBMs				
Mean consumption	3,913	4,133	3,898	3,981
Median consumption	3,390	3,691	3,462	3,533
N	[1,835]	[1,824]	[1,827]	[5,486]
All				
Mean consumption	4,077	4,270	4,019	4,122
Median consumption	3,623	3,807	3,608	3,685
N	[8,324]	[8,324]	[8,324]	[24,972]

Notes: 1. HFBMs are identified by head's country of birth.
2. Number of observations are in square brackets.

Table B.2: The effect of exchange rate changes

	Household type		
	Natives (1)	HFBMs (2)	Difference (3)
2014 vs. 2013			
January-December, 2013	8.147	8.053	-0.094
	(0.008)	(0.017)	(0.017)
	[6,489]	[1,835]	[8,324]
January-December, 2014	8.204	8.138	-0.066
	(0.008)	(0.015)	(0.017)
	[6,500]	[1,824]	[8,324]
2014-2013	0.056	0.084	0.028
	(0.011)	(0.023)	(0.024)
	[12,989]	[3,659]	[16,648]
2015 vs. 2013			
January-December, 2013	8.135	8.110	-0.025
	(0.009)	(0.013)	(0.015)
	[5,580]	[2,744]	[8,324]
January-December, 2015	8.049	8.066	0.017
	(0.011)	(0.016)	(0.020)
	[5,611]	[2,713]	[8,324]
2015-2013	-0.086	-0.044	0.042*
	(0.014)	(0.021)	(0.025)
	[11,191]	[5,457]	[16,648]

Notes: 1. HFBMs are identified by head's country of birth.
2. Number of observations are in square brackets.

TABLE B.3: HOUSEHOLD CHARACTERISTICS

	2013			2014			2015		
Variable	HFBMs (1)	Natives (2)	p-val. (3)	HFBMs (4)	Natives (5)	p-val. (6)	HFBMs (7)	Natives (8)	p-val. (9)
Annual household income	77,689	72,582	0.00	79,105	73,471	0.00	79,836	73,766	0.00
	(47,100)	(44,587)		(48,390)	(45,551)		(49,649)	(46,080)	
Free Standing House	0.732	0.835	0.00	0.734	0.840	0.00	0.737	0.839	0.00
	(0.443)	(0.372)		(0.442)	(0.367)		(0.441)	(0.368)	
Terrace/townhouse/	0.128	0.093	0.00	0.131	0.089	0.00	0.132	0.090	0.00
villa/semi detached	(0.334)	(0.290)		(0.338)	(0.285)		(0.339)	(0.286)	
Low-rise flats/units	0.095	0.057	0.00	0.089	0.056	0.00	0.086	0.055	0.00
(2 or 3 storeys)	(0.293)	(0.232)		(0.285)	(0.230)		(0.281)	(0.229)	
High rise flats/units	0.038	0.012	0.00	0.038	0.012	0.00	0.037	0.013	0.00
(4 or more storeys)	(0.192)	(0.110)		(0.192)	(0.110)		(0.189)	(0.114)	
Mobile or	0.005	0.003	0.08	0.008	0.003	0.00	0.007	0.003	0.02
improvised dwelling	(0.074)	(0.053)		(0.087)	(0.053)		(0.084)	(0.057)	
Owned outright	0.309	0.327	0.14	0.323	0.339	0.21	0.334	0.348	0.27
	(0.462)	(0.469)		(0.468)	(0.473)		(0.472)	(0.476)	
Owned with a	0.265	0.253	0.31	0.246	0.244	0.89	0.234	0.239	0.68
mortgage	(0.441)	(0.435)		(0.431)	(0.430)		(0.424)	(0.426)	
Rented	0.425	0.419	0.66	0.431	0.417	0.28	0.432	0.413	0.16
	(0.494)	(0.493)		(0.495)	(0.493)		(0.495)	(0.492)	
N	1,835	6,489		1,824	6,500		1,827	6,497	

Notes: 1. HFBMs are identified by head's country of birth.
2. Standard deviations are in parentheses.
3. p-values indicate the significance level of the difference in means between treatment and control group.

TABLE B.4: IMPACT OF EXCHANGE RATE ON HFBMS'
FOOD EXPENDITURE

	(1)	(2)	(3)
HFBMs	0.0611	-0.0132	-0.0145
	(0.0587)	(0.0605)	(0.0604)
Year 2014	0.0577***	0.0584***	0.0583***
	(0.0050)	(0.0050)	(0.0050)
HFBMs	0.0230**	0.0227**	0.0225**
× Year 2014	(0.0113)	(0.0113)	(0.0113)
Year 2015	-0.0797***	-0.0796***	-0.0797***
	(0.0084)	(0.0085)	(0.0085)
HFBMs	0.0349**	0.0348**	0.0343*
× Year 2015	(0.0177)	(0.0177)	(0.0177)
Log(household size)		0.1669***	0.1657***
		(0.0247)	(0.0247)
Terrace/townhouse/		-0.0237	-0.0221
villa/semi detached		(0.0403)	(0.0404)
Low-rise flats/units		0.0363	0.0362
(2 or 3 storeys)		(0.0401)	(0.0399)
High rise flats/units		0.0360	0.0337
(4 or more storeys)		(0.0514)	(0.0520)
Mobile or improvised		0.0069	0.0071
dwelling		(0.1305)	(0.1305)
Owned outright		-0.0062	-0.0062
		(0.0230)	(0.0230)
Owned with a		-0.0215	-0.0245
mortgage		(0.0224)	(0.0224)
Constant	8.1131***	7.8859***	7.9374***
	(0.0132)	(0.0606)	(0.0800)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	24,972	24,972	24,972
F	135.1	23.3	19.3

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household fixed effects.
3. Robust standard errors are in parentheses.
4. * p $<$0.10, ** p $<$0.05, *** p $<$0.01.

TABLE B.5: IMPACT OF EXCHANGE RATE ON HFBMS' INCOME

	(1)	(2)	(3)
HFBMs	0.1157**	0.0652	0.0661
	(0.0509)	(0.0519)	(0.0519)
Year 2014	0.0092***	0.0106***	0.0106***
	(0.0035)	(0.0035)	(0.0035)
HFBMs	0.0025	0.0025	0.0024
× Year 2014	(0.0072)	(0.0071)	(0.0072)
Year 2015	0.0107**	0.0127***	0.0127***
	(0.0043)	(0.0042)	(0.0042)
HFBMs	0.0030	0.0029	0.0027
× Year 2015	(0.0091)	(0.0090)	(0.0090)
Log(household size)		0.1166***	0.1164***
		(0.0182)	(0.0182)
Terrace/townhouse/		-0.0663**	-0.0650**
villa/semi detached		(0.0286)	(0.0285)
Low-rise flats/units		-0.0394	-0.0389
(2 or 3 storeys)		(0.0447)	(0.0442)
High rise flats/units		-0.0228	-0.0206
(4 or more storeys)		(0.0378)	(0.0379)
Mobile or improvised		-0.1340	-0.1340
dwelling		(0.1119)	(0.1119)
Owned outright		-0.1077***	-0.1070***
		(0.0291)	(0.0291)
Owned with a		-0.0463**	-0.0485**
mortgage		(0.0220)	(0.0219)
Constant	10.9679***	10.9338***	10.9259***
	(0.0114)	(0.0228)	(0.0401)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	24,972	24,972	24,972
F	3.4	7.8	5.5

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household fixed effects.
3. Robust standard errors are in parentheses.
4. * p $<$0.10, ** p $<$0.05, *** p $<$0.01.

