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# MORTALITY SHOCKS AND HOUSEHOLD CONSUMPTION: THE CASE OF MEXICO

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# Mortality shocks and household consumption: The case of Mexico

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**Abstract:**
We study the effect of within-household mortality on the evolution of household per capita consumption. Relying on a panel survey of Mexican households, we find that these households were capable of perfectly smoothing the shock into their consumption caused by the death of a household member. Our findings indicate that a household's ability to smooth consumption depends neither on the characteristics of the deceased household member nor on the income of a particular household. We find no clear temporal pattern in the evolution of the shock caused by within-household mortality. Our results provide strong support for the hypothesis that the evolution of household consumption is not affected by within-household mortality.

**JEL:** D12, D15, I15, O12
**Keywords:** Consumption, Consumption smoothing, Death, Mortality

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# 1 Introduction

The effect of within-household mortality on the evolution of household consumption significantly differs from other shocks households have to face during their lifetime. Shocks such as droughts, illnesses or pro-longed periods of unemployment affect household consumption by afflicting the resources available to an individual household. Unlike these shocks, within-household mortality also leads to a permanent change in the composition of the household, as noted by Grimm (2010). Quantifying its effect on the evolution of household consumption can provide valuable insight into the consumption smoothing behavior of households. Its assessment can also influence both the structure and targeting of government programs. Unfortunately, existing evidence is limited and suffers from numerous shortcomings.

In this article we study how within-household mortality affects the evolution of household per capita consumption. We focus primarily on whether the magnitude and significance of the associated shock depends on the characteristics of the deceased household member, an aspect which has received only limited attention thus far. We also provide evidence on the persistence of the shock and on the extent to which a household's ability to smooth consumption depends on the characteristics of the household in question. To study these issues, we rely on the longitudinal Mexican Family Life Survey (MxFLS) database. The MxFLS provides data on household consumption spanning nearly a decade. Furthermore, it allows us to consider a variety of classifications of within-household mortality.

We base our empirical approach on a household-level fixed-effects model. We control for a variety of confounding factors such as additional shocks encountered by the household or multiple household characteristics. We rely on a fixed-effects model in order to control for unobserved household-level characteristics which might influence both the evolution of consumption and within-household mortality. These include e.g. a household's health care consumption preferences. Due to high attrition in the MxFLS we also test for the presence of attrition bias. We adopt an approach proposed by Wooldridge (2002) and find statistically significant evidence for the presence of attrition bias. To obtain unbiased estimates we deploy the Inverse Probability Weight methodology previously used by Chapoto & Jayne (2008) in a similar context. Furthermore, we rely on clustered standard errors.

Our findings indicate that throughout the duration of the study period Mexican households were capable of perfectly smoothing shocks into their consumption caused by within-household mortality. In all considered model specifications we fail to reject the null hypothesis of perfect consumption smoothing. Furthermore, the statistical significance of the shock is not affected by the characteristics of the deceased household member. Nevertheless, we find that the magnitude and direction of the estimated effects vary according to the characteristics of the deceased. However, these effects are not statistically significant. The magnitude of the estimated effects also depends on household characteristics. We find differences in the effects of within-household mortality between households with below and above median income. Overall, we believe that our findings present strong evidence in support of the hypothesis that households are capable of protecting their consumption against shocks caused by within-household mortality. Our findings are robust against a variety of robustness checks.

This article provides multiple contributions to currently available literature. To the best of our knowledge, it is the only study alongside Grimm (2010) which studies the extent to which the effects of within-household mortality depend on the characteristics of the deceased household member. A majority of existing studies either considered only a general indicator of within-household mortality (Dercon *et al.* (2005)) or narrowed their focus to the effects of prime-age adult mortality (Kadiyala *et al.* (2011)). Our results support findings observed by Grimm (2010), i.e. that within-household mortality does not have a negative effect on the evolution of household

consumption. However, contrary to his findings, we do not identify a positive effect of certain types of deaths. Furthermore, we study the persistence of the shock caused by within-household mortality, an area where information has been severely lacking. We also study how a household's ability to smooth the shock into consumption depends on its characteristics. Contrary to findings established by Khan *et al.* (2015) we conclude that household characteristics have only a limited impact on the ability to smooth consumption shocks caused by within-household mortality.

The remainder of this article is organized as follows. Section 2 contains a brief review of the relevant literature while section 3 presents our empirical strategy. In section 4 we present our main results. Section 5 presents the robustness checks we have considered in order to check the representativeness of our results. The final section concludes the study.

# 2 Related literature

The relationship between within-household mortality and the evolution of household consumption is supported by both economic theory and empirical evidence. A model developed by Deaton (1992) indicates that household demography is one of the main parameters affecting the desirability of consumption. Consequently, when faced with within-household mortality, households must restructure their economy. In doing so they sometimes deploy strategies which may have lasting effects on their welfare. Morduch (1995) provides multiple examples of such strategies. Based on a survey of Pakistani households Heltberg & Lund (2009) find that nearly 80% of households do not fully recover from the shock caused by the death of a household member. Furthermore, according to Wagstaff & Lindelow (2014), the death of a household member leads to the loss of approximately 400% of average annual per capita food consumption in Vietnamese households. Nevertheless, evidence of the effects of within-household mortality on consumption is mixed.

A comparison of existing estimates of the effects of within-household mortality on the evolution of household consumption is hindered by multiple factors. First, individual studies cover different countries. Currenly available studies are based on data from Ethiopia (e.g. Dercon *et al.* (2005)), Indonesia (e.g. Kim & Prskawetz (2010)), Vietnam (e.g. Wagstaff (2007)) and Bangladesh (e.g. Khan *et al.* (2015)). Therefore, the variation in estimates may be caused by underlying social and cultural differences. Second, individual studies also differ in the econometric approaches they empoy. Considerable variation is also present in within-household mortality definitions and in the types of mortality considered. Consequently, available results are not directly comparable. Third, some of the results are highly context-specific. Studies assessing the effects of HIV/AIDS mortality constitute such a case. For example, Ardington *et al.* (2014) argue that households affected by HIV/AIDS mortality may systematically differ from unaffected households in ways that can influence their ability to smooth consumption. In this case, a household's ability to smooth the shock into consumption may also be hindered by a stigma associated to HIV/AIDS as this may result in a lesser degree of support provided by other relatives. Studies assessing the effects of HIV/AIDS mortality are thus not directly comparable with studies focused on all mortality types. On the other hand, findings established by studies assessing the effect of health shocks on the evolution of household consumption, such as Asfaw & Braun (2004) provide only limited insights into the possible effects of within-household mortality. This results from the fact that unlike within-household mortality, health shocks such as illness do not necessarily lead to permanent changes in the composition of the afflicted household.

A considerable portion of available empirical evidence suggests that households are capable of perfectly smoothing consumption. Dercon *et al.* (2005) find that Ethiopean households are capable of perfectly smoothing shocks into their consumption caused by within-household mortality. Nevertheless, the authors only consider a general indicator of within-household mortality, which

significantly limits their findings, especially as we expect that the effects of within-household mortality will depend on the characteristics of the deceased household member. Alem & Söderbom (2012) find that the evolution of household consumption is not affected by within-household mortality. Kadiyala *et al.* (2011) focus on the mortality of prime-age adults (15 to 54 years of age) and find that households are capable of perfectly smoothing the associated shock. However, the results presented by Dercon *et al.* (2005) and Kadiyala *et al.* (2011) indicate that the significance of the shock likely depends on household characteristics. Similarly, Khan *et al.* (2015) distinguish between rich and poor households based on expenditures and find that the death of a household member leads to an increase in non-food household consumption for the rich households group. According to their results, the consumption of poor households is not affected by within-household mortality. However, similarly to Dercon *et al.* (2005) the authors consider only a general indicator of within-household mortality.

There exists evidence to support the hypothesis that within-household mortality affects the evolution of consumption. Wagstaff (2007) studies the case of Vietnam. The author distinguishes between rural and urban households and finds that the death of a working-age household member leads to a decrease in household food consumption for both types of households. However, non-food consumption is statistically significantly affected only in the case of urban households. Nevertheless, the results are not robust against variation in equivalence scales used to measure consumption. On the other hand, the results presented by Grimm (2010) are robust to variations in equivalence scales and indicate that the impact of death varies both according to the characteristics of the deceased as well as the considered type of consumption. The author finds that total and non-food consumption are statistically significantly affected by the death of a child (0 to 14 years old), adult male (15 to 59 years old), or person over 60 years of age. These deaths have a statistically significant positive impact on the growth of consumption. The death of an adult woman (15 to 59 years old) does not have a statistically significant effect. Shocks into food consumption and medical consumption are perfectly smoothed.

This study aims to contribute to the existing body of literature focusing on the effects of within-household mortality on the evolution of household consumption in several ways. First, only a limited number of studies have assessed how the shock into consumption depends on the characteristics of the deceased household member. For example, Dercon *et al.* (2005) and Khan *et al.* (2015) consider only a general indicator of within-household mortality, while Kadiyala *et al.* (2011) and Wagstaff (2007) study specific types of deaths. However, as shown by Grimm (2010), the effect of the shock depends on the charatecteristics of the deceased household member. Second, not all studies assess whether the effects of within-household mortality differ between food and non-food consumption of the respective household. This is an important shortcoming as households may decide to limit non-food consumption in order to smooth the shock into food consumption. On the other hand, as pointed out by Khan *et al.* (2015), non-food consumption may react differently as it might take the affected household longer to adjust. Third, information on how a household's ability to smooth consumption following the death of a household member depends on the characteristics of the affected household is limited. Fourth, only limited evidence is available on the persistence of the shock.

# 3 Empirical strategy

The specification of our model stems from approaches adopted in relevant consumption smoothing studies. Since the influential works of Cochrane (1991) and Townsend (1995), a variety of empirical specifications has been employed to assess households' abilities to smooth consumption. Ravallion & Chaudhuri (1997) provide a discussion of alternative specifications, while

Skoufias & Quisumbing (2005) show how a specific empirical model can be derived from the model of Deaton (1992) in which households maximize inter-temporal utility over consumption while facing uncertainty.

The assessment of the effects of within-household mortality on the evolution of household per capita consumption introduces a number of methodological difficulties. The main issue is that both the evolution of household consumption and within-household mortality likely depend on unobservable household characteristics. Consequently, we rely on a household-level fixed-effects model. Our model is inspired by models employed by Grimm (2010) and Beegle *et al.* (2008). Equation 1 gives a full specification of the model. Similarly to Grimm (2010), our dependent variable is the average change in the log of household per capita consumption. We estimate separate models for total, food, and non-food consumption. Household-level fixed-effects are denoted by $\eta_i$.

$$\triangle log(c_{i,t}) = \sum_j \alpha_j * D_{i,j,t} + \sum_l \delta_l * S_{i,l,t} + \sum_m \lambda_m * H_{i,m,t} + \sum_n \gamma_n * X_{i,n,t} + \\ + T_t + \eta_i + \epsilon_i \tag{1}$$

We are interrested in measuring the effect of death. Therefore we introduce a matrix $D_{i,j,t}$ which indicates all type $j$ deaths which occured in household $i$ during period $t$. The parameter $\alpha_j$ indicates whether households were capable of smoothing the shock into consumption caused by within-household mortality. Under the null hypothesis $\alpha_j = 0$ within-household mortality does not affect the evolution of household per capita consumption. We consider multiple specifications of $D_{i,j,t}$. First, we consider a general indicator of within-household mortality as well as $j$ types of death based on the relationship of the deceased household member with the head of a given household, as this is the only classification of deaths directly provided by the Mexican Family Life Survey. This set of results represents our baseline results. Second, we consider a general indicator of any type of death but we distinguish between deaths based on the time that elapsed since they occurred. Third, as a robustness check, we also consider a classification of deaths based on a proxy measure of the age of the deceased household member.

The evolution of household consumption is influenced by multiple factors. Consequently, we introduce a set of control variables. Table A.1 in Appendix A lists all considered control variables. $S_{i,l,t}$ is a matrix of $l$ shocks other than mortality faced by household $i$ during period $t$. These include all shocks covered by the Mexican Family Life Survey: unemployment of a household member, natural disaster, loss or robbery or death of production animals, disease or accident or hospitalization of a household member, and loss of crops. $H_{i,m,t}$ controls for all migration in a given a household. We distinguish between the migration of children (0 to 14 years of age), adults (15 to 64), and old household members (over 65). The category of children effectively also contains newly born household members. $X_{i,n,t}$ contains all remaining control variables. These include the age, sex, and education of the household head, a dummy variable indicating whether a given household has relatives in the USA, and a dummy variable indicating the presence of any household member who belongs to an indigenous group. Nevertheless, as these variables only exhibit limited variation, they are included only in interaction with the dummy indicator of death. We also control for the change in the value of assets owned by a respective household.

We consider a set of robustness checks. In addition to changing the classification of deaths as described above we consider a variety of alternative model specifications. The model outlined in Equation 1 assumes that changes in income do not affect household consumption. Though according to the model outlined by Deaton (1992) this condition is verified, there is also a strong literature on the relationship between income and consumption. However, as pointed

out by Cochrane (1991), the inclusion of income among control variables results in a variety of econometric issues. Nevertheless, as a robustness check we also consider a set of models with various income specifications included among right-hand side variables. We also consider a specification where we control for changes in variables measured in real terms instead of nominal terms. Furthermore, as households facing multiple deaths may have difficulties with smoothing consumption, we also consider a model where we control for the occurence of multiple deaths within a household. Finally, we also have to consider potential issues caused by attrition in our data.