TABLE B.6: IMPACT OF EXCHANGE RATE ON HFBMS'
EXPENDITURE ON IMPORTED FOOD

	(1)	(2)	(3)
HFBMs	-0.0164	-0.0871	-0.0885
	(0.0622)	(0.0642)	(0.0639)
Year 2014	0.0304***	0.0311***	0.0310***
	(0.0056)	(0.0056)	(0.0056)
Year 2015	-0.1220***	-0.1221***	-0.1221***
	(0.0091)	(0.0092)	(0.0092)
Imported items	0.7094***	0.7094***	0.7094***
	(0.0063)	(0.0063)	(0.0063)
HFBMs	0.0166	0.0160	0.0159
× Year 2014	(0.0128)	(0.0128)	(0.0128)
HFBMs	0.0275	0.0271	0.0265
× Year 2015	(0.0188)	(0.0188)	(0.0187)
HFBMs	0.1246***	0.1246***	0.1246***
× imported items	(0.0144)	(0.0144)	(0.0144)
Year 2014	-0.0265***	-0.0265***	-0.0265***
× imported items	(0.0039)	(0.0039)	(0.0039)
Year 2015	-0.0377***	-0.0377***	-0.0377***
× imported items	(0.0049)	(0.0049)	(0.0049)
HFBMs × Year 2014	0.0034	0.0034	0.0034
× imported items	(0.0092)	(0.0092)	(0.0093)
HFBMs × Year 2015	0.0072	0.0072	0.0072
× imported items	(0.0112)	(0.0112)	(0.0112)
Log(household size)		0.1622***	0.1606***
		(0.0258)	(0.0257)
Terrace/townhouse/		-0.0077	-0.0058
villa/semi detached		(0.0440)	(0.0440)
Low-rise flats/units		0.0381	0.0381
(2 or 3 storeys)		(0.0423)	(0.0421)
High rise flats/units		0.0606	0.0587
(4 or more storeys)		(0.0589)	(0.0593)
Mobile or improvised		0.0196	0.0198
dwelling		(0.1520)	(0.1521)
Owned outright		-0.0015	-0.0015
		(0.0251)	(0.0251)
Owned with a		-0.0409*	-0.0436*
mortgage		(0.0246)	(0.0245)
Constant	6.3438***	6.1493***	6.1747***
	(0.0143)	(0.0624)	(0.0834)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	49,944	49,944	49,944
F	1761.9	512.9	433.6

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household fixed effects.
3. Robust standard errors are in parentheses.
4. Number of observations is twice of the main sample as food expenditure is divided into imported and non-imported food categories.
5. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.7: IMPACT OF EXCHANGE RATE ON HFBMS'
FOOD PRICE

	(1)	(2)	(3)
HFBMs	0.0026	-0.0023	-0.0021
	(0.0056)	(0.0057)	(0.0057)
Year 2014	0.0246***	0.0246***	0.0245***
	(0.0007)	(0.0007)	(0.0007)
HFBMs	0.0003	0.0003	0.0004
× Year 2014	(0.0015)	(0.0015)	(0.0015)
Year 2015	0.0299***	0.0299***	0.0298***
	(0.0007)	(0.0007)	(0.0007)
HFBMs	0.0010	0.0010	0.0011
× Year 2015	(0.0016)	(0.0016)	(0.0016)
Log(household size)		0.0088***	0.0084***
		(0.0023)	(0.0023)
Terrace/townhouse/		-0.0044	-0.0041
villa/semi detached		(0.0036)	(0.0036)
Low-rise flats/units		-0.0045	-0.0039
(2 or 3 storeys)		(0.0048)	(0.0048)
High rise flats/units		-0.0014	-0.0011
(4 or more storeys)		(0.0077)	(0.0077)
Mobile or improvised		-0.0104	-0.0104
dwelling		(0.0178)	(0.0178)
Owned outright		-0.0042	-0.0041
		(0.0029)	(0.0029)
Owned with a		0.0041	0.0034
mortgage		(0.0025)	(0.0025)
Constant	1.0329***	1.0122***	1.0258***
	(0.0013)	(0.0055)	(0.0072)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,598,334	1,598,334	1,598,334
F	520.0	84.8	70.7

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household and category fixed effects.
3. Robust standard errors are in parentheses.
4. * p <0.10, ** p <0.05, *** p <0.01.

	(1)	(2)	(3)
HFBMs	0.0771***	0.0210	0.0204
	(0.0128)	(0.0131)	(0.0131)
Year 2014	-0.0009	0.0000	-0.0001
	(0.0014)	(0.0014)	(0.0014)
HFBMs	0.0107***	0.0106***	0.0106***
× Year 2014	(0.0032)	(0.0032)	(0.0032)
Year 2015	-0.0715***	-0.0709***	-0.0709***
	(0.0017)	(0.0017)	(0.0017)
HFBMs	0.0144***	0.0147***	0.0144***
× Year 2015	(0.0036)	(0.0036)	(0.0036)
Log(household size)		0.1264***	0.1251***
		(0.0052)	(0.0052)
Terrace/townhouse/		-0.0238***	-0.0225***
villa/semi detached		(0.0083)	(0.0083)
Low-rise flats/units		0.0233**	0.0241**
(2 or 3 storeys)		(0.0105)	(0.0105)
High rise flats/units		0.0446***	0.0447***
(4 or more storeys)		(0.0163)	(0.0163)
Mobile or improvised		0.0408	0.0410
dwelling		(0.0352)	(0.0352)
Owned outright		-0.0013	-0.0010
		(0.0062)	(0.0062)
Owned with a		-0.0120**	-0.0142**
mortgage		(0.0055)	(0.0055)
Constant	2.0385***	1.8967***	1.8992***
	(0.0029)	(0.0127)	(0.0168)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,598,334	1,598,334	1,598,334
F	657.9	126.2	104.6

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household and category fixed effects.
3. Robust standard errors are in parentheses.
4. * p <0.10, ** p <0.05, *** p <0.01.

(Using HILDA data)

	(1)	(2)	(3)
HFBMs	0.0041	0.0273	0.0353
	(0.0981)	(0.0951)	(0.0941)
Year 2014	0.0393***	0.0367***	0.0367***
	(0.0063)	(0.0063)	(0.0063)
HFBMs	0.0283**	0.0294**	0.0292**
× Year 2014	(0.0132)	(0.0132)	(0.0132)
Year 2015	0.0287***	0.0238***	0.0240***
	(0.0067)	(0.0067)	(0.0067)
HFBMs	0.0058	0.0063	0.0058
× Year 2015	(0.0149)	(0.0147)	(0.0147)
Ln(household size)		0.2336***	0.2355***
		(0.0219)	(0.0219)
Terrace/townhouse/		-0.0323	-0.0308
villa/semi detached		(0.0209)	(0.0209)
Low-rise flats/units		-0.0497**	-0.0504**
(2 or 3 storeys)		(0.0209)	(0.0209)
High rise flats/units		-0.0487	-0.0481
(4 or more storeys)		(0.0335)	(0.0336)
Mobile or improvised		-0.0915	-0.0826
dwelling		(0.0729)	(0.0726)
Owned outright		0.0792***	0.0791***
		(0.0235)	(0.0234)
Owned with a		0.0756***	0.0752***
mortgage		(0.0179)	(0.0179)
Constant	10.2516***	10.2994***	10.2801***
	(0.0228)	(0.1077)	(0.1133)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	19,356	19,356	19,356
F	14.9	12.7	10.3

Notes: 1. All models control for the household fixed effects.

2. Robust standard errors are in parentheses.

3. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix C: With 2013 & 2014 data & member based definition

Table C.1: Mean and median food expenditure

Household type	2013 (1)	2014 (2)	All (3)
Natives			
Mean consumption	4,084	4,258	4,171
Median consumption	3,618	3,783	3,715
N	[5,580]	[5,610]	[11,190]
HFBMs			
Mean consumption	4,063	4,296	4,179
Median consumption	3,628	3,859	3,749
N	[2,744]	[2,714]	[5,458]
All			
Mean consumption	4,077	4,270	4,173
Median consumption	3,623	3,807	3,727
N	[8,324]	[8,324]	[16,648]

Notes: Number of observations are in square brackets.

Table C.2: The effect of exchange rate changes

	Household type		
	Natives (1)	HFBMs (2)	Difference (3)
January-December, 2013	8.135	8.110	-0.025
	(0.009)	(0.013)	(0.015)
	[5,580]	[2,744]	[8,324]
January-December, 2014	8.189	8.189	0.000
	(0.008)	(0.012)	(0.015)
	[5,610]	[2,714]	[8,324]
2014-2013	0.054	0.080	0.025
	(0.012)	(0.018)	(0.021)
	[11,190]	[5,458]	[16,648]

Notes: Number of observations are in square brackets.

Variable	2013			2014		
	HFBMs (1)	Natives (2)	p-value (3)	HFBMs (4)	Natives (5)	p-value (6)
Annual household income	79,647	70,787	0.00	80,410	71,946	0.00
	(47,231)	(43,877)		(48,389)	(44,915)	
Free Standing House	0.773	0.831	0.00	0.776	0.836	0.00
	(0.419)	(0.375)		(0.417)	(0.370)	
Terrace/townhouse/	0.114	0.094	0.01	0.116	0.090	0.00
villa/semi detached	(0.318)	(0.292)		(0.320)	(0.286)	
Low-rise flats/units	0.077	0.060	0.00	0.071	0.059	0.05
(2 or 3 storeys)	(0.266)	(0.238)		(0.256)	(0.236)	
High rise flats/units	0.031	0.012	0.00	0.031	0.011	0.00
(4 or more storeys)	(0.172)	(0.107)		(0.174)	(0.106)	
Mobile or	0.005	0.003	0.13	0.006	0.003	0.04
improvised dwelling	(0.069)	(0.052)		(0.077)	(0.053)	
Owned outright	0.306	0.332	0.02	0.323	0.341	0.11
	(0.461)	(0.471)		(0.468)	(0.474)	
Owned with a	0.258	0.254	0.73	0.244	0.244	0.99
mortgage	(0.438)	(0.436)		(0.430)	(0.430)	
Rented	0.435	0.414	0.07	0.433	0.415	0.12
	(0.496)	(0.493)		(0.496)	(0.493)	
N	2,744	5,580		2,714	5,610	

Notes: 1. HFBMs are identified by birth country of members.

2. Standard deviations are in parentheses.

3. *p*-values indicate the significance level of the difference in means between treatment and control group.

TABLE C.4: IMPACT OF EXCHANGE RATE ON HFBMS'
FOOD EXPENDITURE

	(1)	(2)	(3)
HFBMs	0.0916*	0.0363	0.0322
	(0.0499)	(0.0532)	(0.0533)
Post	0.0547***	0.0553***	0.0554***
	(0.0053)	(0.0053)	(0.0053)
HFBMs × Post	0.0254**	0.0266***	0.0263***
	(0.0099)	(0.0099)	(0.0099)
Log(household size)		0.0930***	0.0938***
		(0.0265)	(0.0265)
Terrace/townhouse/		-0.0598	-0.0582
villa/semi detached		(0.0480)	(0.0483)
Low-rise flats/units		0.0624	0.0650
(2 or 3 storeys)		(0.0446)	(0.0440)
High rise flats/units		-0.0190	-0.0229
(4 or more storeys)		(0.0646)	(0.0637)
Mobile or improvised		-0.1269	-0.1265
dwelling		(0.2121)	(0.2121)
Owned outright		-0.0523**	-0.0539**
		(0.0246)	(0.0247)
Owned with a		-0.0186	-0.0214
mortgage		(0.0237)	(0.0236)
Constant	8.0964***	7.9317***	7.9476***
	(0.0165)	(0.0609)	(0.0969)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	16,648	16,648	16,648
F	68.8	8.4	.

Notes: 1. HFBMs are identified by birth country of members.
2. All models control for the household fixed effects.
3. Robust standard errors are in parentheses.
4. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE C.5: IMPACT OF EXCHANGE RATE ON HFBMs' INCOME

	(1)	(2)	(3)
HFBMs	0.1566***	0.1012**	0.1009**
	(0.0415)	(0.0430)	(0.0431)
Post	0.0122***	0.0132***	0.0132***
	(0.0037)	(0.0037)	(0.0037)
HFBMs × Post	-0.0063	-0.0059	-0.0058
	(0.0064)	(0.0063)	(0.0063)
Log(household size)		0.1063***	0.1056***
		(0.0217)	(0.0217)
Terrace/townhouse/		-0.0376	-0.0347
villa/semi detached		(0.0355)	(0.0357)
Low-rise flats/units		-0.0487	-0.0453
(2 or 3 storeys)		(0.0503)	(0.0507)
High rise flats/units		-0.0224	-0.0188
(4 or more storeys)		(0.0545)	(0.0547)
Mobile or improvised		-0.2593**	-0.2594**
dwelling		(0.1321)	(0.1322)
Owned outright		-0.0617	-0.0617
		(0.0383)	(0.0384)
Owned with a		-0.0151	-0.0165
mortgage		(0.0274)	(0.0274)
Constant	10.9418***	10.8991***	10.9445***
	(0.0137)	(0.0272)	(0.0499)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	16,648	16,648	16,648
F	8.4	6.0	.

Notes: 1. HFBMs are identified by birth country of members.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. * p $<$0.10, ** p $<$0.05, *** p $<$0.01.

TABLE C.6: IMPACT OF EXCHANGE RATE ON HFBMs'
EXPENDITURE ON IMPORTED FOOD

	(1)	(2)	(3)
HFBMs	0.0701	0.0156	0.0113
	(0.0503)	(0.0538)	(0.0538)
Post	0.0520***	0.0527***	0.0528***
	(0.0056)	(0.0056)	(0.0056)
Imported items	0.3105***	0.3105***	0.3105***
	(0.0050)	(0.0050)	(0.0050)
HFBMs × Post	0.0229**	0.0241**	0.0238**
	(0.0104)	(0.0105)	(0.0105)
HFBMs	0.0514***	0.0514***	0.0514***
× imported items	(0.0091)	(0.0091)	(0.0091)
Post	0.0050	0.0050	0.0050
× imported items	(0.0033)	(0.0033)	(0.0033)
HFBMs × post	0.0030	0.0030	0.0030
× imported items	(0.0064)	(0.0064)	(0.0064)
Log(household size)		0.0919***	0.0925***
		(0.0268)	(0.0268)
Terrace/townhouse/		-0.0649	-0.0634
villa/semi detached		(0.0490)	(0.0493)
Low-rise flats/units		0.0517	0.0546
(2 or 3 storeys)		(0.0450)	(0.0444)
High rise flats/units		-0.0144	-0.0184
(4 or more storeys)		(0.0658)	(0.0649)
Mobile or improvised		-0.1501	-0.1497
dwelling		(0.1988)	(0.1988)
Owned outright		-0.0551**	-0.0569**
		(0.0253)	(0.0254)
Owned with a		-0.0162	-0.0195
mortgage		(0.0239)	(0.0238)
Constant	7.2163***	7.0504***	7.0667***
	(0.0167)	(0.0628)	(0.0974)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	33,296	33,296	33,296
F	1014.4	210.9	.

Notes: 1. HFBMs are identified by birth country of members.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. Number of observations is twice of the main sample as food expenditure is divided into imported and non-imported food categories.

5. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	(1)	(2)	(3)
HFBMs	0.0019	-0.0039	-0.0040
	(0.0061)	(0.0063)	(0.0063)
Post	0.0252***	0.0251***	0.0251***
	(0.0007)	(0.0007)	(0.0007)
HFBMs × Post	-0.0013	-0.0011	-0.0011
	(0.0013)	(0.0013)	(0.0013)
Log(household size)		0.0058*	0.0056*
		(0.0032)	(0.0032)
Terrace/townhouse/		0.0014	0.0013
villa/semi detached		(0.0048)	(0.0048)
Low-rise flats/units		0.0058	0.0066
(2 or 3 storeys)		(0.0063)	(0.0063)
High rise flats/units		-0.0005	-0.0000
(4 or more storeys)		(0.0110)	(0.0110)
Mobile or improvised		-0.0132	-0.0130
dwelling		(0.0249)	(0.0249)
Owned outright		-0.0066*	-0.0068*
		(0.0040)	(0.0040)
Owned with a		0.0003	-0.0008
mortgage		(0.0034)	(0.0034)
Constant	1.0323***	1.0091***	1.0159***
	(0.0020)	(0.0076)	(0.0112)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,079,311	1,079,311	1,079,311
F	598.8	62.6	51.4

Notes: 1. All models control for the household and category
fixed effects.

2. Robust standard errors are in parentheses.

3. * p <0.10, ** p <0.05, *** p <0.01.

TABLE C.8: IMPACT OF EXCHANGE RATE ON HFBMS'
FOOD CONSUMPTION

	(1)	(2)	(3)
HFBMs	0.0773***	0.0354**	0.0335**
	(0.0137)	(0.0142)	(0.0142)
Post	0.0020	0.0025	0.0025
	(0.0016)	(0.0016)	(0.0016)
HFBMs × Post	0.0167***	0.0173***	0.0172***
	(0.0028)	(0.0028)	(0.0028)
Log(household size)		0.0779***	0.0783***
		(0.0071)	(0.0071)
Terrace/townhouse/		-0.0468***	-0.0457***
villa/semi detached		(0.0111)	(0.0112)
Low-rise flats/units		0.0355***	0.0376***
(2 or 3 storeys)		(0.0134)	(0.0135)
High rise flats/units		0.0138	0.0104
(4 or more storeys)		(0.0243)	(0.0244)
Mobile or improvised		-0.0488	-0.0483
dwelling		(0.0491)	(0.0491)
Owned outright		-0.0262***	-0.0274***
		(0.0085)	(0.0085)
Owned with a		-0.0076	-0.0101
mortgage		(0.0073)	(0.0073)
Constant	2.0115***	1.9193***	1.9295***
	(0.0045)	(0.0169)	(0.0253)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,079,311	1,079,311	1,079,311
F	34.7	12.3	11.0

Notes: 1. All models control for the household and category fixed effects.