Attrition constitutes a significant issue when working with longitudinal datasets. Nonrandom attrition can result in estimates which are not representative of a given population. Furthermore, attrition may be caused by within-household mortality as households which break up as a result may not be systematically relocated. It is thus necessary to check for the potential presence of attrition bias. We follow the approach proposed by Wooldridge (2002). We construct both probit and logit models by regressing a dummy indicator of whether a household remained in the dataset on a set of variables controlling for baseline characteristics of a given household. These include income, education, the sex and age of the household head, and an indicator of whether the household head had a job during the first wave interview.

We find statistically significant evidence for the presence of attrition bias. Table A.2 in Appendix A reports results from both probit and logit models. The regression is based on 7,670 households which report all relevant variables during the first wave of the survey. We rely on the Inverse Probability Weighting (IPW) approach to treat the potential presence of attrition bias. IPW was used for example by Chapoto & Jayne (2008) in a similar context. With the use of the estimated probit model, we predict the probability of each household remaining in the final sample. We then take the inverse values of the estimated probabilities and use them as weights for all observations in the final regression.

# 4 Mexican Family Life Survey

We base our analysis on the MxFLS database. This section provides a brief overview of the MxFLS and its key variables. We provide more details in Appendix B. MxFLS is a longitudinal survey which was conducted in three waves by the National Institute of Statistics and Geography (INEGI). Data were collected during the course of in-person interviews with household members. A first wave was conducted in 2002 using a representative sample of 8,440 households. A household was defined as a person or group of people biologically related or unrelated living together in a dwelling or its part who usually buy food using a common budget and prepare it on the same stove or oven using the same tools. Efforts to recontact the households included in the first wave were subsequently made on two occasions. A second data collection wave was officially conducted in 2004 and 2005, while a third officially took place between 2009 and 2012. However, some portions of the data were collected outside of these official periods. The survey includes only the original longitudinal households surveyed during the first wave and households subsequently started by members of households covered by the first wave of the survey. No new households were added to the sample.

Our final sample consists of 1,433 households. There are two main reasons for truncation of the sample relative to the coverage of the MxFLS. First, observations were lost due to attrition in the sample. We identified 7,203 longitudinal households which were covered by all three waves of the survey. This amounts to an attrition of 14.7%. We consider attrition to be an absorbing state. Second, a significant portion of households not excluded due to attrition were excluded due to non-response. Non-response occurs when a household participates in the follow up survey

rounds, but for some reason refuses or is incapable of answering a given survey question. Out of the longitudinal households which participated in all three survey waves, 3,812 households fully report all components of consumption, and only 2,527 households fully report the value of all owned assets. Furthermore, 5,797 households fully report all required indicators of within-household mortality throughout all three survey waves. Our final sample consists of all panel households which fully report all variables included in the baseline model outlined in the previous section. As households reporting specific variables do not overlap entirely, this provides us with a final sample of 1,433 households.

## 4.1 Within-household mortality

The MxFLS includes two sources which allow us to measure within-household mortality. First, we can rely on individual-level data from each wave. These report whether a given household member died between different waves. Second, we can rely on a section of the survey in which households report specific economic shocks which they faced during the past five years. These also include specific questions on within-household mortality. While the first source provides detailed information about the characteristics of the deceased, it does not cover all deaths that occured within a given household. As there is a considerable difference in the volume of deaths covered by the first source relative to the second source, namely 919 deaths versus 1,432, we choose to rely on the second source. The difference is caused by the fact that the former source covers neither new born deaths nor the deaths of elderly relatives who moved to the household between waves and deceased before they were covered by the survey. Consequently, we have to trade-off the detail of information about within-household mortality for being able to cover all deaths that occurred within households in our sample. The second source provides information only about the year during which the death occured and about the relationship of the deceased with the respondent.

Figure 1 here

Our final sample includes 266 deaths. Figure 1 shows the distribution of all deaths reported by all households between the first and third survey waves. We do not consider deaths that happened before the first wave as we do not have data on household consumption for any period of time prior to the first wave. The difference between the total amount of reported deaths and the sample of deaths covered by our final sample is a product of both attrition and non-response. Only deaths reported by households that participated in all three waves of the survey and report sufficient information to construct all considered control variables are included in the final sample. Furthermore, as the survey reports deaths that took place within the past five years, it is possible that some deaths may have been reported twice. For example, in case a household member died in 2004 and the second wave interview was conducted in 2005 while the third wave interview followed in 2009, the household will have reported the same death during both survey waves. Consequently, we clean the data to avoid potential double-counting. Out of the 266 deaths, 98 deaths happened between the first and second wave, while 168 deaths happened between the second and third wave.

Our baseline classification of deaths is based on the relationship of the deceased household member with the respondent. This classification is provided by the MxFLS. Nevertheless, as the respondent is not always the head of the household, we convert the remaining cases so that they provide us with the relationship of the deceased household member with the head of the household. Appendix B provides a more detailed description of our approach. We are capable of distinguishining between the death of the head of the household and the death of a spouse, child, parent, parent in law, sibling or sibling in law, of a household head while also including a general

category of other deaths which include all deaths that cannot be classified as any of the previous cases. This classification has considerable limitations. For example, the death of the parents of the household head will likely contain deaths of prime-age adults as well as deaths of elderly household members. Consequently, it is difficult to predict the impact of deaths classified in this manner on the evolution of household consumption. Given these limitations, we consider an alternative classification of deaths based on a proxy measure of the age of the deceased household member.

As a robustness check we introduce an alternative classification of deaths based on a proxy measure of the age of the deceased household member. We thus rely on information on the age of the household head and the relationship of the deceased with the household head. We distinguish between three categories of deceased household members based on their age: young (0-14 years ), adult (15-64), and senior household members (65+). We assume, that all deceased other than children, parents, and parents in law can be classified in the same category as the household head. We classify children, parents, and parents in law by relying on the mean age of mothers at birth, which according to the OECD stood at 26.6 years in 2008. We classify the death of a child as the death of a young person (i.e. 0-14) in case the household head in question was either 41 years old or younger, otherwise their deaths are classified as deaths of adults. We classify the death of either a parent or a parent in law as the death of a senior household member in case the household head was either 39 years old or older. If the household head is older than 65, we classify all deaths with the exception of child deaths as the deaths of senior household members. Since no death of a child of a household head older than 85 years was reported, all child deaths are classified either as young or adult household member deaths. Appendix B provides a more detailed discussion of this approach.

## 4.2 Consumption

The MxFLS provides a detailed coverage of household consumption. It covers food consumption as well as various items of non-food consumption. Appendix B contains a detailed description of the items covered by the MxFLS and the recall periods used for the individual items. Nevertheless, as the MxFLS does not provide an aggregate measure of total household consumption, we have to construct one. To obtain annual household consumption, we scale individual values using an appropriate factor. For example, food consumption which is reported with a weekly recall period is scaled by a factor of 52 in order to reach annual household food consumption expenditure. This raises potential issues caused by the seasonality of size and composition of consumption. However, as shown in Appendix B, the influence of these factors seems to be highly limited.

The composition of household consumption is stable over time. During all three waves, food consumption represents approximately three fourths of household consumption, while the rest is devoted to non-food consumption. Furthermore, reported data indicate that households increased their consumption between the first and second survey wave, while reported consumption generally decreased between the second and third wave. Based on a descriptive analysis we are unable to identify any effect of within-household mortality on the evolution of household consumption. Nevertheless, this may be a consequence of a variety of potentially confounding factors, which also influence the evolution of consumption. Consequently, it is key, that we properly control for these variables.

### 4.3 Control variables

The MxFLS contains a variety of variables which may be used to control for potentially confounding factors. Table 1 provides the descriptive statistics of individual control variables. We observe that while the majority of households in the final sample are headed by a male household head, the share of female household heads increases with each subsequent survey wave. We also observe an increase in household head age as well as changes in the composition of households which indicate the ageing of the sample. This is logical given the longitudinal design of the survey.

Table 1 here

While within-household mortality is one of the most frequently encountered shocks, the most frequent economic shock reported by households throughout the individual waves of the MxFLS is the hospitalization of a household member. It is also the most frequent shock covariate with within-household mortality. Of the shocks covered by the MxFLS, households affected by within-household mortality most frequently also report being affected by the hospitalization of a household member. Unfortunately, we are unable to identify, whether this shock covers the same household member or not. Consequently, we have considered using indicators of the health of individual household members reported by the survey to control for cases in which mortality might be a consequence of long-lasting illness. This is desirable as such households might be able to better smooth their consumption than households affected by a sudden household member death. Unfortunately, there seems to be little to no correlation between the self-reported indicators of individual health and within-household mortality. Therefore, in the final regression we control only for the hospitalization of a household member.

We also control for the evolution of household income and the value of assets owned by a given household. The MxFLS covers both labor and non-labor income earned by households. Our final measure of income includes wages, income from assets (rent, dividends), as well as government transfers and income from self-employment. We thus believe that the indicator of income is sufficiently comprehensive in its coverage in order to provide a sufficiently precise control for the evolution of household income. The assets covered by the MxFLS include ownership of up to two houses, a bicycle, motor vehicle, electronic device, washing machine or stove as well as other domestic appliances, financial assets, machinery or a tractor, and multiple types of farm animals. Due to our model being specified in logarithms we impute income or assets of one peso to households that report having zero income or assets within any given wave.

## 5 Results

By combining the longitudinal MxFLS database with a household level fixed-effects model, we are capable of providing multiple contributions to the currently available literature. First, we study how the effect of within-household mortality depends on the characteristics of the deceased household member. Second, we study to what extent a household's ability to smooth consumption depends on the characteristics of an individual household. Third, we assess the persistence of the shock into household per capita consumption caused by within-household mortality.

According to our baseline model, households were capable of perfectly smoothing the shock into household consumption caused by within-household mortality. Figure 2 presents the estimates on all coefficients of interest, while Table C.1 in Appendix C reports complete estimation results. Results based on a general indicator of within-household mortality support the findings of Dercon *et al.* (2005), indicating that household consumption is not affected by the death of a household member. Nevertheless, as we have previously noted, the characteristics of the deceased

household member can influence both the statistical significance and the magnitude of the shock. However, estimated effects based on the classification of deaths according to the relationship of the deceased household member and the household head indicate that households are capable of perfectly smoothing the respective shock into consumption. We reach the same conclusion for all considered types of consumption.

Figure 2 here

We find only limited evidence to support the hypothesis that the effect of within-household mortality depends on the characteristiscs of the deceased household member. Though we fail to reject the null hypothesis of perfect consumption smoothing even at the 10% significance level, we observe variation in the size and direction of the effects of different classes of deaths. The death of a household member, who is likely to be a net receiver rather than a net contributor to the household economy, such as the child of the household head has a positive effect on the evolution of consumption. On the contrary, the death of a household member likely to be in the position of the breadwinner, such as the spouse of the household head, has a negative effect on the evolution of household consumption. Furthermore, we observe that the estimated effects differ based on the considered types of consumption. For example, while the death of the household head has a negative effect on the evolution of food consumption, it has a positive effect on the evolution of total consumption. However, we must reiterate that significant heterogeneity may occur with respect to deaths covered by certain categories, such as the death of the parents of the household head. Consequently, in the following section we consider an alternative classification of deaths based on a proxy measure of the age of the deceased household member as a robustness check.

Figure 4 here

Households seem to be capable of perfectly smoothing consumption shocks regardless of income. We considered two household types, defined according to whether they were above or below median in terms of per capita income during the first wave of the survey. Based on these two separate samples we constructed a model which contains only a general indicator of within-household mortality as well as a model which makes a distinction between deaths based on the characteristics of the deceased household member. Figure 4 presents the results of the coefficients of interest, while Table C.2 and Table C.3 contain complete estimation results. In agreement with the baseline model we fail to reject the null hypothesis of perfect consumption smoothing even at the 10% significance level.

The evolution of the shock into household consumption caused by within-household mortality provides us with no clear pattern. To clarify the issue, we considered an alternative specification of the previously used model. Instead of classifying deaths by the characteristics of the deceased, we classify deaths as follows: deaths which took place less than one year ago; deaths occurring one to two years ago; those which took place two to three years ago, and so on until deaths which occurred between six and seven years ago. We model separately changes in food, non-food and total household consumption. Figure 3 presents the results of the coefficients of interest while Table C.4 presents complete estimation results. The results indicate that households are capable of smoothing the shock into consumption caused by within-household mortality regardless of the time which elapsed since death. Though evidence in favor of perfect consumption smoothing seems strong, our results might be driven by the fact that due to the detail of the data at hand we can only identify the number of years since a given death. It is possible that though consumption is affected by within-household mortality, households manage to smooth consumption in a shorter period of time, i.e. months rather than years. If consumption was smoothed by the time the relevant data were collected, the effects might not be identifiable in the available data.

Figure 3 here

The complete set of our results indicates that during the considered period Mexican households were capable of perfectly smoothing all shocks into their consumption caused by within-household mortality. We find that a given household's ability to smooth consumption is not affected by the characteristics of the deceased, household income or the time that elapsed since death. This indicates the strong ability of households to smooth their consumption. Nevertheless, since our results may be affected by a variety of factors we consider a number of robustness checks.

# 6 Robustness checks

We consider multiple robustness checks to assess the reliability of our results. The specification of our model as well as the construction of the control variables involves numerous assumptions. Consequently, we alter these assumptions in order to observe, whether or not our results are driven by our methodological choices. First, we consider a specification of the model in which we measure variables in real rather than in nominal terms. Second, we test whether or not a household's ability to smooth consumption is affected by the fact that multiple deaths occur within a given household. Third, we consider an alternative classification of deaths based on a proxy measure of the age of the deceased household member. Fourth, we estimate a set of alternative models in which we control for the evolution of household per capita income.

Our baseline results are based on variables expressed in nominal terms. However, it is possible that households are primarily concerned with optimizating their real consumption. Consequently, it is possible that we fail to identify a statistically significant consumption shock because we are not accounting for the effects of inflation. For example, we may observe that in nominal terms, household per capita consumption remained unaffected by within-household mortality, while in real terms we might observe a decrease in household per capita consumption. Therefore, we re-estimate the baseline model, while relying on variables expressed in real terms. For that purpose, we rely on inflation rates provided by the World Bank.

Even when expressed in real terms, consumption is not statistically significantly affected by within-household mortality. Table C.5 presents complete results of the model expressed in real terms. Alongside expressing consumption in real terms, we also express inherritance and the value of assets in real terms. This change in the specification of the model leads to no variation in the statistical significance of the parameters of interest.

Households's ability to smooth consumption can also be affected by multiple deaths occurring within a given household. Therefore we consider an alternative specification of our baseline model in which we introduce a control variable to control for multiple deaths happening within a given household. Table C.6, which shows the complete results of this specification indicates that controlling for multiple deaths within a given household does not alter the statistical significance of the estimated effects of within-household mortality. Furthermore, the fact that multiple deaths occur within a given household does not have a statistically significant effect on a household's ability to smooth consumption.

We also check whether or not our results are affected by the considered classification of deaths. In our baseline model we rely on the relationship of the deceased household member with the household head. However, this classification might be a poor proxy for the actual economic relevance of the deceased household member. Therefore, we consider an alternative classification of deaths based on a proxy measure of the age of the deceased household member. Specifically, we distinguish between young (0-14 years ), adult (15-64 years), and senior household members (65+). We provide a detailed desctiption of this classification in section 4.

We fail to reject the null hypothesis of perfect consumption smoothing for all types of death even when relying on the alternative classification of deaths. Similarly to the baseline model, we consider total consumption as well as separate models for food and non-food consumption. Table C.7 reports the complete estimation results for the baseline model with deaths classified according to the age of the deceased household member. We also estimate separate models for households with above and below median incomes. Table C.8 and Table C.9 report complete results for below and above median income households. Even in this specification the results indicate that households are capable of perfectly smoothing consumption shocks caused by within-household mortality.

In our baseline model we do not control for the evolution of household income. We have adopted this decission due to both theoretical and econometric issues caused by the inclusion of income. Nevertheless, we also consider an alternative specification of the model in which we control for the evolution of income. We rely on two specifications of income. First, we consider a broad definition of income, in which we include all components of income described in section 4 as well as inherritance. Second, we consider a model in which we control for more narrowly defined income, i.e. income excluding inherritance received by the household. Furthermore, we consider these two models in both nominal and real terms. As we only consider households which fully report all income components, the inclusion of income in the model leads to the further truncation of the sample. Consequently, models that include income are based on a sample of 1,060 households.

Our findings are not significantly affected by controlling for the evolution of household income. Table C.10 reports complete results of the specification of the model that controls for broadly defined income while Table C.11 presents estimates obtained from a model based on the narrow income specification. Table C.12 and Table C.13 contain estimates for models based on variables expressed in real terms for both considered income specifications. As with the preceding robustness checks, we are unable to identify any statistically significant effect of within-household mortality on the evolution of household per capita consumption.

# 7 Conclusion

We find that Mexican households were capable of perfectly smoothing shocks into household consumption caused by within-household mortality. Our findings are based on the longitudinal MxFLS survey and are robust against a variety of robustness checks. The characteristics of the deceased household member do not affect a household's ability to smooth the shock into consumption. Neither is this ability affected by household income, as both relatively poor and rich households are capable of perfectly smoothing consumption. Furthermore, we do not find any pattern in the temporal evolution of the shock.

Our findings contribute to existing literature in multiple ways. First, they complement the findings of Grimm (2010) in that within-household mortality does not have a statistically significant negative effect on the evolution of household consumption. Second, our findings indicate that in certain settings it might be sufficient to consider only a general indicator of within-household mortality while assessing the effect of the death of a household member on the evolution of household consumption. Third, as households are capable of perfectly smoothing consumption, it is possible that within-household mortality negatively affects household consumption only in extreme circumstances. An example might be the HIV/AIDS pandemic and its effects documented by Beegle *et al.* (2008).

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## Tables

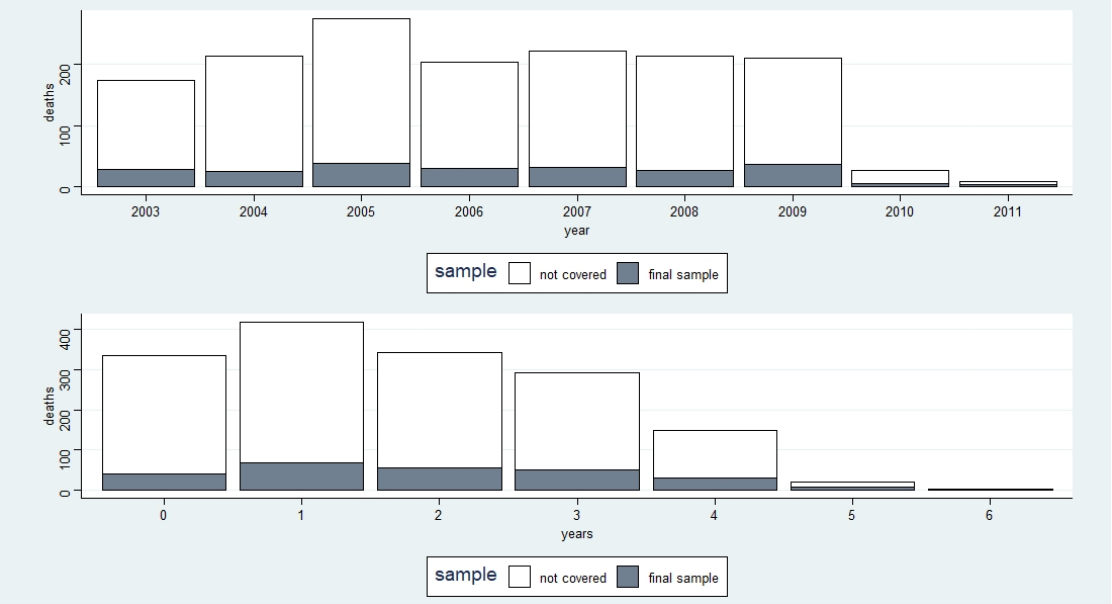
Table 1: Mexican Family Life Survey - Descriptive statistics

| | MxFLS 1 | | MxFLS 2 | | MxFLS 3 | |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD |
| HH head, male | 82.24% | | 80.95% | | 77.9% | |
| HH head, age | 44.63 | 14.36 | 47.62 | 13.9 | 51.29 | 13.94 |
| HH head education - elementary | 60.66% | | 60.76% | | 59.39% | |
| HH head education - secondary | 30.43% | | 30.28% | | 32.26% | |
| HH head education - tertiary | 8.78% | | 8.82% | | 8.35% | |
| HH head worked in last 12 months | 85.92% | | 81.62% | | 76.42% | |
| Shock - Death | 9.12% | | 6.42% | | 10.36% | |
| Shock - Crop loss | 4.83% | | 2.47% | | 4.14% | |
| Shock - Hospitalization | 13.47% | | 10.76% | | 13.1% | |
| Shock - Natural disaster | 2.28% | | 0.6% | | 0.74% | |
| Shock - Loss of farm animals | | | 0.87% | | 0.87% | |
| Shock - Unemployment | 7.17% | | 6.08% | | 10.7% | |
| Relatives in the USA | 48.75% | | 45.91% | | 54.45% | |
| Indigenous | 6.25% | | 17.2% | | 19.6% | |
| Male population | 48.31% | | 48.14% | | 48.62% | |
| HH composition | | | | | | |
| Children (0-14) | 1.57 | 1.43 | 1.48 | 1.43 | 1.28 | 1.37 |
| Prime-age adults (15-64) | 2.52 | 1.33 | 2.69 | 1.44 | 2.99 | 1.63 |
| Senior members (65+) | 0.19 | 0.48 | 0.23 | 0.52 | 0.28 | 0.57 |

*Source:* Author based on the Mexican Family Life Survey

## Figures

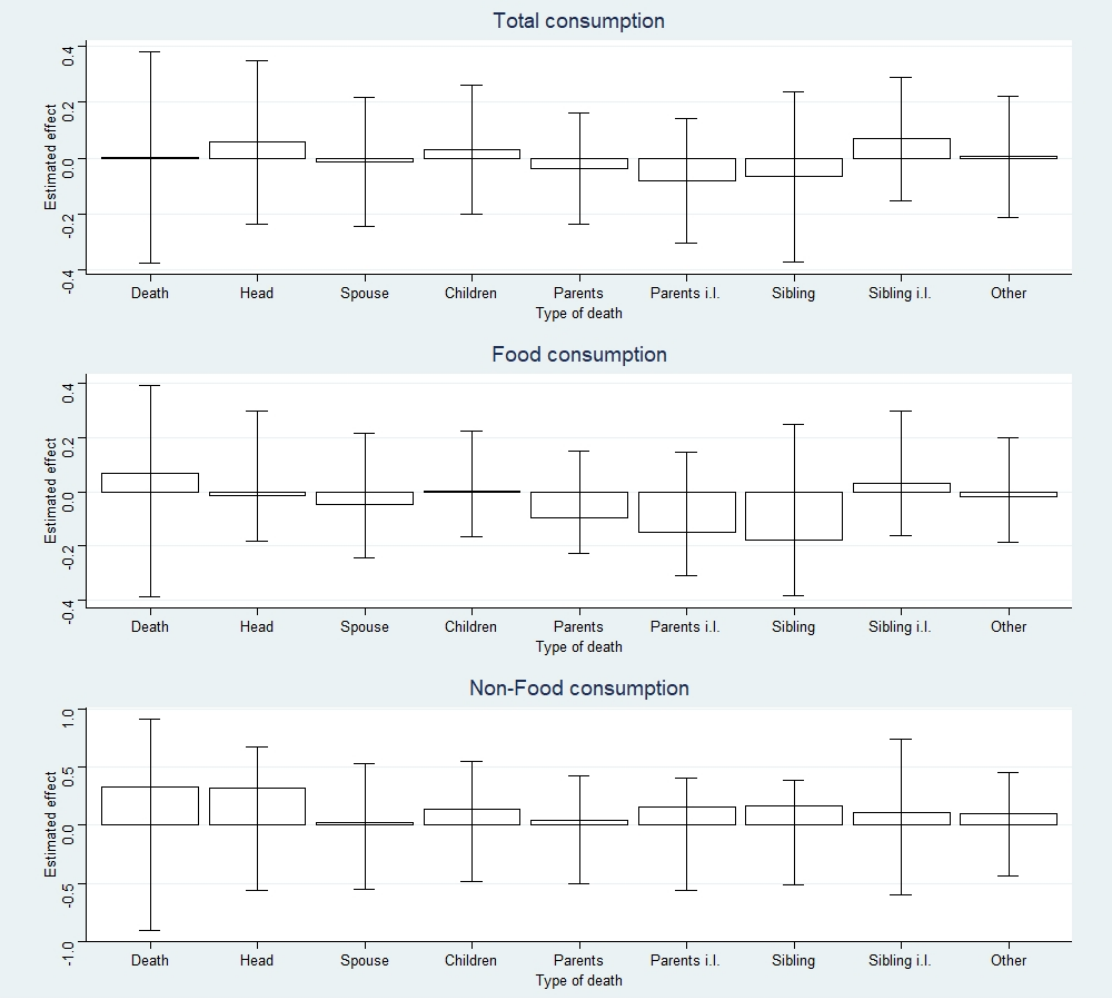
Figure 1: Distribution of deaths




*Source:* Author based on the Mexican Family Life Survey

*Note:* This figure depicts the number of deaths reported between the first and third wave of the MxFLS. The top panel provides a breakdown according to the year in which individual deaths occurred. The bottom panel provides a breakdown according to the number of years since individual deaths occurred. The shaded area indicates the amount of deaths included in our final sample. Difference between the total volume of reported deaths and the volume of deaths included in our final sample are due to households not providing sufficient information to construct all required variables.