2. Robust standard errors are in parentheses.

3. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE C.9: IMPACT OF EXCHANGE RATE ON HFBMs'
TOTAL EXPENDITURE
(Using HILDA data)

	(1)	(2)	(3)
HFBMs	0.0865***	-0.0050	-0.0037
	(0.0315)	(0.0328)	(0.0328)
Post	0.0289***	0.0283***	0.0281***
	(0.0083)	(0.0083)	(0.0083)
HFBMs × Post	0.0339***	0.0317***	0.0319***
	(0.0113)	(0.0112)	(0.0112)
Ln(household size)		0.2084***	0.2106***
		(0.0342)	(0.0340)
Terrace/townhouse/		-0.0044	-0.0041
villa/semi detached		(0.0293)	(0.0293)
Low-rise flats/units		-0.0226	-0.0259
(2 or 3 storeys)		(0.0272)	(0.0273)
High rise flats/units		0.0069	0.0028
(4 or more storeys)		(0.0460)	(0.0460)
Mobile or improvised		-0.0853	-0.0903
dwelling		(0.0761)	(0.0748)
Owned outright		0.0421	0.0436
		(0.0360)	(0.0362)
Owned with a		0.0442	0.0456
mortgage		(0.0278)	(0.0279)
Constant	10.2077***	10.3839***	10.4322***
	(0.0167)	(0.1550)	(0.1616)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	12,904	12,904	12,904
F	30.1	7.3	6.1

Notes: 1. HFBMs are identified by birth country of members.
2. All models control for the household fixed effects.
3. Robust standard errors are in parentheses.
4. * p <0.10, ** p <0.05, *** p <0.01.

Appendix D: With 2013 & 2014 data & head based definition

Table D.1: Mean and median food consumption

Household type	2013 (1)	2014 (2)	All (3)
Natives			
Mean consumption	4,123	4,309	4,216
Median consumption	3,675	3,835	3,771
N	[6,489]	[6,500]	[12,989]
HFBMs			
Mean consumption	3,913	4,133	4,023
Median consumption	3,390	3,691	3,558
N	[1,835]	[1,824]	[3,659]
All			
Mean consumption	4,077	4,270	4,173
Median consumption	3,623	3,807	3,727
N	[8,324]	[8,324]	[16,648]

Notes: 1. HFBMs are identified by head's country of birth.
2. Number of observations are in square brackets.

Table D.2: The effect of exchange rate changes

	Household type		
	natives (1)	HFBMs (2)	Difference (3)
January-December, 2013	8.147	8.053	-0.094
	(0.008)	(0.017)	(0.017)
	[6,489]	[1,835]	[8,324]
January-December, 2014	8.204	8.138	-0.066
	(0.008)	(0.015)	(0.017)
	[6,500]	[1,824]	[8,324]
2014 − 2013	0.056	0.084	0.028
	(0.011)	(0.023)	(0.024)
	[12,989]	[3,659]	[16,648]

Notes: 1. HFBMs are identified by head's country of birth.
2. Number of observations are in square brackets.

TABLE D.3: HOUSEHOLD CHARACTERISTICS

Variable	2013			2014		
	HFBMs (1)	Natives (2)	p-value (3)	HFBMs (4)	Natives (5)	p-value (6)
Annual household income	77,689	72,582	0.00	79,105	73,471	0.00
	(47,100)	(44,587)		(48,390)	(45,551)	
Free Standing House	0.732	0.835	0.00	0.734	0.840	0.00
	(0.443)	(0.372)		(0.442)	(0.367)	
Terrace/townhouse/	0.128	0.093	0.00	0.131	0.089	0.00
villa/semi detached	(0.334)	(0.290)		(0.338)	(0.285)	
Low-rise flats/units	0.095	0.057	0.00	0.089	0.056	0.00
(2 or 3 storeys)	(0.293)	(0.232)		(0.285)	(0.230)	
High rise flats/units	0.038	0.012	0.00	0.038	0.012	0.00
(4 or more storeys)	(0.192)	(0.110)		(0.192)	(0.110)	
Mobile or	0.005	0.003	0.08	0.008	0.003	0.00
improvised dwelling	(0.074)	(0.053)		(0.087)	(0.053)	
Owned outright	0.309	0.327	0.14	0.323	0.339	0.21
	(0.462)	(0.469)		(0.468)	(0.473)	
Owned with a	0.265	0.253	0.31	0.246	0.244	0.89
mortgage	(0.441)	(0.435)		(0.431)	(0.430)	
Rented	0.425	0.419	0.66	0.431	0.417	0.28
	(0.494)	(0.493)		(0.495)	(0.493)	
N	1,835	6,489		1,824	6,500	

Notes: 1. HFBMs are identified by head's country of birth.

2. Standard deviations are in parentheses.

3. p-values indicate the significance level of the difference in means between treatment and control group.

TABLE D.4: IMPACT OF EXCHANGE RATE ON HFBMS'
FOOD EXPENDITURE

	(1)	(2)	(3)
HFBMs	-0.0159	-0.0612	-0.0658
	(0.0683)	(0.0706)	(0.0705)
Post	0.0575***	0.0585***	0.0587***
	(0.0050)	(0.0050)	(0.0050)
HFBMs × Post	0.0234**	0.0242**	0.0236**
	(0.0113)	(0.0113)	(0.0113)
Log(household size)		0.1029***	0.1035***
		(0.0255)	(0.0255)
Terrace/townhouse/		-0.0591	-0.0574
villa/semi detached		(0.0480)	(0.0482)
Low-rise flats/units		0.0627	0.0655
(2 or 3 storeys)		(0.0446)	(0.0440)
High rise flats/units		-0.0176	-0.0213
(4 or more storeys)		(0.0651)	(0.0641)
Mobile or improvised		-0.1298	-0.1293
dwelling		(0.2124)	(0.2124)
Owned outright		-0.0520**	-0.0536**
		(0.0245)	(0.0246)
Owned with a		-0.0183	-0.0213
mortgage		(0.0237)	(0.0236)
Constant	8.1301***	7.9488***	7.9630***
	(0.0150)	(0.0614)	(0.0969)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	16,648	16,648	16,648
F	66.2	8.3	.

Notes: 1. HFBMs are identified by head's country of birth.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. * p <0.10, ** p <0.05, *** p <0.01.

TABLE D.5: IMPACT OF EXCHANGE RATE ON HFBMS' INCOME

	(1)	(2)	(3)
HFBMs	0.0807	0.0290	0.0283
	(0.0574)	(0.0588)	(0.0589)
Post	0.0093***	0.0106***	0.0105***
	(0.0035)	(0.0034)	(0.0034)
HFBMs $\times$ Post	0.0019	0.0023	0.0026
	(0.0072)	(0.0071)	(0.0071)
Log(household size)		0.1157***	0.1150***
		(0.0213)	(0.0214)
Terrace/townhouse/		-0.0383	-0.0353
villa/semi detached		(0.0356)	(0.0359)
Low-rise flats/units		-0.0461	-0.0427
(2 or 3 storeys)		(0.0503)	(0.0506)
High rise flats/units		-0.0250	-0.0213
(4 or more storeys)		(0.0544)	(0.0545)
Mobile or improvised		-0.2606**	-0.2608**
dwelling		(0.1315)	(0.1315)
Owned outright		-0.0633*	-0.0633*
		(0.0383)	(0.0383)
Owned with a		-0.0152	-0.0167
mortgage		(0.0275)	(0.0275)
Constant	10.9756***	10.9183***	10.9639***
	(0.0127)	(0.0272)	(0.0499)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	16,648	16,648	16,648
F	4.1	5.4	.

Notes: 1. HFBMs are identified by birth country of members.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. * p $<$0.10, ** p $<$0.05, *** p $<$0.01.