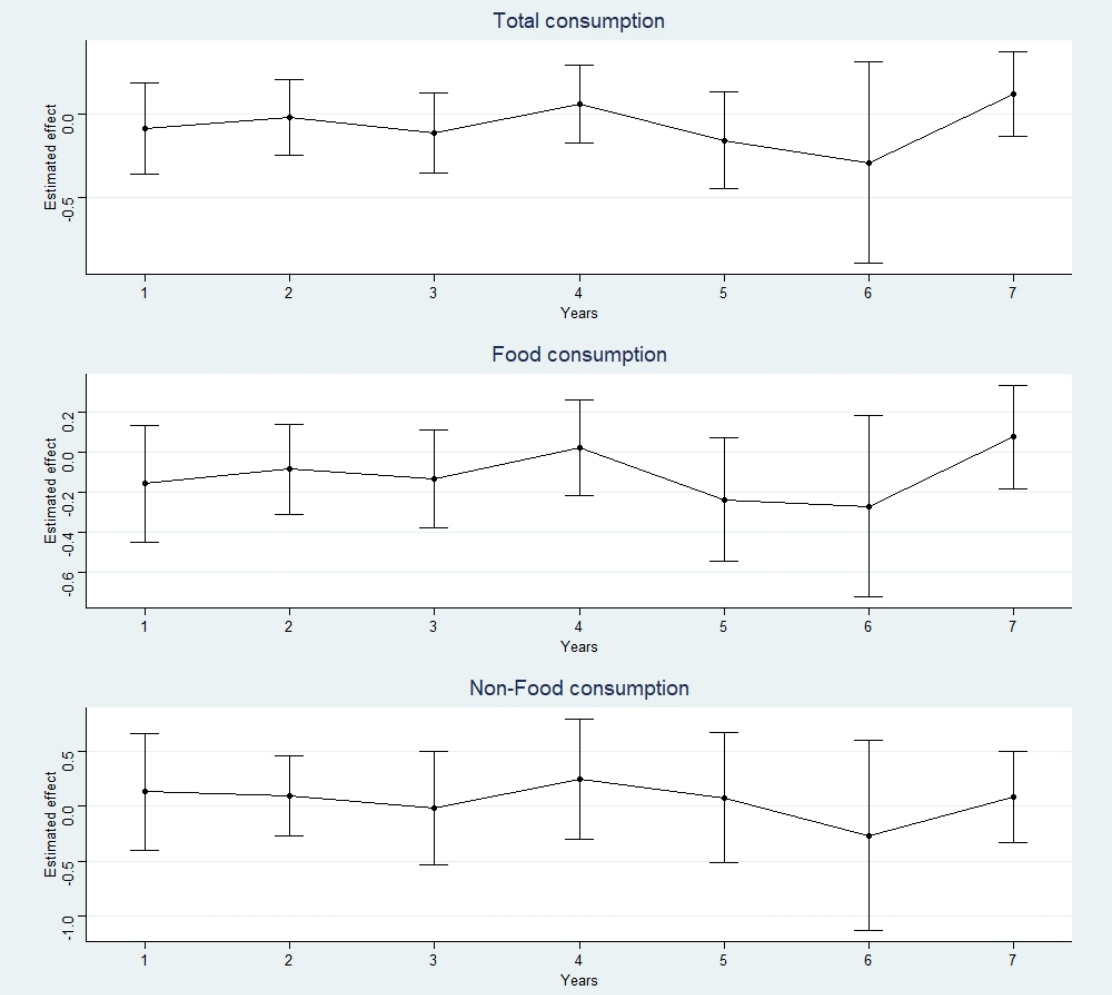
Figure 2: Effects of death on consumption




*Source:* Author's calculations based on the Mexican Family Life Survey

*Note:* The figure displays the estimated effects of all considered types of deaths on all considered types of consumption. The first type of death is a general indicator of within-household mortality. All remaining categories are based on the relationship of the deceased household member with the head of household. Error bars represent 95% confidence intervals.

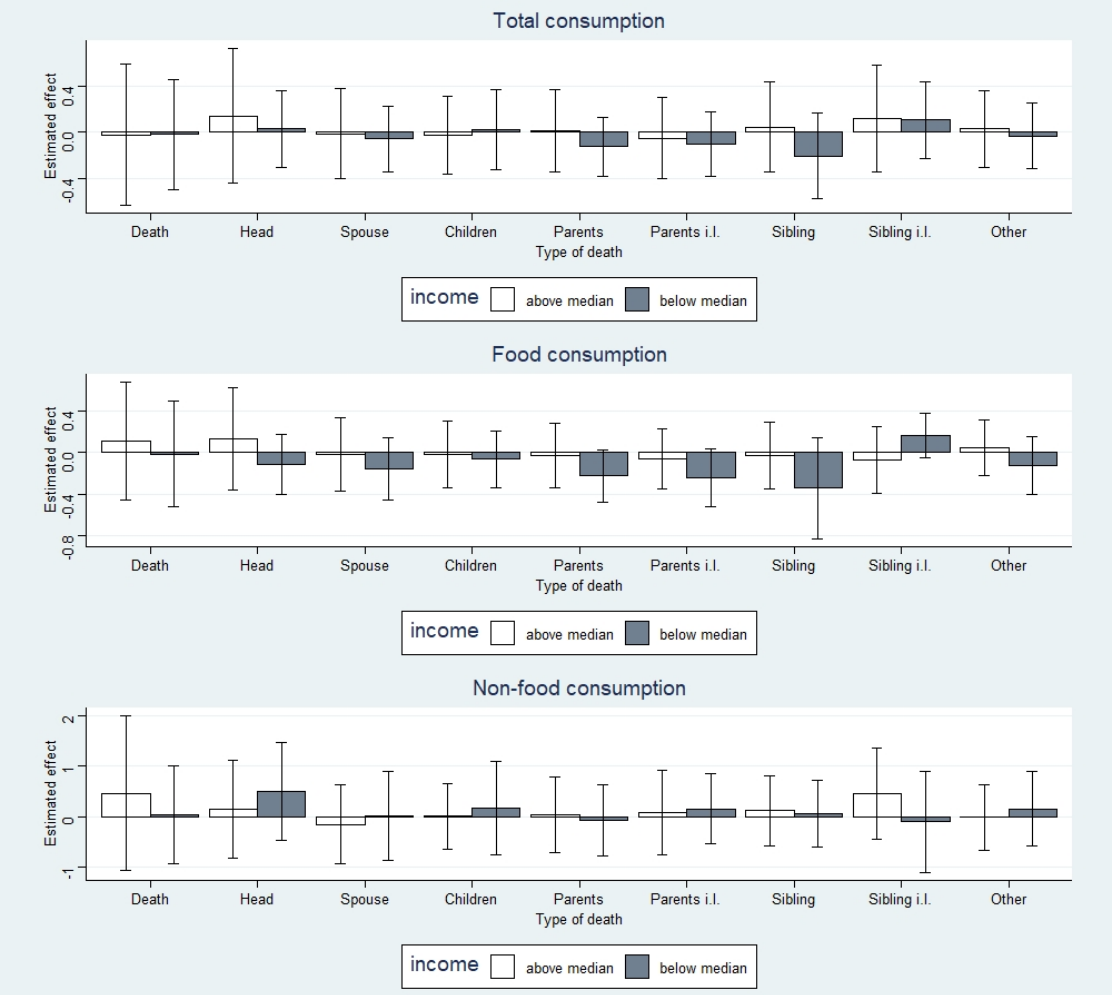
Figure 3: Death - Temporal dimension




*Source:* Author's calculations based on the Mexican Family Life Survey

*Note:* The figure displays the estimated persistence of the shock caused by within-household mortality. Deaths were classified based on the number of years that occurred since them. Error bars represent 95% confidence intervals.

Figure 4: Death - Effect of household characteristics




*Source:* Author's calculations based on the Mexican Family Life Survey

*Note:* The figure displays how the estimated effect of within-household mortality depends on household income. We consider two groups of households based on income reported during the first wave of the MxFLS, i.e. those with above and those with below median income. The panels represent our estimates for all considered types of consumption. The first type of death is a general indicator of within-household mortality. All remaining classes are based on the relationship of the deceased household member with the household head. Error bars represent 95% confidence intervals.

# Appendices

## A Control variables and attrition bias

### A.1 Control variables

Table A.1: Control variables

| Variable | Description |
|---|---|
| Death | Any household member died since the last interview (Dummy) |
| | Household head died (Dummy) |
| | Spouse of the household head died (Dummy) |
| | Child of the household head died (Dummy) |
| | Parent of the household head died (Dummy) |
| | Parent-in-law of the household head died (Dummy) |
| | Sibling of the household head died (Dummy) |
| | Sibling-in-law of the household head died (Dummy) |
| | Household member with different relationship to the household head, than those listed above died (Dummy) |
| | Any household member died within the past year (Dummy) |
| | Any household member died within past one to two years (Dummy) |
| | Any household member died within past two to three years (Dummy) |
| | Any household member died within past three to four years (Dummy) |
| | Any household member died within past four to five years (Dummy) |
| | Any household member died within past five to six years (Dummy) |
| | Any household member died within past six to seven years (Dummy) |
| Income | Change in total household income (per capita) |
| Inheritance | Change in the total value of inheritance received by household (per capita) |
| Assets | Change in the total value of household assets |
| Shocks | Household lost crops since the last interview (Dummy) |
| | At least one household member was hospitalized since the last interview (Dummy) |
| | Natural disaster since the last interview (Dummy) |
| | Household lost any production animals since the last interview (Dummy) |
| | Any household member was unemployed for a prolonged period of time since the last interview (Dummy) |
| Household head characteristics | Age |
| | Sex - female (Dummy) |
| | Household head worked since the last interview (Dummy) |
| | Highest achieved education: secondary (Dummy) |
| | Highest achieved education: tertiary (Dummy) |
| Household evolution | Change in the number of children (0-14 years of age) |
| | Change in the number of adults (15-64 years of age) |
| | Change in the number of old household members (65+) |
| Relatives in the USA | Household has relatives in the USA (Dummy) |
| Indigenous | At least one household member is of indigenoues origin (Dummy) |
| Time | Interview was conducted during the third wave of the Mexican Family Life Survey (Dummy) |

*Source:* Author based on the Mexican Family Life Survey

## A.2 Attrition bias

Table A.2: MxFLS - Attrition bias

| | Final sample | |
|---|---|---|
| | *Probit* | *Logit* |
| | (1) | (2) |
| Initial size | $-0.016^{*}$ | $-0.029^{*}$ |
| | (0.010) | (0.017) |
| HH head - age | $-0.009^{***}$ | $-0.016^{***}$ |
| | (0.001) | (0.002) |
| HH head - female | $-0.018$ | $-0.030$ |
| | (0.047) | (0.084) |
| HH head - worked | $0.151^{***}$ | $0.282^{***}$ |
| | (0.054) | (0.098) |
| Income | $-1\text{x}10^{-10***}$ | $-2\text{x}10^{-10***}$ |
| | ($3\text{x}10^{-11}$) | ($6\text{x}10^{-11}$) |
| Illness | $0.041^{**}$ | $0.072^{**}$ |
| | (0.016) | (0.029) |
| Morbidity | 0.007 | 0.015 |
| | (0.028) | (0.050) |
| HH head education - secondary | $-0.085^{**}$ | $-0.146^{**}$ |
| | (0.041) | (0.073) |
| HH head education - university | $-0.120^{*}$ | $-0.215^{**}$ |
| | (0.061) | (0.109) |
| Constant | $-0.555^{***}$ | $-0.906^{***}$ |
| | (0.107) | (0.189) |
| Observations | 7,670 | 7,670 |
| *Note:* | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 | |

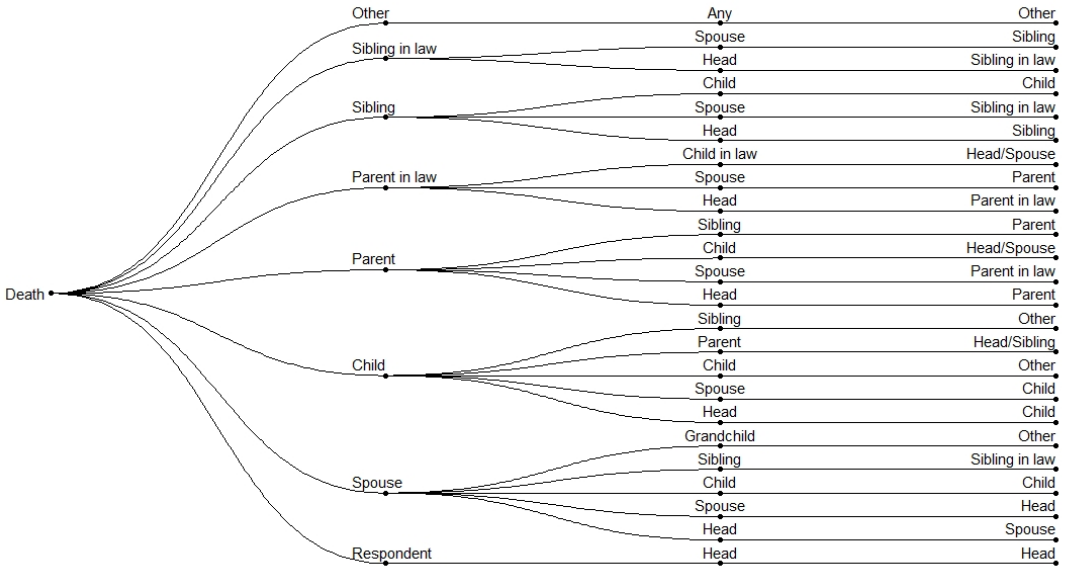
# B Mexican Family Life Survey

In this appendix we provide a more detailed description of the Mexican Family Life Survey (MxFLS). We first focus on the methodolody we use for classifying deaths. Second, we provide more details on the reporting of consumption in the MxFLS.

## B.1 Classification of deaths

We rely on two alternative classifications of deaths. The relationship of the deceased household member with the household head, and a proxy measure of the age of the deceased household member. The former classification stems directly from the data provided by the MxFLS, while in case of the latter we have to adopt additional assumptions.