TABLE D.6: IMPACT OF EXCHANGE RATE ON HFBMS'
EXPENDITURE ON IMPORTED FOOD

	(1)	(2)	(3)
HFBMs	-0.0441	-0.0891	-0.0941
	(0.0680)	(0.0705)	(0.0704)
Post	0.0555***	0.0565***	0.0566***
	(0.0053)	(0.0053)	(0.0053)
Imported items	0.3150***	0.3150***	0.3150***
	(0.0046)	(0.0046)	(0.0046)
HFBMs × Post	0.0171	0.0179	0.0174
	(0.0119)	(0.0119)	(0.0119)
HFBMs	0.0564***	0.0564***	0.0564***
× imported items	(0.0108)	(0.0108)	(0.0108)
Post	0.0037	0.0037	0.0037
× imported items	(0.0030)	(0.0030)	(0.0030)
HFBMs × post	0.0094	0.0094	0.0094
× imported items	(0.0075)	(0.0075)	(0.0075)
Log(household size)		0.1024***	0.1029***
		(0.0258)	(0.0258)
Terrace/townhouse/		-0.0642	-0.0626
villa/semi detached		(0.0490)	(0.0493)
Low-rise flats/units		0.0521	0.0551
(2 or 3 storeys)		(0.0450)	(0.0444)
High rise flats/units		-0.0130	-0.0169
(4 or more storeys)		(0.0662)	(0.0652)
Mobile or improvised		-0.1527	-0.1521
dwelling		(0.1990)	(0.1990)
Owned outright		-0.0549**	-0.0567**
		(0.0253)	(0.0254)
Owned with a		-0.0159	-0.0194
mortgage		(0.0240)	(0.0239)
Constant	7.2492***	7.0663***	7.0809***
	(0.0152)	(0.0633)	(0.0974)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	33,296	33,296	33,296
F	1013.8	210.8	.

Notes: 1. HFBMs are identified by head's country of birth.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. Number of observations is twice of the main sample as food expenditure is divided into imported and non-imported food categories.

5. * p <0.10, ** p <0.05, *** p <0.01.

TABLE D.7: IMPACT OF EXCHANGE RATE ON HFBMs'
FOOD PRICE

	(1)	(2)	(3)
HFBMs	0.0060	0.0031	0.0028
	(0.0069)	(0.0070)	(0.0070)
Post	0.0249***	0.0248***	0.0248***
	(0.0007)	(0.0007)	(0.0007)
HFBMs × Post	-0.0004	-0.0004	-0.0003
	(0.0015)	(0.0015)	(0.0015)
Log(household size)		0.0051	0.0048
		(0.0031)	(0.0031)
Terrace/townhouse/		0.0014	0.0013
villa/semi detached		(0.0048)	(0.0048)
Low-rise flats/units		0.0058	0.0065
(2 or 3 storeys)		(0.0063)	(0.0063)
High rise flats/units		-0.0005	0.0000
(4 or more storeys)		(0.0110)	(0.0110)
Mobile or improvised		-0.0132	-0.0131
dwelling		(0.0249)	(0.0249)
Owned outright		-0.0066*	-0.0068*
		(0.0040)	(0.0040)
Owned with a		0.0003	-0.0008
mortgage		(0.0034)	(0.0034)
Constant	1.0317***	1.0078***	1.0148***
	(0.0015)	(0.0076)	(0.0111)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,079,311	1,079,311	1,079,311
F	598.0	62.5	51.3

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household and category fixed effects.
3. Robust standard errors are in parentheses.
4. * p <0.10, ** p <0.05, *** p <0.01.

TABLE D.8: IMPACT OF EXCHANGE RATE ON HFBMs'
FOOD CONSUMPTION

	(1)	(2)	(3)
HFBMs	0.0279*	-0.0088	-0.0109
	(0.0156)	(0.0159)	(0.0159)
Post	0.0045***	0.0053***	0.0054***
	(0.0015)	(0.0015)	(0.0015)
HFBMs × Post	0.0124***	0.0129***	0.0126***
	(0.0032)	(0.0032)	(0.0032)
Log(household size)		0.0833***	0.0836***
		(0.0070)	(0.0070)
Terrace/townhouse/		-0.0465***	-0.0454***
villa/semi detached		(0.0111)	(0.0112)
Low-rise flats/units		0.0361***	0.0383***
(2 or 3 storeys)		(0.0134)	(0.0135)
High rise flats/units		0.0130	0.0095
(4 or more storeys)		(0.0244)	(0.0244)
Mobile or improvised		-0.0510	-0.0505
dwelling		(0.0492)	(0.0492)
Owned outright		-0.0260***	-0.0272***
		(0.0085)	(0.0085)
Owned with a		-0.0072	-0.0099
mortgage		(0.0073)	(0.0073)
Constant	2.0309***	1.9277***	1.9360***
	(0.0034)	(0.0168)	(0.0252)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,079,311	1,079,311	1,079,311
F	16.4	11.1	10.1

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household and category fixed effects.
3. Robust standard errors are in parentheses.
4. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE D.9: IMPACT OF EXCHANGE RATE ON HFBMs'
TOTAL EXPENDITURE
(Using HILDA data)

	(1)	(2)	(3)
HFBMs	0.2165*	0.2258**	0.2356**
	(0.1152)	(0.1125)	(0.1086)
Post	0.0395***	0.0381***	0.0380***
	(0.0063)	(0.0063)	(0.0063)
HFBMs × Post	0.0289**	0.0299**	0.0298**
	(0.0132)	(0.0131)	(0.0131)
Ln(household size)		0.2149***	0.2176***
		(0.0314)	(0.0314)
Terrace/townhouse/		-0.0061	-0.0057
villa/semi detached		(0.0293)	(0.0293)
Low-rise flats/units		-0.0235	-0.0269
(2 or 3 storeys)		(0.0272)	(0.0273)
High rise flats/units		0.0073	0.0033
(4 or more storeys)		(0.0462)	(0.0462)
Mobile or improvised		-0.0849	-0.0901
dwelling		(0.0754)	(0.0740)
Owned outright		0.0401	0.0413
		(0.0361)	(0.0363)
Owned with a		0.0433	0.0444
mortgage		(0.0279)	(0.0280)
Constant	10.2028***	10.3273***	10.3731***
	(0.0267)	(0.1581)	(0.1644)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	12,904	12,904	12,904
F	25.3	7.2	6.1

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household fixed effects.
3. Robust standard errors are in parentheses.
4. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table E.1: Mean and median food consumption

Household type	2013 (1)	2015 (2)	All (3)
Natives			
Mean consumption	4,084	3,999	4,041
Median consumption	3,618	3,568	3,588
N	[5,580]	[5,611]	[11,191]
HFBMs			
Mean consumption	4,063	4,061	4,062
Median consumption	3,628	3,691	3,666
N	[2,744]	[2,713]	[5,457]
All			
Mean consumption	4,077	4,019	4,048
Median consumption	3,623	3,608	3,613
N	[8,324]	[8,324]	[16,648]

Notes: 1. HFBMs are identified by birth country of members.
2. Number of observations are in square brackets.

Table E.2: The effect of exchange rate changes

	Household type		
	Natives (1)	HFBMs (2)	Difference (3)
January-December, 2013	8.147	8.053	-0.094
	(0.008)	(0.017)	(0.017)
	[6,489]	[1,835]	[8,324]
January-December, 2014	8.204	8.138	-0.066
	(0.008)	(0.015)	(0.017)
	[6,500]	[1,824]	[8,324]
2014 − 2013	0.056	0.084	0.028
	(0.011)	(0.023)	(0.024)
	[12,989]	[3,659]	[16,648]

Note: 1. HFBMs are identified by birth country of members.
2. Number of observations are in square brackets.

Variable	2013			2015		
	HFBMs (1)	Natives (2)	*p*-value (3)	HFBMs (4)	Natives (5)	*p*-value (6)
Annual household income	79,647	70,787	0.00	80,934	72,277	0.00
	(47,231)	(43,877)		(49,223)	(45,548)	
Free Standing House	0.773	0.831	0.00	0.780	0.834	0.00
	(0.419)	(0.375)		(0.415)	(0.372)	
Terrace/townhouse/	0.114	0.094	0.01	0.117	0.091	0.00
villa/semi detached	(0.318)	(0.292)		(0.321)	(0.287)	
Low-rise flats/units	0.077	0.060	0.00	0.067	0.060	0.24
(2 or 3 storeys)	(0.266)	(0.238)		(0.250)	(0.238)	
High rise flats/units	0.031	0.012	0.00	0.031	0.012	0.00
(4 or more storeys)	(0.172)	(0.107)		(0.174)	(0.109)	
Mobile or	0.005	0.003	0.13	0.006	0.003	0.15
improvised dwelling	(0.069)	(0.052)		(0.074)	(0.058)	
Owned outright	0.306	0.332	0.02	0.336	0.349	0.26
	(0.461)	(0.471)		(0.472)	(0.477)	
Owned with a	0.258	0.254	0.73	0.234	0.240	0.57
mortgage	(0.438)	(0.436)		(0.423)	(0.427)	
Rented	0.435	0.414	0.07	0.430	0.412	0.11
	(0.496)	(0.493)		(0.495)	(0.492)	
N	2,744	5,580		2,713	5,611	

Notes: 1. HFBMs are identified by birth country of members.