Figure B.1: Classification algorithm




*Source:* Author

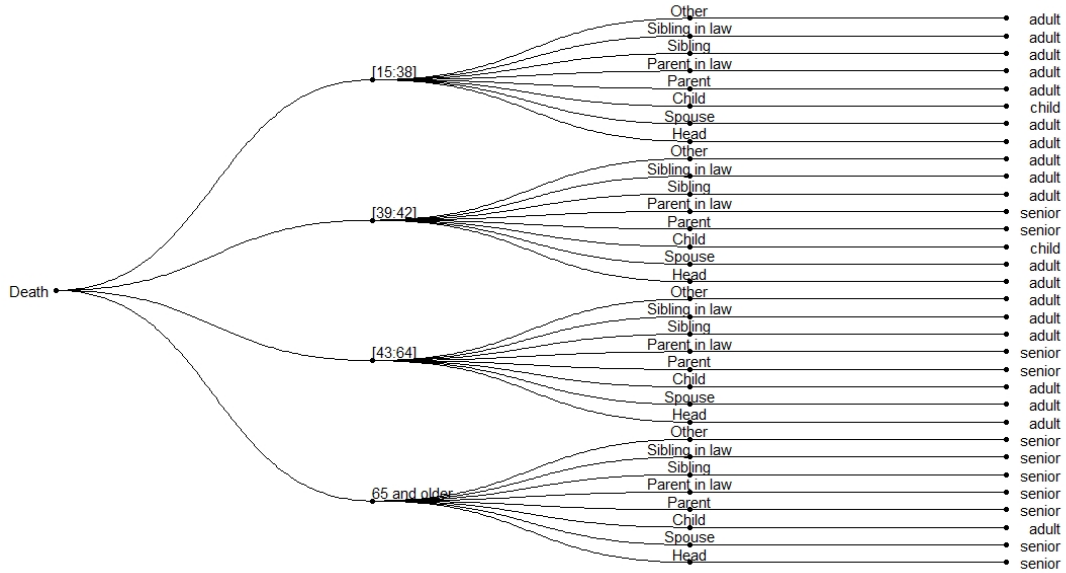
Our first classification of deaths is based on the relationship of the deceased household member with the household head. The MxFLS provides information on the relationship of the deceased household member with the respondent. Consequently, we adjust the cases where the respondent is not the household head so that we obtain a relationship of the deceased household member with the houseold head.

Figure B.1 summarizes our methodological approach. It provides a graphical representation of all combinations of deceased household members and respondents that occurred during all three waves of the MxFLS. The first node provides all of the possible classifications of deaths. These are the deaths of the respondent, the repondent's spouse, child, parent, parent-in-law, sibling, sibling-in-law, and all other deaths. The second node identifies the role of the respondent within a household. We obtained this information from individual-level control files of the MxFLS. The third node provides the final classification of deceased household members. For example, in case the death of a child is reported by the spouse of the household head, than the this death is classified as the death of the child of the household head.

The classification of the deceased household member is not directly identifiable in a number of cases. For example, when a child of the household head reports the death of a parent, this death can be classified either as the death of the household head or as the death of the spouse of the household head. In these cases we rely on the individual level files in order to correctly indentify the deceased household member.

This classification suffers from certain shortcomings. First, it is a proxy measure for the role of the deceased household member within a household rather than a direct indicator of kinship. For example, while we classify the death of a child of the spouse of the household head as the death of a child of the household head, it is possible that the household head was not deceased child's parent. Consequently, as stated above, this classification provides more of an indicator of the possible role of the deceased household member within a given household.

Figure B.2: Classification algorithm (age proxy)




*Source:* Author

We also construct an alternative classification of deaths based on a proxy measure of the deceased household member's age. Figure B.2 presents the classification, which is based on the previously identified relationship of the deceased household member with the household head and on information about the age of the household head at the time of a given death. The first node provides the age of the household head at the time of death. The second node indicates the reported type of death, while the last node specifies the resulting classification of the deceased household member. We define three classses of deaths, specifically differentiating between young (0-14 years ), adult (15-64 years), and senior household members (65 years and older).

The classification is based on the mean age of Mexican mothers at birth, which according to the OECD stood at 26.6 years in 2008. Deaths classified as the deaths of a spouse, sibling, sibling-in-law, and other are classified in the same category as the death of the household head would be classified. We classify the death of a child as the death of a young person under 15 years of age in case the household head is either 41 years old or younger, otherwise such a death is classified as the death of an adult. We classify the death of either a parent or a parent in law as the death of a senior household member if the household head is either 39 years old or

older. If the household head is older than 65 years, we classify all deaths with the exception of a child's death as the death of a senior household member. Since no death of a child of a household head older than 85 years was reported, all child deaths are classified either as young or adult household member deaths.

## B.2 Consumption

As the MxFLS does not report consumption aggregates, we constructed them. Table B.1 presents all consumption items covered by the MxFLS. As is the practice in consumption surveys, different recall periods are used for different consumption items. Food consumption is reported with a recall period of seven days, while durable consumption items as well as consumed services are reported with recall period of one month, three months, or one year depending on the specific item. Based on the reported items we construct indicators of total, food, and non-food household consumption.

Table B.1: MxFLS - Consumption categories

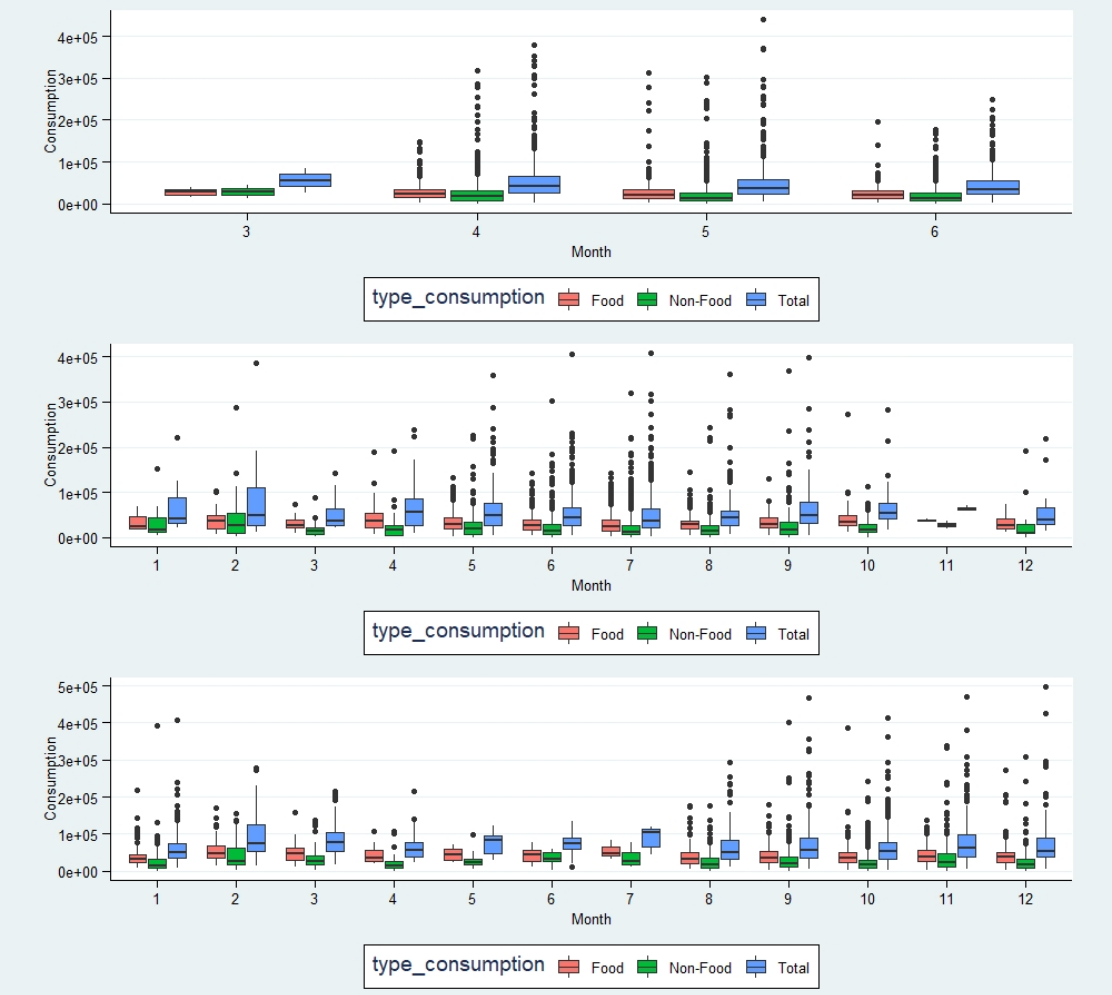
| Recall period | Type of good | Comments |
|---|---|---|
| Last seven days | onions, potatoes, chiles, bananas, apples, oranges, other fruits, other vegetables, soup/pasta, rice, cookies, legumes, other cereals | Gifts/self-production included separately |
| | beef, pork, tuna/sardines, fish/seafood, cheese, other dairy products, other animal products, other types of meat | Gifts included separately |
| | beverage, coffee, vegetable oil, other industrial packaged products, species, cigarettes/tobacco, transport other than for school, meals outside household | Gifts/business included separately |
| | corn tortillas, bread/baguette, chicken, steak/meat, pasteurized milk, chicken eggs, red tomatoes, beans, white sugar, soda | |
| Last month | total personal items, personal items men, personal items women, cleaning items HH, general services, entertainment/recreation, gambling, media communication, others services HH | |
| | items received/given as gifts | |
| Last three months | adult men clothes, adult women clothes, boys clothes, girls clothes, baby toy/items, domestic utensils, health services, vehicle services | Produced/received included separately |
| | gift/gave items/services | |
| Last year | electronic appliances, domestic appliances, furniture/maintenance, farm spending/ISR, vehicle expenditures, gift/payment items, received items | |
| | school year boys Hhm, school year girls Hhm, school year men/women not Hhm, school supplies men/boys Hhm, school supplies women/girls Hhm, school supplies women/girls not Hhm, 1 month transp to school boy Hhm, 1 month transp to school woman/girl Hhm, 1 month transp to school children/adults Hhm | |

*Source:* Author based on the Mexican Family Life Survey

Our final consumption aggregates cover a period of one year. We obtain a consumption aggregate covering a period of one year by scaling the reported consumption expenditure by an appropriate scalar. For example, consumption reported with a recall period of one week is multiplied by 52 in order to obtain annual consumption. We assume that the reported consumption is representative of the respective household's consumption throughout the year. However, in case the reported volume and composition of consumption depend on the year or month during which the interview was conducted this could significantly affect the final results unless properly treated.

We study the distribution of consumption in order to check for the presence of seasonality in reported consumption data. Figure B.3 reports the distributions of food, non-food, and total household consumption based on the month of the interview. Figure B.4 reports the distributions for the years during which the interviews were conducted. We can see, that there is little to no variation in the distributions of consumption based on the month or year when

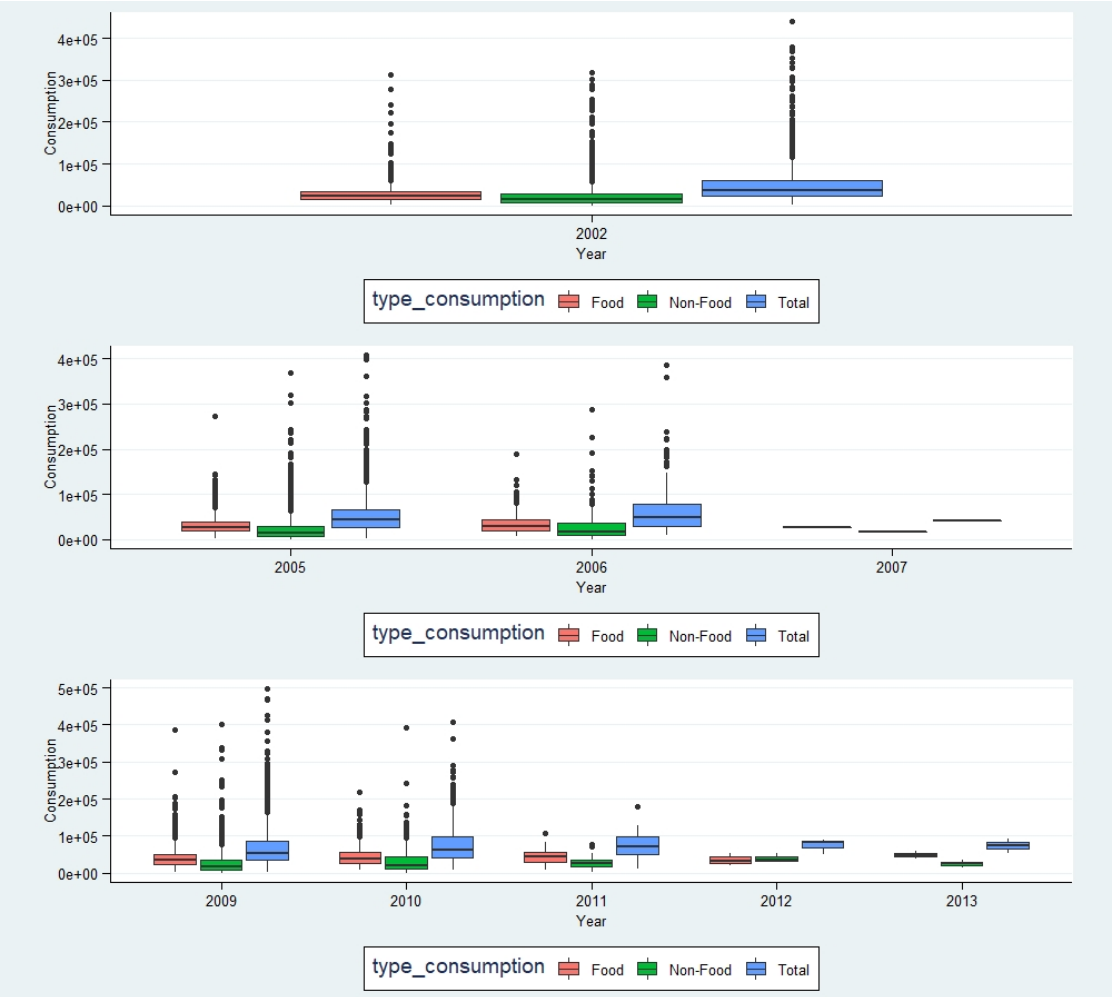
Figure B.3: Consumption and month of interview




*Source:* Author based on Mexican Family Life Survey

the interviews were conducted. Consequently, we believe that our results are not affected by consumption seasonality.

Figure B.4: Consumption and year of interview




*Source:* Author based on Mexican Family Life Survey

# C Complete estimation results and robustness checks

## C.1 Baseline model

Table C.1: Baseline model

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | 0.003 | | 0.067 | | 0.328 | |
| | (0.194) | | (0.199) | | (0.465) | |
| Death spouse | | −0.013 | | −0.047 | | 0.025 |
| | | (0.118) | | (0.117) | | (0.277) |
| Death children | | 0.029 | | 0.001 | | 0.132 |
| | | (0.118) | | (0.100) | | (0.263) |
| Death parents | | −0.038 | | −0.095 | | 0.041 |
| | | (0.102) | | (0.097) | | (0.235) |
| Death other | | 0.006 | | −0.019 | | 0.102 |
| | | (0.111) | | (0.099) | | (0.225) |
| Death parents i.l. | | −0.081 | | −0.148 | | 0.157 |
| | | (0.113) | | (0.116) | | (0.247) |
| Death sibbling | | −0.067 | | −0.176 | | 0.161 |
| | | (0.156) | | (0.161) | | (0.229) |
| Death sibbling i.l. | | 0.069 | | 0.032 | | 0.109 |
| | | (0.113) | | (0.116) | | (0.342) |
| Death head | | 0.057 | | −0.012 | | 0.319 |
| | | (0.150) | | (0.122) | | (0.315) |
| Disease | 0.063** | 0.064** | 0.053** | 0.054** | 0.121** | 0.119** |
| | (0.027) | (0.027) | (0.026) | (0.026) | (0.056) | (0.056) |
| Unemployment | −0.054 | −0.056 | −0.053 | −0.056 | −0.038 | −0.040 |
| | (0.037) | (0.037) | (0.035) | (0.035) | (0.069) | (0.070) |
| Natural disaster | −0.062 | −0.059 | −0.041 | −0.038 | −0.028 | −0.038 |
| | (0.116) | (0.111) | (0.125) | (0.114) | (0.167) | (0.168) |
| Crop loss | 0.023 | 0.025 | −0.017 | −0.011 | 0.099 | 0.096 |
| | (0.077) | (0.076) | (0.079) | (0.078) | (0.111) | (0.112) |
| Production animals | 0.031 | 0.031 | −0.011 | −0.011 | 0.016 | 0.023 |
| | (0.095) | (0.095) | (0.091) | (0.091) | (0.178) | (0.179) |
| Time | 0.034*** | 0.035*** | 0.011 | 0.013 | 0.110*** | 0.110*** |
| | (0.012) | (0.012) | (0.012) | (0.012) | (0.028) | (0.028) |
| HH head - age | −0.00003 | 0.0002 | −0.001 | 0.001 | −0.004 | −0.001 |
| (interaction) | (0.003) | (0.002) | (0.003) | (0.001) | (0.007) | (0.004) |
| HH head - female | −0.012 | −0.021 | 0.005 | 0.006 | −0.166 | −0.141 |
| (interaction) | (0.066) | (0.066) | (0.065) | (0.068) | (0.152) | (0.158) |
| HH head - worked | 0.034 | 0.052 | −0.001 | 0.052 | −0.010 | 0.053 |
| (interaction) | (0.080) | (0.064) | (0.085) | (0.066) | (0.194) | (0.167) |
| HH head education - secondary | 0.039 | 0.048 | 0.006 | 0.039 | 0.089 | 0.138 |
| (interaction) | (0.082) | (0.081) | (0.072) | (0.073) | (0.151) | (0.161) |
| HH head education - university | 0.157 | 0.156 | 0.103 | 0.116 | 0.216 | 0.257 |
| (interaction) | (0.139) | (0.143) | (0.110) | (0.116) | (0.198) | (0.202) |
| Assets | 0.016*** | 0.016*** | 0.010** | 0.010** | 0.035*** | 0.035*** |
| | (0.004) | (0.004) | (0.004) | (0.004) | (0.012) | (0.012) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Inheritance | $0.009^{*}$ | $0.009^{*}$ | 0.002 | 0.002 | $0.014^{*}$ | $0.014^{*}$ |
| | (0.005) | (0.005) | (0.005) | (0.005) | (0.008) | (0.008) |
| Indigenous | $-0.018$ | $-0.022$ | $-0.001$ | $-0.001$ | 0.032 | 0.028 |
| (interaction) | (0.075) | (0.072) | (0.076) | (0.071) | (0.204) | (0.209) |
| Relatives USA | $-0.005$ | $-0.011$ | $-0.016$ | $-0.012$ | $-0.131$ | $-0.144$ |
| (interaction) | (0.060) | (0.059) | (0.056) | (0.055) | (0.151) | (0.146) |
| Children | $-0.033^{***}$ | $-0.032^{***}$ | $-0.035^{***}$ | $-0.034^{***}$ | $-0.024$ | $-0.024$ |
| | (0.009) | (0.009) | (0.008) | (0.008) | (0.018) | (0.018) |
| Adults | $-0.032^{***}$ | $-0.032^{***}$ | $-0.030^{***}$ | $-0.031^{***}$ | $-0.011$ | $-0.011$ |
| | (0.009) | (0.009) | (0.008) | (0.008) | (0.020) | (0.020) |
| Seniors | $-0.079^{***}$ | $-0.080^{***}$ | $-0.077^{***}$ | $-0.078^{***}$ | $-0.089^{*}$ | $-0.091^{*}$ |
| | (0.024) | (0.025) | (0.024) | (0.025) | (0.046) | (0.046) |
| Observations | 2,866 | 2,866 | 2,866 | 2,866 | 2,866 | 2,866 |
| $R^2$ | 0.371 | 0.372 | 0.390 | 0.393 | 0.238 | 0.239 |
| *Note:* | | | | | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

## C.2 Baseline model - Households with below median income

Table C.2: Baseline model - Households with below median income

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | −0.020 | | −0.014 | | 0.042 | |
| | (0.243) | | (0.261) | | (0.495) | |
| Death spouse | | −0.059 | | −0.156 | | 0.029 |
| | | (0.147) | | (0.154) | | (0.448) |
| Death children | | 0.023 | | −0.063 | | 0.165 |
| | | (0.179) | | (0.141) | | (0.470) |
| Death parents | | −0.126 | | −0.226* | | −0.076 |
| | | (0.130) | | (0.129) | | (0.359) |
| Death other | | −0.034 | | −0.128 | | 0.158 |
| | | (0.146) | | (0.143) | | (0.375) |
| Death parents i.l. | | −0.103 | | −0.242* | | 0.155 |
| | | (0.143) | | (0.144) | | (0.354) |
| Death sibling | | −0.206 | | −0.343 | | 0.067 |
| | | (0.192) | | (0.250) | | (0.337) |
| Death sibling i.l. | | 0.105 | | 0.161 | | −0.095 |
| | | (0.170) | | (0.110) | | (0.512) |
| Death head | | 0.028 | | −0.113 | | 0.509 |
| | | (0.172) | | (0.149) | | (0.490) |
| Disease | 0.041 | 0.039 | 0.031 | 0.030 | 0.095 | 0.085 |
| | (0.036) | (0.037) | (0.037) | (0.037) | (0.084) | (0.086) |
| Unemployment | −0.050 | −0.052 | −0.051 | −0.054 | 0.005 | 0.003 |
| | (0.056) | (0.056) | (0.052) | (0.053) | (0.120) | (0.123) |
| Natural disaster | −0.060 | −0.050 | −0.052 | −0.040 | 0.013 | 0.016 |
| | (0.120) | (0.107) | (0.146) | (0.122) | (0.181) | (0.186) |
| Crop loss | −0.117 | −0.113 | −0.125 | −0.116 | −0.099 | −0.108 |
| | (0.092) | (0.092) | (0.103) | (0.101) | (0.135) | (0.139) |
| Production animals | −0.059 | −0.054 | −0.031 | −0.028 | −0.220 | −0.198 |
| | (0.071) | (0.072) | (0.115) | (0.115) | (0.150) | (0.149) |
| Time | 0.030* | 0.032* | 0.011 | 0.014 | 0.113*** | 0.114*** |
| | (0.018) | (0.018) | (0.018) | (0.018) | (0.039) | (0.040) |
| HH head - age | 0.001 | 0.002 | 0.001 | 0.003* | 0.002 | 0.001 |
| (interaction) | (0.003) | (0.002) | (0.004) | (0.002) | (0.008) | (0.007) |
| HH head - female | −0.075 | −0.087 | −0.050 | −0.054 | −0.406* | −0.459* |
| (interaction) | (0.080) | (0.088) | (0.094) | (0.100) | (0.229) | (0.243) |
| HH head - worked | 0.079 | 0.130 | 0.040 | 0.135 | 0.183 | 0.215 |
| (interaction) | (0.103) | (0.085) | (0.110) | (0.090) | (0.258) | (0.266) |
| HH head education - secondary | 0.038 | 0.039 | 0.056 | 0.068 | 0.052 | 0.055 |
| (interaction) | (0.111) | (0.111) | (0.109) | (0.105) | (0.251) | (0.253) |
| HH head education - university | −0.075 | −0.109 | −0.111 | −0.167 | −0.148 | −0.119 |
| (interaction) | (0.156) | (0.162) | (0.147) | (0.126) | (0.233) | (0.290) |
| Assets | 0.018*** | 0.018*** | 0.014** | 0.014** | 0.039** | 0.039** |
| | (0.006) | (0.006) | (0.006) | (0.007) | (0.016) | (0.016) |
| Inheritance | 0.034 | 0.034 | 0.025 | 0.025 | 0.035 | 0.035 |
| | (0.027) | (0.027) | (0.025) | (0.025) | (0.032) | (0.032) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Indigenous | −0.095 | −0.106 | −0.060 | −0.069 | −0.184 | −0.201 |
| (interaction) | (0.084) | (0.084) | (0.090) | (0.087) | (0.257) | (0.260) |
| Relatives USA | −0.016 | −0.035 | −0.037 | −0.051 | −0.127 | −0.181 |
| (interaction) | (0.083) | (0.083) | (0.080) | (0.079) | (0.247) | (0.233) |
| Children | −0.033** | −0.031** | −0.035*** | −0.033*** | −0.029 | −0.028 |
| | (0.013) | (0.013) | (0.011) | (0.012) | (0.023) | (0.024) |
| Adults | −0.022* | −0.022* | −0.026** | −0.027** | 0.020 | 0.020 |
| | (0.012) | (0.012) | (0.011) | (0.011) | (0.029) | (0.029) |
| Seniors | −0.095*** | −0.098*** | −0.084*** | −0.090*** | −0.130** | −0.126** |
| | (0.029) | (0.029) | (0.029) | (0.030) | (0.062) | (0.064) |
| Observations | 1,434 | 1,434 | 1,434 | 1,434 | 1,434 | 1,434 |
| $R^2$ | 0.406 | 0.411 | 0.405 | 0.415 | 0.261 | 0.265 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