2. Standard deviations are in parentheses.

3. *p*-values indicate the significance level of the difference in means between treatment and control group.

TABLE E.4: IMPACT OF EXCHANGE RATE ON HFBMs'
FOOD EXPENDITURE

	(1)	(2)	(3)
HFBMs	0.1905**	0.0876	0.0880
	(0.0840)	(0.0871)	(0.0871)
Post	-0.0838***	-0.0849***	-0.0851***
	(0.0090)	(0.0092)	(0.0093)
HFBMs × Post	0.0382**	0.0390**	0.0387**
	(0.0157)	(0.0157)	(0.0157)
Log(household size)		0.2042***	0.2031***
		(0.0397)	(0.0397)
Terrace/townhouse/		-0.0040	-0.0026
villa/semi detached		(0.0555)	(0.0555)
Low-rise flats/units		0.0407	0.0386
(2 or 3 storeys)		(0.0603)	(0.0606)
High rise flats/units		0.0179	0.0129
(4 or more storeys)		(0.0717)	(0.0725)
Mobile or improvised		0.1540	0.1542
dwelling		(0.1252)	(0.1255)
Owned outright		-0.0024	-0.0023
		(0.0338)	(0.0336)
Owned with a		-0.0444	-0.0478
mortgage		(0.0318)	(0.0320)
Constant	8.0638***	7.8499***	7.8912***
	(0.0277)	(0.0900)	(0.1133)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	16,648	16,648	16,648
F	34.8	5.1	4.2

Notes: 1. HFBMs are identified by birth country of members.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. * p <0.10, ** p <0.05, *** p <0.01.

TABLE E.5: IMPACT OF EXCHANGE RATE ON HFBMs INCOME

	(1)	(2)	(3)
HFBMs	0.1325***	0.0612	0.0612
	(0.0399)	(0.0414)	(0.0414)
Post	0.0137***	0.0154***	0.0155***
	(0.0046)	(0.0045)	(0.0045)
HFBMs × Post	-0.0061	-0.0057	-0.0062
	(0.0082)	(0.0081)	(0.0081)
Log(household size)		0.1484***	0.1486***
		(0.0231)	(0.0232)
Terrace/townhouse/		-0.0859***	-0.0845***
villa/semi detached		(0.0314)	(0.0310)
Low-rise flats/units		-0.0513	-0.0559
(2 or 3 storeys)		(0.0495)	(0.0474)
High rise flats/units		-0.0112	-0.0091
(4 or more storeys)		(0.0475)	(0.0475)
Mobile or improvised		-0.1427	-0.1427
dwelling		(0.1623)	(0.1625)
Owned outright		-0.1173***	-0.1174***
		(0.0309)	(0.0309)
Owned with a		-0.0557**	-0.0604**
mortgage		(0.0250)	(0.0249)
Constant	10.9497***	10.9082***	10.8729***
	(0.0133)	(0.0259)	(0.0506)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	16,648	16,648	16,648
F	6.8	10.1	6.6

Notes: 1. HFBMs are identified by birth country of members.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. * p <0.10, ** p <0.05, *** p <0.01.

	(1)	(2)	(3)
HFBMs	0.1612*	0.0605	0.0609
	(0.0844)	(0.0877)	(0.0877)
Post	-0.0851***	-0.0863***	-0.0865***
	(0.0096)	(0.0098)	(0.0098)
Imported items	0.3105***	0.3105***	0.3105***
	(0.0050)	(0.0050)	(0.0050)
HFBMs × Post	0.0385**	0.0393**	0.0390**
	(0.0164)	(0.0164)	(0.0164)
HFBMs	0.0514***	0.0514***	0.0514***
× imported items	(0.0091)	(0.0091)	(0.0091)
Post	-0.0011	-0.0011	-0.0011
× imported items	(0.0042)	(0.0042)	(0.0042)
HFBMs × post	-0.0013	-0.0013	-0.0013
× imported items	(0.0080)	(0.0080)	(0.0080)
Log(household size)		0.2003***	0.1992***
		(0.0408)	(0.0408)
Terrace/townhouse/		-0.0081	-0.0068
villa/semi detached		(0.0561)	(0.0561)
Low-rise flats/units		0.0300	0.0280
(2 or 3 storeys)		(0.0610)	(0.0613)
High rise flats/units		0.0180	0.0132
(4 or more storeys)		(0.0723)	(0.0731)
Mobile or improvised		0.1489	0.1491
dwelling		(0.1216)	(0.1219)
Owned outright		-0.0053	-0.0052
		(0.0341)	(0.0340)
Owned with a		-0.0441	-0.0474
mortgage		(0.0322)	(0.0323)
Constant	7.1863***	6.9776***	7.0162***
	(0.0279)	(0.0920)	(0.1157)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	33,296	33,296	33,296
F	998.5	208.6	173.2

Notes: 1. HFBMs are identified by birth country of members.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. Number of observations is twice of the main sample as food expenditure is divided into imported and non-imported food categories.

5. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE E.7: IMPACT OF EXCHANGE RATE ON HFBMs'
FOOD PRICE

	(1)	(2)	(3)
HFBMs	0.0145**	0.0086	0.0087
	(0.0063)	(0.0064)	(0.0064)
Post	0.0303***	0.0300***	0.0300***
	(0.0008)	(0.0008)	(0.0008)
HFBMs × Post	-0.0007	-0.0005	-0.0005
	(0.0014)	(0.0014)	(0.0014)
Log(household size)		0.0081***	0.0077***
		(0.0030)	(0.0030)
Terrace/townhouse/		-0.0077*	-0.0075*
villa/semi detached		(0.0045)	(0.0045)
Low-rise flats/units		-0.0077	-0.0069
(2 or 3 storeys)		(0.0059)	(0.0060)
High rise flats/units		0.0031	0.0031
(4 or more storeys)		(0.0094)	(0.0094)
Mobile or improvised		-0.0032	-0.0030
dwelling		(0.0225)	(0.0225)
Owned outright		-0.0021	-0.0019
		(0.0035)	(0.0035)
Owned with a		0.0046	0.0040
mortgage		(0.0030)	(0.0031)
Constant	1.0286***	1.0134***	1.0245***
	(0.0021)	(0.0075)	(0.0093)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,057,512	1,057,512	1,057,512
F	713.9	74.6	61.3

Notes: 1. All models control for the household and category fixed effects.
2. Robust standard errors are in parentheses.
3. * p <0.10, ** p <0.05, *** p <0.01.

TABLE E.8: IMPACT OF EXCHANGE RATE ON HFBMs'
FOOD CONSUMPTION

	(1)	(2)	(3)
HFBMs	0.0816***	0.0060	0.0067
	(0.0148)	(0.0153)	(0.0153)
Post	-0.0733***	-0.0730***	-0.0729***
	(0.0018)	(0.0019)	(0.0019)
HFBMs × Post	0.0203***	0.0206***	0.0203***
	(0.0033)	(0.0033)	(0.0033)
Log(household size)		0.1645***	0.1629***
		(0.0071)	(0.0071)
Terrace/townhouse/		-0.0161	-0.0155
villa/semi detached		(0.0106)	(0.0106)
Low-rise flats/units		0.0159	0.0173
(2 or 3 storeys)		(0.0139)	(0.0139)
High rise flats/units		0.0543**	0.0545**
(4 or more storeys)		(0.0211)	(0.0212)
Mobile or improvised		0.1514***	0.1516***
dwelling		(0.0486)	(0.0486)
Owned outright		-0.0018	-0.0011
		(0.0080)	(0.0080)
Owned with a		-0.0204***	-0.0218***
mortgage		(0.0071)	(0.0071)
Constant	2.0333***	1.8743***	1.8717***
	(0.0049)	(0.0175)	(0.0225)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,057,512	1,057,512	1,057,512
F	674.1	91.3	74.6

Notes: 1. All models control for the household and category fixed effects.

2. Robust standard errors are in parentheses.

3. * p <0.10, ** p <0.05, *** p <0.01.