## C.3 Baseline model - Households with above median income

Table C.3: Baseline model - Households with above median income

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | −0.023 | | 0.112 | | 0.467 | |
| | (0.312) | | (0.291) | | (0.781) | |
| Death spouse | | −0.012 | | −0.015 | | −0.148 |
| | | (0.198) | | (0.180) | | (0.396) |
| Death children | | −0.024 | | −0.019 | | 0.015 |
| | | (0.172) | | (0.163) | | (0.331) |
| Death parents | | 0.011 | | −0.027 | | 0.048 |
| | | (0.183) | | (0.157) | | (0.380) |
| Death other | | 0.027 | | 0.048 | | −0.008 |
| | | (0.171) | | (0.139) | | (0.329) |
| Death parents i.l. | | −0.051 | | −0.060 | | 0.095 |
| | | (0.179) | | (0.149) | | (0.427) |
| Death sibling | | 0.046 | | −0.031 | | 0.124 |
| | | (0.200) | | (0.165) | | (0.354) |
| Death sibling i.l. | | 0.118 | | −0.074 | | 0.468 |
| | | (0.235) | | (0.164) | | (0.459) |
| Death head | | 0.143 | | 0.134 | | 0.144 |
| | | (0.299) | | (0.253) | | (0.493) |
| Disease | 0.083** | 0.083** | 0.075** | 0.075* | 0.136* | 0.137* |
| | (0.040) | (0.041) | (0.038) | (0.039) | (0.080) | (0.081) |
| Unemployment | −0.047 | −0.047 | −0.047 | −0.048 | −0.054 | −0.052 |
| | (0.049) | (0.050) | (0.049) | (0.050) | (0.077) | (0.079) |
| Natural disaster | −0.030 | −0.028 | 0.003 | 0.002 | −0.086 | −0.081 |
| | (0.172) | (0.173) | (0.151) | (0.151) | (0.334) | (0.337) |
| Crop loss | 0.261*** | 0.259*** | 0.171* | 0.171* | 0.429*** | 0.421** |
| | (0.092) | (0.093) | (0.100) | (0.101) | (0.161) | (0.164) |
| Production animals | 0.058 | 0.058 | −0.041 | −0.040 | 0.173 | 0.175 |
| | (0.163) | (0.163) | (0.132) | (0.133) | (0.301) | (0.301) |
| Time | 0.037** | 0.037** | 0.012 | 0.013 | 0.107*** | 0.106*** |
| | (0.017) | (0.018) | (0.016) | (0.017) | (0.039) | (0.039) |
| HH head - age (interaction) | −0.00001 | −0.0002 | −0.002 | −0.001 | −0.007 | −0.0002 |
| | (0.004) | (0.003) | (0.004) | (0.002) | (0.011) | (0.005) |
| HH head - female (interaction) | 0.022 | 0.007 | 0.036 | 0.042 | 0.004 | 0.093 |
| | (0.115) | (0.106) | (0.096) | (0.096) | (0.194) | (0.223) |
| HH head - worked (interaction) | −0.005 | −0.016 | −0.033 | −0.003 | −0.172 | −0.101 |
| | (0.125) | (0.101) | (0.128) | (0.093) | (0.274) | (0.209) |
| HH head education - secondary (interaction) | 0.043 | 0.045 | −0.031 | 0.005 | 0.102 | 0.151 |
| | (0.120) | (0.119) | (0.094) | (0.096) | (0.210) | (0.209) |
| HH head education - university | 0.297 | 0.299 | 0.229* | 0.254* | 0.447 | 0.484 |
| | (0.198) | (0.200) | (0.139) | (0.150) | (0.315) | (0.335) |
| Assets | 0.012** | 0.012** | 0.005 | 0.005 | 0.032* | 0.032* |
| | (0.006) | (0.006) | (0.005) | (0.005) | (0.019) | (0.019) |
| Inheritance | 0.005 | 0.005 | −0.002 | −0.002 | 0.012 | 0.013* |
| | (0.004) | (0.004) | (0.004) | (0.004) | (0.008) | (0.007) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Indigenous | 0.134 | 0.147 | 0.110 | 0.122 | 0.432 | 0.487 |
| (interaction) | (0.139) | (0.140) | (0.126) | (0.120) | (0.303) | (0.348) |
| Relatives USA | 0.010 | −0.001 | 0.008 | 0.016 | −0.123 | −0.130 |
| (interaction) | (0.087) | (0.091) | (0.078) | (0.082) | (0.178) | (0.173) |
| Children | −0.031** | −0.031** | −0.033*** | −0.033*** | −0.014 | −0.012 |
| | (0.012) | (0.012) | (0.012) | (0.012) | (0.028) | (0.029) |
| Adults | −0.046*** | −0.046*** | −0.036*** | −0.037*** | −0.052** | −0.053** |
| | (0.012) | (0.012) | (0.012) | (0.012) | (0.024) | (0.024) |
| Seniors | −0.060 | −0.060 | −0.069* | −0.069* | −0.039 | −0.036 |
| | (0.039) | (0.040) | (0.039) | (0.040) | (0.064) | (0.066) |
| Observations | 1,432 | 1,432 | 1,432 | 1,432 | 1,432 | 1,432 |
| $R^2$ | 0.367 | 0.369 | 0.399 | 0.401 | 0.250 | 0.252 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

## C.4 Persistence of the shock

Table C.4: Persistence of the shock

| | *Dependent variable:* | | |
|---|---|---|---|
| | Total consumption | Food consumption | Non-Food consumption |
| | (1) | (2) | (3) |
| Death 1 year | −0.087 | −0.156 | 0.129 |
| | (0.139) | (0.148) | (0.271) |
| Death 2 years | −0.024 | −0.084 | 0.090 |
| | (0.115) | (0.115) | (0.184) |
| Death 3 years | −0.117 | −0.133 | −0.020 |
| | (0.122) | (0.124) | (0.265) |
| Death 4 years | 0.058 | 0.021 | 0.247 |
| | (0.119) | (0.122) | (0.279) |
| Death 5 years | −0.159 | −0.235 | 0.075 |
| | (0.147) | (0.156) | (0.300) |
| Death 6 years | −0.293 | −0.268 | −0.269 |
| | (0.306) | (0.231) | (0.442) |
| Death 7 years | 0.118 | 0.078 | 0.082 |
| | (0.130) | (0.132) | (0.210) |
| Disease | 0.061** | 0.050* | 0.117** |
| | (0.027) | (0.026) | (0.056) |
| Unemployment | −0.056 | −0.056 | −0.040 |
| | (0.037) | (0.035) | (0.069) |
| Natural disaster | −0.055 | −0.033 | −0.035 |
| | (0.110) | (0.116) | (0.167) |
| Crop loss | 0.022 | −0.013 | 0.096 |
| | (0.076) | (0.079) | (0.111) |
| Production animals | 0.035 | −0.006 | 0.020 |
| | (0.095) | (0.091) | (0.178) |
| Time | 0.036*** | 0.014 | 0.110*** |
| | (0.013) | (0.012) | (0.028) |
| HH head - age | 0.001 | 0.001 | −0.001 |
| (interaction) | (0.002) | (0.002) | (0.005) |
| HH head - female | −0.018 | 0.004 | −0.136 |
| (interaction) | (0.064) | (0.065) | (0.141) |
| HH head - worked | 0.056 | 0.056 | 0.061 |
| (interaction) | (0.067) | (0.068) | (0.169) |
| HH head education - secondary | 0.077 | 0.059 | 0.164 |
| (interaction) | (0.083) | (0.078) | (0.161) |
| HH head education - university | 0.149 | 0.104 | 0.244 |
| (interaction) | (0.133) | (0.112) | (0.201) |
| Assets | 0.015*** | 0.010** | 0.035*** |
| | (0.004) | (0.004) | (0.012) |
| Inheritance | 0.009 | 0.002 | 0.014* |
| | (0.005) | (0.005) | (0.008) |
| Indigenous | 0.002 | 0.020 | 0.048 |
| (interaction) | (0.071) | (0.071) | (0.196) |
| Relatives USA | −0.006 | −0.003 | −0.152 |
| (interaction) | (0.059) | (0.054) | (0.153) |

| | | | |
|---|---|---|---|
| Children | $-0.032^{***}$ | $-0.033^{***}$ | $-0.024$ |
| | (0.009) | (0.008) | (0.018) |
| Adult | $-0.032^{***}$ | $-0.031^{***}$ | $-0.009$ |
| | (0.009) | (0.008) | (0.020) |
| Old | $-0.077^{***}$ | $-0.075^{***}$ | $-0.083^{*}$ |
| | (0.024) | (0.024) | (0.045) |
| Observations | 2,866 | 2,866 | 2,866 |
| $R^2$ | 0.377 | 0.397 | 0.240 |
| *Note:* | | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

## C.5 Robustness check - Modelling in real terms

Table C.5: Robustness check - Modelling in real terms

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | −0.001 | | 0.064 | | 0.318 | |
| | (0.193) | | (0.198) | | (0.460) | |
| Death spouse | | −0.017 | | −0.051 | | 0.022 |
| | | (0.117) | | (0.116) | | (0.274) |
| Death children | | 0.030 | | 0.002 | | 0.131 |
| | | (0.117) | | (0.100) | | (0.261) |
| Death parents | | −0.043 | | −0.100 | | 0.035 |
| | | (0.101) | | (0.097) | | (0.233) |
| Death other | | −0.002 | | −0.027 | | 0.093 |
| | | (0.110) | | (0.098) | | (0.223) |
| Death parents i.l. | | −0.089 | | −0.156 | | 0.150 |
| | | (0.113) | | (0.116) | | (0.246) |
| Death sibling | | −0.068 | | −0.177 | | 0.160 |
| | | (0.156) | | (0.162) | | (0.226) |
| Death sibling i.l. | | 0.076 | | 0.039 | | 0.114 |
| | | (0.113) | | (0.113) | | (0.342) |
| Death head | | 0.059 | | −0.009 | | 0.315 |
| | | (0.150) | | (0.123) | | (0.312) |
| Disease | 0.061** | 0.062** | 0.051* | 0.053** | 0.118** | 0.117** |
| | (0.027) | (0.027) | (0.026) | (0.026) | (0.055) | (0.056) |
| Unemployment | −0.054 | −0.056 | −0.053 | −0.056 | −0.038 | −0.040 |
| | (0.037) | (0.037) | (0.035) | (0.035) | (0.069) | (0.069) |
| Natural disaster | −0.061 | −0.058 | −0.040 | −0.036 | −0.028 | −0.037 |
| | (0.118) | (0.113) | (0.128) | (0.117) | (0.169) | (0.169) |
| Crop loss | 0.023 | 0.025 | −0.017 | −0.011 | 0.098 | 0.096 |
| | (0.078) | (0.077) | (0.080) | (0.079) | (0.112) | (0.112) |
| Production animals | 0.032 | 0.032 | −0.011 | −0.011 | 0.018 | 0.025 |
| | (0.095) | (0.095) | (0.091) | (0.091) | (0.179) | (0.179) |
| Time | 0.034*** | 0.035*** | 0.011 | 0.013 | 0.110*** | 0.110*** |
| | (0.013) | (0.013) | (0.012) | (0.012) | (0.027) | (0.028) |
| HH head - age | −0.00004 | 0.0002 | −0.001 | 0.001 | −0.004 | −0.001 |
| (interaction) | (0.003) | (0.002) | (0.003) | (0.001) | (0.007) | (0.004) |
| HH head - female | −0.015 | −0.024 | 0.003 | 0.003 | −0.167 | −0.143 |
| (interaction) | (0.066) | (0.066) | (0.065) | (0.068) | (0.151) | (0.156) |
| HH head - worked | 0.033 | 0.053 | −0.002 | 0.053 | −0.008 | 0.055 |
| (interaction) | (0.079) | (0.064) | (0.085) | (0.065) | (0.191) | (0.164) |
| HH head education - secondary | 0.041 | 0.051 | 0.008 | 0.042 | 0.091 | 0.139 |
| (interaction) | (0.081) | (0.081) | (0.072) | (0.072) | (0.150) | (0.160) |
| HH head education - university | 0.162 | 0.161 | 0.109 | 0.121 | 0.220 | 0.260 |
| (interaction) | (0.139) | (0.143) | (0.111) | (0.116) | (0.197) | (0.200) |
| Assets | 0.016*** | 0.016*** | 0.010** | 0.010** | 0.035*** | 0.035*** |
| (real) | (0.004) | (0.004) | (0.004) | (0.004) | (0.012) | (0.012) |
| Inheritance | 0.009* | 0.009* | 0.003 | 0.003 | 0.014* | 0.014* |

| | | | | | | |
|---|---|---|---|---|---|---|
| (real) | (0.005) | (0.005) | (0.005) | (0.005) | (0.008) | (0.008) |
| Indigenous | −0.017 | −0.022 | −0.0003 | −0.001 | 0.033 | 0.027 |
| (interaction) | (0.075) | (0.073) | (0.077) | (0.072) | (0.202) | (0.207) |
| Relatives USA | −0.003 | −0.009 | −0.013 | −0.010 | −0.128 | −0.141 |
| (interaction) | (0.059) | (0.059) | (0.056) | (0.055) | (0.149) | (0.144) |
| Children | −0.033*** | −0.033*** | −0.035*** | −0.034*** | −0.025 | −0.025 |
| | (0.009) | (0.009) | (0.008) | (0.008) | (0.018) | (0.018) |
| Adults | −0.032*** | −0.032*** | −0.031*** | −0.031*** | −0.011 | −0.012 |
| | (0.009) | (0.009) | (0.008) | (0.008) | (0.020) | (0.020) |
| Seniors | −0.079*** | −0.080*** | −0.077*** | −0.078*** | −0.088* | −0.091** |
| | (0.024) | (0.025) | (0.024) | (0.025) | (0.045) | (0.046) |
| Observations | 2,866 | 2,866 | 2,866 | 2,866 | 2,866 | 2,866 |
| $R^2$ | 0.337 | 0.339 | 0.339 | 0.343 | 0.239 | 0.240 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