(Using HILDA data)

	(1)	(2)	(3)
HFBMs	0.0827***	-0.0282	-0.0269
	(0.0236)	(0.0244)	(0.0244)
Post	0.0070	0.0033	0.0035
	(0.0090)	(0.0090)	(0.0090)
HFBMs × Post	0.0448***	0.0393***	0.0391***
	(0.0125)	(0.0123)	(0.0124)
Ln(household size)		0.2303***	0.2297***
		(0.0284)	(0.0283)
Terrace/townhouse/		-0.0558**	-0.0543*
villa/semi detached		(0.0282)	(0.0282)
Low-rise flats/units		-0.0408	-0.0424
(2 or 3 storeys)		(0.0271)	(0.0269)
High rise flats/units		-0.0433	-0.0392
(4 or more storeys)		(0.0437)	(0.0441)
Mobile or improvised		-0.1207	-0.1056
dwelling		(0.1082)	(0.1081)
Owned outright		0.0989***	0.0990***
		(0.0302)	(0.0302)
Owned with a		0.1010***	0.1007***
mortgage		(0.0226)	(0.0227)
Constant	10.2097***	10.2904***	10.2190***
	(0.0126)	(0.1353)	(0.1427)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	12,904	12,904	12,904
F	20.5	11.3	9.3

Notes: 1. HFBMs are identified by birth country of members.
2. All models control for the household fixed effects.
3. Robust standard errors are in parentheses.
4. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix F: With 2013 & 2015 data & head based definition

Table F.1: Mean and median food consumption

Household type	2013 (1)	2014 (2)	All (3)
Natives			
Mean consumption	4,123	4,054	4,088
Median consumption	3,675	3,641	3,656
N	[6,489]	[6,497]	[12,986]
HFBMs			
Mean consumption	3,913	3,898	3,905
Median consumption	3,390	3,462	3,429
N	[1,835]	[1,827]	[3,662]
All			
Mean consumption	4,077	4,019	4,048
Median consumption	3,623	3,608	3,613
N	[8,324]	[8,324]	[16,648]

Notes: 1. HFBMs are identified by head's country of birth.
2. Number of observations are in square brackets.

Table F.2: The effect of exchange rate changes

	Household type		
	natives (1)	HFBMs (2)	Difference (3)
January-December, 2013	8.147	8.053	-0.094
	(0.008)	(0.017)	(0.017)
	[6,489]	[1,835]	[8,324]
January-December, 2014	8.066	8.012	-0.054
	(0.010)	(0.020)	(0.022)
	[6,497]	[1,827]	[8,324]
2014 − 2013	-0.081	-0.041	0.040
	(0.013)	(0.026)	(0.028)
	[12,986]	[3,662]	[16,648]

Notes: 1. HFBMs are identified by head's country of birth.
2. Number of observations are in square brackets.

TABLE F.3: HOUSEHOLD CHARACTERISTICS

Variable	2013			2014		
	HFBMs (1)	Natives (2)	*p*-value (3)	HFBMs (4)	Natives (5)	*p*-value (6)
Annual household income	77,689	72,582	0.00	79,836	73,766	0.00
	(47,100)	(44,587)		(49,649)	(46,080)	
Free Standing House	0.732	0.835	0.00	0.737	0.839	0.00
	(0.443)	(0.372)		(0.441)	(0.368)	
Terrace/townhouse/	0.128	0.093	0.00	0.132	0.090	0.00
villa/semi detached	(0.334)	(0.290)		(0.339)	(0.286)	
Low-rise flats/units	0.095	0.057	0.00	0.086	0.055	0.00
(2 or 3 storeys)	(0.293)	(0.232)		(0.281)	(0.229)	
High rise flats/units	0.038	0.012	0.00	0.037	0.013	0.00
(4 or more storeys)	(0.192)	(0.110)		(0.189)	(0.114)	
Mobile or	0.005	0.003	0.08	0.007	0.003	0.02
improvised dwelling	(0.074)	(0.053)		(0.084)	(0.057)	
Owned outright	0.309	0.327	0.14	0.334	0.348	0.27
	(0.462)	(0.469)		(0.472)	(0.476)	
Owned with a	0.265	0.253	0.31	0.234	0.239	0.68
mortgage	(0.441)	(0.435)		(0.424)	(0.426)	
Rented	0.425	0.419	0.66	0.432	0.413	0.16
	(0.494)	(0.493)		(0.495)	(0.492)	
N	1,835	6,489		1,827	6,497	

Notes: 1. HFBMs are identified by head's country of birth.

2. Standard deviations are in parentheses.

3. *p*-values indicate the significance level of the difference in means between treatment and control group.

	(1)	(2)	(3)
HFBMs	0.1118	0.0262	0.0248
	(0.0783)	(0.0808)	(0.0808)
Post	-0.0795***	-0.0799***	-0.0800***
	(0.0084)	(0.0086)	(0.0086)
HFBMs × Post	0.0341*	0.0337*	0.0330*
	(0.0178)	(0.0178)	(0.0178)
Log(household size)		0.2122***	0.2113***
		(0.0393)	(0.0393)
Terrace/townhouse/		-0.0039	-0.0026
villa/semi detached		(0.0554)	(0.0555)
Low-rise flats/units		0.0416	0.0397
(2 or 3 storeys)		(0.0602)	(0.0605)
High rise flats/units		0.0176	0.0128
(4 or more storeys)		(0.0721)	(0.0729)
Mobile or improvised		0.1497	0.1500
dwelling		(0.1260)	(0.1262)
Owned outright		-0.0004	-0.0002
		(0.0338)	(0.0337)
Owned with a		-0.0445	-0.0480
mortgage		(0.0318)	(0.0319)
Constant	8.1019***	7.8657***	7.9053***
	(0.0175)	(0.0887)	(0.1121)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	16,648	16,648	16,648
F	33.5	5.0	4.1

Notes: 1. HFBMs are identified by head's country of birth.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. * p <0.10, ** p <0.05, *** p <0.01.

	(1)	(2)	(3)
HFBMs	0.1009*	0.0398	0.0408
	(0.0575)	(0.0587)	(0.0587)
Post	0.0109**	0.0130***	0.0130***
	(0.0043)	(0.0042)	(0.0042)
HFBMs × Post	0.0022	0.0020	0.0014
	(0.0091)	(0.0090)	(0.0090)
Log(household size)		0.1516***	0.1518***
		(0.0225)	(0.0225)
Terrace/townhouse/		-0.0863***	-0.0850***
villa/semi detached		(0.0315)	(0.0311)
Low-rise flats/units		-0.0496	-0.0541
(2 or 3 storeys)		(0.0494)	(0.0474)
High rise flats/units		-0.0121	-0.0100
(4 or more storeys)		(0.0473)	(0.0474)
Mobile or improvised		-0.1425	-0.1425
dwelling		(0.1621)	(0.1623)
Owned outright		-0.1174***	-0.1176***
		(0.0309)	(0.0310)
Owned with a		-0.0557**	-0.0605**
mortgage		(0.0250)	(0.0249)
Constant	10.9712***	10.9168***	10.8816***
	(0.0128)	(0.0267)	(0.0510)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	16,648	16,648	16,648
F	4.1	9.8	6.4

Notes: 1. HFBMs are identified by birth country of members.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE F.6: IMPACT OF EXCHANGE RATE ON HFBMS'
EXPENDITURE ON IMPORTED FOOD

	(1)	(2)	(3)
HFBMs	0.0793	-0.0042	-0.0056
	(0.0774)	(0.0802)	(0.0802)
Post	-0.0806***	-0.0813***	-0.0814***
	(0.0089)	(0.0091)	(0.0091)
Imported items	0.3150***	0.3150***	0.3150***
	(0.0046)	(0.0046)	(0.0046)
HFBMs × Post	0.0344*	0.0341*	0.0333*
	(0.0185)	(0.0185)	(0.0185)
HFBMs	0.0564***	0.0564***	0.0564***
× imported items	(0.0108)	(0.0108)	(0.0108)
Post	-0.0014	-0.0014	-0.0014
× imported items	(0.0039)	(0.0039)	(0.0039)
HFBMs × post	-0.0013	-0.0013	-0.0013
× imported items	(0.0094)	(0.0094)	(0.0094)
Log(household size)		0.2083***	0.2074***
		(0.0404)	(0.0404)
Terrace/townhouse/		-0.0081	-0.0068
villa/semi detached		(0.0560)	(0.0560)
Low-rise flats/units		0.0310	0.0291
(2 or 3 storeys)		(0.0610)	(0.0612)
High rise flats/units		0.0177	0.0132
(4 or more storeys)		(0.0727)	(0.0735)
Mobile or improvised		0.1446	0.1449
dwelling		(0.1223)	(0.1226)
Owned outright		-0.0033	-0.0031
		(0.0341)	(0.0340)
Owned with a		-0.0442	-0.0476
mortgage		(0.0321)	(0.0322)
Constant	7.2220***	6.9913***	7.0281***
	(0.0174)	(0.0907)	(0.1144)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	33,296	33,296	33,296
F	998.3	208.6	173.2

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household fixed effects.
3. Robust standard errors are in parentheses.
4. Number of observations is twice of the main sample as food expenditure is divided into imported and non-imported food categories.
5. * p $<$0.10, ** p $<$0.05, *** p $<$0.01.

TABLE F.7: IMPACT OF EXCHANGE RATE ON HFBMS'
FOOD PRICE

	(1)	(2)	(3)
HFBMs	-0.0032	-0.0079	-0.0080
	(0.0073)	(0.0074)	(0.0074)
Post	0.0298***	0.0296***	0.0296***
	(0.0007)	(0.0007)	(0.0007)
HFBMs × Post	0.0011	0.0011	0.0013
	(0.0017)	(0.0017)	(0.0017)
Log(household size)		0.0094***	0.0091***
		(0.0030)	(0.0030)
Terrace/townhouse/		-0.0077*	-0.0076*
villa/semi detached		(0.0045)	(0.0045)
Low-rise flats/units		-0.0073	-0.0065
(2 or 3 storeys)		(0.0059)	(0.0060)
High rise flats/units		0.0033	0.0032
(4 or more storeys)		(0.0094)	(0.0094)
Mobile or improvised		-0.0032	-0.0031
dwelling		(0.0225)	(0.0225)
Owned outright		-0.0021	-0.0019
		(0.0035)	(0.0035)
Owned with a		0.0045	0.0039
mortgage		(0.0030)	(0.0031)
Constant	1.0340***	1.0167***	1.0278***
	(0.0016)	(0.0074)	(0.0093)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,057,512	1,057,512	1,057,512
F	710.3	74.4	61.2

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household and category fixed effects.
3. Robust standard errors are in parentheses.
4. * p <0.10, ** p <0.05, *** p <0.01.

TABLE F.8: IMPACT OF EXCHANGE RATE ON HFBMs'
FOOD CONSUMPTION

	(1)	(2)	(3)
HFBMs	0.1122***	0.0462***	0.0464***
	(0.0171)	(0.0174)	(0.0174)
Post	-0.0699***	-0.0693***	-0.0693***
	(0.0017)	(0.0017)	(0.0017)
HFBMs × Post	0.0139***	0.0141***	0.0138***
	(0.0038)	(0.0038)	(0.0038)
Log(household size)		0.1628***	0.1613***
		(0.0071)	(0.0071)
Terrace/townhouse/		-0.0161	-0.0155
villa/semi detached		(0.0106)	(0.0106)
Low-rise flats/units		0.0150	0.0165
(2 or 3 storeys)		(0.0139)	(0.0139)
High rise flats/units		0.0528**	0.0532**
(4 or more storeys)		(0.0211)	(0.0212)
Mobile or improvised		0.1478***	0.1481***
dwelling		(0.0487)	(0.0487)
Owned outright		-0.0009	-0.0002
		(0.0080)	(0.0080)
Owned with a		-0.0199***	-0.0213***
mortgage		(0.0071)	(0.0071)
Constant	2.0361***	1.8678***	1.8643***
	(0.0037)	(0.0174)	(0.0224)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	1,057,512	1,057,512	1,057,512
F	667.9	90.5	74.0

Notes: 1. HFBMs are identified by head's country of birth.
2. All models control for the household and category fixed effects.
3. Robust standard errors are in parentheses.
4. * p <0.10, ** p <0.05, *** p <0.01.

(Using HILDA data)

	(1)	(2)	(3)
HFBMs	0.0105	0.0455	0.0550
	(0.1163)	(0.1139)	(0.1130)
Post	0.0285***	0.0219***	0.0221***
	(0.0067)	(0.0067)	(0.0067)
HFBMs × Post	0.0068	0.0076	0.0073
	(0.0150)	(0.0147)	(0.0147)
Ln(household size)		0.2298***	0.2298***
		(0.0254)	(0.0254)
Terrace/townhouse/		-0.0564**	-0.0549*
villa/semi detached		(0.0281)	(0.0282)
Low-rise flats/units		-0.0423	-0.0438
(2 or 3 storeys)		(0.0270)	(0.0269)
High rise flats/units		-0.0446	-0.0403
(4 or more storeys)		(0.0440)	(0.0443)
Mobile or improvised		-0.1234	-0.1084
dwelling		(0.1094)	(0.1092)
Owned outright		0.0986***	0.0988***
		(0.0301)	(0.0301)
Owned with a		0.1006***	0.1004***
mortgage		(0.0226)	(0.0227)
Constant	10.2501***	10.2676***	10.1931***
	(0.0269)	(0.1370)	(0.1442)
Control for income	No	Yes	Yes
State fixed effect	No	No	Yes
N	12,904	12,904	12,904
F	8.3	10.8	8.9

Notes: 1. HFBMs are identified by head's country of birth.

2. All models control for the household fixed effects.

3. Robust standard errors are in parentheses.

4. * p $<$0.10, ** p $<$0.05, *** p $<$0.01.

Appendix G: Other robustness checks

Table G.1: Impact of exchange rate on HFBMs' income
(dependent variable: income category, model: ordered logit)

	(1)	(2)	(3)
Annual houehold income			
HFBMs	0.3207***	0.1542***	0.1507***
	(0.0401)	(0.0410)	(0.0411)
Year 2014	0.0331	0.0495	0.0498
	(0.0322)	(0.0325)	(0.0324)
HFBMs	-0.0212	-0.0262	-0.0259
× Year 2014	(0.0574)	(0.0579)	(0.0579)
Year 2015	0.0362	0.0571*	0.0575*
	(0.0324)	(0.0325)	(0.0325)
HFBMs	-0.0161	-0.0249	-0.0247
× Year 2015	(0.0580)	(0.0582)	(0.0582)
Log(household size)		1.1781***	1.1808***
		(0.0235)	(0.0235)
Terrace/townhouse/		0.2518***	0.2432***
villa/semi detached		(0.0390)	(0.0388)
Low-rise flats/units		0.3402***	0.3280***
(2 or 3 storeys)		(0.0517)	(0.0521)
High rise flats/units		1.0648***	1.0515***
(4 or more storeys)		(0.0966)	(0.0980)
Mobile or improvised		-0.8571***	-0.8644***
dwelling		(0.1533)	(0.1522)
Owned outright		-0.9701***	-0.9689***
		(0.0279)	(0.0279)
Owned with a		-1.1955***	-1.1969***
mortgage		(0.0295)	(0.0294)
State fixed effect	No	No	Yes
N	24,972	24,972	24,972
Psedo R^2	0.001	0.040	0.041

Notes: 1. HFBMs are identified by birth country of members.
2. All models control for the household fixed effects.
3. Robust standard errors are in parentheses.
4. * p $<$0.10, ** p $<$0.05, *** p $<$0.01.

TABLE G.2: IMPACT OF EXCHANGE RATE ON HFBMS'
FOOD EXPENDITURE

	(1)	(2)	(3)
Proportion of foreign born	0.0211	0.0757	0.0788
members in household (PFBMH)	(0.0758)	(0.0714)	(0.0707)
Trade-weighted Index	0.0020***	0.0020***	0.0020***
value of AU\$ (TWIAUD)	(0.0003)	(0.0003)	(0.0003)
PFBMH × TWIAUD	-0.0010	-0.0010	-0.0010
	(0.0008)	(0.0007)	(0.0007)
Log(household size)		0.1691***	0.1681***
		(0.0154)	(0.0153)
Terrace/townhouse/		-0.0322	-0.0314
villa/semi detached		(0.0225)	(0.0226)
Low-rise flats/units		0.0126	0.0130
(2 or 3 storeys)		(0.0283)	(0.0283)
High rise flats/units		0.0112	0.0112
(4 or more storeys)		(0.0384)	(0.0385)
Mobile or improvised		0.0243	0.0242
dwelling		(0.0898)	(0.0898)
Owned outright		-0.0081	-0.0078
		(0.0152)	(0.0152)
Owned with a		-0.0116	-0.0134
mortgage		(0.0140)	(0.0139)
Constant	8.1334***	7.9237***	7.9418***
	(0.0224)	(0.0376)	(0.0517)
State fixed effect	No	No	Yes
Other controls	No	Yes	Yes
N	991,060	991,060	991,060
F	19.5	7.7	6.3

Notes: 1. All models control for the household fixed effects.

2. Robust standard errors are in parentheses.

3. * p $<$0.10, ** p $<$0.05, *** p $<$0.01.