## C.6 Robustness check - Multiple deaths

Table C.6: Robustness check - Multiple deaths

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | −0.0003 | | 0.082 | | 0.303 | |
| | (0.203) | | (0.204) | | (0.465) | |
| Death spouse | | −0.080 | | −0.063 | | −0.033 |
| | | (0.160) | | (0.169) | | (0.314) |
| Death children | | −0.041 | | −0.016 | | 0.072 |
| | | (0.171) | | (0.166) | | (0.330) |
| Death parents | | −0.118 | | −0.114 | | −0.027 |
| | | (0.153) | | (0.161) | | (0.295) |
| Death other | | −0.061 | | −0.034 | | 0.045 |
| | | (0.159) | | (0.158) | | (0.288) |
| Death parents i.l. | | −0.157 | | −0.166 | | 0.092 |
| | | (0.155) | | (0.154) | | (0.326) |
| Death sibling | | −0.146 | | −0.195 | | 0.094 |
| | | (0.171) | | (0.178) | | (0.303) |
| Death sibling i.l. | | 0.007 | | 0.018 | | 0.056 |
| | | (0.156) | | (0.167) | | (0.367) |
| Death head | | −0.011 | | −0.028 | | 0.261 |
| | | (0.184) | | (0.171) | | (0.369) |
| Deaths | 0.021 | 0.130 | −0.093 | 0.030 | 0.157 | 0.110 |
| | (0.150) | (0.208) | (0.164) | (0.226) | (0.181) | (0.280) |
| Disease | 0.063** | 0.064** | 0.053** | 0.054** | 0.120** | 0.119** |
| | (0.027) | (0.027) | (0.026) | (0.026) | (0.056) | (0.056) |
| Unemployment | −0.054 | −0.057 | −0.052 | −0.056 | −0.039 | −0.040 |
| | (0.037) | (0.037) | (0.035) | (0.035) | (0.069) | (0.070) |
| Natural disaster | −0.063 | −0.064 | −0.037 | −0.039 | −0.035 | −0.042 |
| | (0.114) | (0.111) | (0.118) | (0.113) | (0.167) | (0.168) |
| Crop loss | 0.024 | 0.028 | −0.017 | −0.010 | 0.100 | 0.099 |
| | (0.077) | (0.076) | (0.080) | (0.079) | (0.110) | (0.111) |
| Production animals | 0.031 | 0.032 | −0.012 | −0.011 | 0.018 | 0.024 |
| | (0.095) | (0.095) | (0.091) | (0.091) | (0.178) | (0.179) |
| Time | 0.033*** | 0.034*** | 0.012 | 0.013 | 0.109*** | 0.110*** |
| | (0.012) | (0.013) | (0.012) | (0.012) | (0.028) | (0.028) |
| HH head - age | 0.00000 | 0.001 | −0.001 | 0.001 | −0.004 | −0.0003 |
| (interaction) | (0.003) | (0.002) | (0.003) | (0.002) | (0.007) | (0.005) |
| HH head - female | −0.011 | −0.009 | −0.002 | 0.009 | −0.154 | −0.131 |
| (interaction) | (0.067) | (0.068) | (0.065) | (0.069) | (0.156) | (0.162) |
| HH head - worked | 0.034 | 0.072 | −0.002 | 0.057 | −0.009 | 0.071 |
| (interaction) | (0.080) | (0.070) | (0.084) | (0.075) | (0.194) | (0.173) |
| HH head education - secondary | 0.040 | 0.062 | 0.005 | 0.042 | 0.092 | 0.150 |
| (interaction) | (0.082) | (0.083) | (0.072) | (0.074) | (0.151) | (0.157) |
| HH head education - university | 0.157 | 0.167 | 0.101 | 0.119 | 0.219 | 0.266 |
| (interaction) | (0.138) | (0.143) | (0.112) | (0.115) | (0.194) | (0.199) |
| Assets | 0.016*** | 0.016*** | 0.010** | 0.010** | 0.035*** | 0.035*** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (0.004) | (0.004) | (0.004) | (0.004) | (0.012) | (0.012) |
| Inheritance | 0.009* | 0.009* | 0.002 | 0.002 | 0.014* | 0.014* |
| | (0.005) | (0.005) | (0.005) | (0.005) | (0.008) | (0.008) |
| Indigenous | −0.019 | −0.023 | 0.001 | −0.001 | 0.027 | 0.027 |
| (interaction) | (0.074) | (0.072) | (0.073) | (0.071) | (0.204) | (0.209) |
| Relatives USA | −0.007 | −0.014 | −0.010 | −0.013 | −0.141 | −0.147 |
| (interaction) | (0.060) | (0.059) | (0.055) | (0.055) | (0.153) | (0.146) |
| Children | −0.033*** | −0.032*** | −0.034*** | −0.034*** | −0.024 | −0.024 |
| | (0.009) | (0.009) | (0.008) | (0.008) | (0.018) | (0.018) |
| Adults | −0.032*** | −0.031*** | −0.031*** | −0.031*** | −0.010 | −0.011 |
| | (0.009) | (0.009) | (0.008) | (0.008) | (0.020) | (0.020) |
| Seniors | −0.079*** | −0.080*** | −0.077*** | −0.078*** | −0.088* | −0.091* |
| | (0.024) | (0.025) | (0.024) | (0.025) | (0.046) | (0.046) |
| Observations | 2,866 | 2,866 | 2,866 | 2,866 | 2,866 | 2,866 |
| $R^2$ | 0.371 | 0.373 | 0.390 | 0.393 | 0.238 | 0.239 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

## C.7 Robustness check - Alternative classification of deaths

Table C.7: Robustness check - Alternative classification of deaths

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | 0.003 | | 0.067 | | 0.328 | |
| | (0.194) | | (0.199) | | (0.465) | |
| Death child | | 0.018 | | 0.070 | | −0.077 |
| | | (0.216) | | (0.164) | | (0.369) |
| Death adult | | 0.026 | | −0.025 | | 0.170 |
| | | (0.067) | | (0.063) | | (0.122) |
| Death senior | | −0.015 | | −0.075 | | 0.072 |
| | | (0.094) | | (0.102) | | (0.146) |
| Disease | 0.063** | 0.064** | 0.053** | 0.054** | 0.121** | 0.120** |
| | (0.027) | (0.027) | (0.026) | (0.026) | (0.056) | (0.056) |
| Unemployment | −0.054 | −0.055 | −0.053 | −0.054 | −0.038 | −0.039 |
| | (0.037) | (0.037) | (0.035) | (0.035) | (0.069) | (0.069) |
| Natural disaster | −0.062 | −0.060 | −0.041 | −0.038 | −0.028 | −0.034 |
| | (0.116) | (0.114) | (0.125) | (0.122) | (0.167) | (0.167) |
| Crop loss | 0.023 | 0.023 | −0.017 | −0.016 | 0.099 | 0.101 |
| | (0.077) | (0.077) | (0.079) | (0.080) | (0.111) | (0.111) |
| Production animals | 0.031 | 0.030 | −0.011 | −0.012 | 0.016 | 0.015 |
| | (0.095) | (0.095) | (0.091) | (0.090) | (0.178) | (0.179) |
| Time | 0.034*** | 0.034*** | 0.011 | 0.012 | 0.110*** | 0.110*** |
| | (0.012) | (0.012) | (0.012) | (0.012) | (0.028) | (0.028) |
| HH head - age | −0.00003 | 0.0001 | −0.001 | 0.001 | −0.004 | −0.001 |
| (interaction) | (0.003) | (0.002) | (0.003) | (0.002) | (0.007) | (0.004) |
| HH head - female | −0.012 | −0.020 | 0.005 | 0.004 | −0.166 | −0.156 |
| (interaction) | (0.066) | (0.064) | (0.065) | (0.062) | (0.152) | (0.153) |
| HH head - worked | 0.034 | 0.026 | −0.001 | 0.021 | −0.010 | 0.029 |
| (interaction) | (0.080) | (0.062) | (0.085) | (0.061) | (0.194) | (0.156) |
| HH head education - secondary | 0.039 | 0.033 | 0.006 | 0.016 | 0.089 | 0.129 |
| (interaction) | (0.082) | (0.077) | (0.072) | (0.069) | (0.151) | (0.151) |
| HH head education - university | 0.157 | 0.152 | 0.103 | 0.107 | 0.216 | 0.231 |
| (interaction) | (0.139) | (0.137) | (0.110) | (0.112) | (0.198) | (0.199) |
| Assets | 0.016*** | 0.016*** | 0.010** | 0.010** | 0.035*** | 0.035*** |
| | (0.004) | (0.004) | (0.004) | (0.004) | (0.012) | (0.012) |
| Inheritance | 0.009* | 0.009* | 0.002 | 0.003 | 0.014* | 0.013* |
| | (0.005) | (0.005) | (0.005) | (0.005) | (0.008) | (0.008) |
| Indigenous | −0.018 | −0.021 | −0.001 | −0.005 | 0.032 | 0.042 |
| (interaction) | (0.075) | (0.071) | (0.076) | (0.072) | (0.204) | (0.208) |
| Relatives USA | −0.005 | −0.008 | −0.016 | −0.015 | −0.131 | −0.123 |
| | (0.060) | (0.059) | (0.056) | (0.054) | (0.151) | (0.150) |
| Children | −0.033*** | −0.033*** | −0.035*** | −0.034*** | −0.024 | −0.025 |
| | (0.009) | (0.009) | (0.008) | (0.008) | (0.018) | (0.018) |
| Adults | −0.032*** | −0.032*** | −0.030*** | −0.031*** | −0.011 | −0.010 |
| | (0.009) | (0.009) | (0.008) | (0.008) | (0.020) | (0.020) |
| Seniors | −0.079*** | −0.081*** | −0.077*** | −0.080*** | −0.089* | −0.092** |
| | (0.024) | (0.025) | (0.024) | (0.025) | (0.046) | (0.046) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Observations | 2,866 | 2,866 | 2,866 | 2,866 | 2,866 | 2,866 |
| $R^2$ | 0.371 | 0.371 | 0.390 | 0.391 | 0.238 | 0.239 |
| *Note:* | | | | | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

## C.8 Robustness check - Below-median income households

Table C.8: Households with below median income

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | −0.020 | | −0.014 | | 0.042 | |
| | (0.243) | | (0.261) | | (0.495) | |
| Death child | | −0.121 | | −0.024 | | −0.344 |
| | | (0.233) | | (0.151) | | (0.491) |
| Death adult | | 0.025 | | −0.037 | | 0.160 |
| | | (0.076) | | (0.072) | | (0.161) |
| Death seniors | | −0.058 | | −0.093 | | −0.093 |
| | | (0.117) | | (0.138) | | (0.195) |
| Disease | 0.041 | 0.044 | 0.031 | 0.034 | 0.095 | 0.098 |
| | (0.036) | (0.037) | (0.037) | (0.037) | (0.084) | (0.085) |
| Unemployment | −0.050 | −0.050 | −0.051 | −0.052 | 0.005 | 0.005 |
| | (0.056) | (0.056) | (0.052) | (0.052) | (0.120) | (0.120) |
| Natural disaster | −0.060 | −0.054 | −0.052 | −0.045 | 0.013 | 0.026 |
| | (0.120) | (0.116) | (0.146) | (0.140) | (0.181) | (0.185) |
| Crop loss | −0.117 | −0.120 | −0.125 | −0.127 | −0.099 | −0.108 |
| | (0.092) | (0.093) | (0.103) | (0.104) | (0.135) | (0.140) |
| Production animals | −0.059 | −0.063 | −0.031 | −0.033 | −0.220 | −0.233 |
| | (0.071) | (0.072) | (0.115) | (0.115) | (0.150) | (0.154) |
| Time | 0.030* | 0.030* | 0.011 | 0.012 | 0.113*** | 0.113*** |
| | (0.018) | (0.018) | (0.018) | (0.018) | (0.039) | (0.040) |
| HH head - age (interaction) | 0.001 | 0.001 | 0.001 | 0.002 | 0.002 | 0.002 |
| | (0.003) | (0.002) | (0.004) | (0.002) | (0.008) | (0.005) |
| HH head - female (interaction) | −0.075 | −0.092 | −0.050 | −0.065 | −0.406* | −0.444* |
| | (0.080) | (0.081) | (0.094) | (0.091) | (0.229) | (0.240) |
| HH head - worked (interaction) | 0.079 | 0.072 | 0.040 | 0.051 | 0.183 | 0.165 |
| | (0.103) | (0.076) | (0.110) | (0.081) | (0.258) | (0.227) |
| HH head education - secondary (interaction) | 0.038 | 0.015 | 0.056 | 0.042 | 0.052 | −0.001 |
| | (0.111) | (0.108) | (0.109) | (0.104) | (0.251) | (0.254) |
| HH head education - university (interaction) | −0.075 | −0.102 | −0.111 | −0.146 | −0.148 | −0.185 |
| | (0.156) | (0.164) | (0.147) | (0.138) | (0.233) | (0.272) |
| Assets | 0.018*** | 0.018*** | 0.014** | 0.014** | 0.039** | 0.038** |
| | (0.006) | (0.006) | (0.006) | (0.006) | (0.016) | (0.016) |
| Inheritance | 0.034 | 0.034 | 0.025 | 0.025 | 0.035 | 0.035 |
| | (0.027) | (0.027) | (0.025) | (0.025) | (0.032) | (0.032) |
| Indigenous (interaction) | −0.095 | −0.095 | −0.060 | −0.060 | −0.184 | −0.185 |
| | (0.084) | (0.082) | (0.090) | (0.088) | (0.257) | (0.252) |
| Relatives USA | −0.016 | −0.007 | −0.037 | −0.035 | −0.127 | −0.101 |
| | (0.083) | (0.082) | (0.080) | (0.079) | (0.247) | (0.249) |
| Children | −0.033** | −0.033*** | −0.035*** | −0.035*** | −0.029 | −0.030 |
| | (0.013) | (0.013) | (0.011) | (0.011) | (0.023) | (0.023) |
| Adults | −0.022* | −0.022* | −0.026** | −0.026** | 0.020 | 0.021 |
| | (0.012) | (0.012) | (0.011) | (0.011) | (0.029) | (0.029) |
| Seniors | −0.095*** | −0.097*** | −0.084*** | −0.087*** | −0.130** | −0.135** |
| | (0.029) | (0.029) | (0.029) | (0.030) | (0.062) | (0.062) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Observations | 1,434 | 1,434 | 1,434 | 1,434 | 1,434 | 1,434 |
| $R^2$ | 0.406 | 0.408 | 0.405 | 0.406 | 0.261 | 0.265 |

*Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01

## C.9 Robustness check - Above-median income households

Table C.9: Households with above median income

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | −0.023 | | 0.112 | | 0.467 | |
| | (0.312) | | (0.291) | | (0.781) | |
| Death child | | 0.290 | | 0.234 | | 0.296 |
| | | (0.422) | | (0.402) | | (0.566) |
| Death adult | | −0.048 | | −0.078 | | 0.047 |
| | | (0.137) | | (0.106) | | (0.235) |
| Death senior | | −0.045 | | −0.114 | | 0.102 |
| | | (0.151) | | (0.119) | | (0.271) |
| Disease | 0.083** | 0.086** | 0.075** | 0.076** | 0.136* | 0.135* |
| | (0.040) | (0.040) | (0.038) | (0.038) | (0.080) | (0.080) |
| Unemployment | −0.047 | −0.047 | −0.047 | −0.046 | −0.054 | −0.052 |
| | (0.049) | (0.049) | (0.049) | (0.049) | (0.077) | (0.078) |
| Natural disaster | −0.030 | −0.032 | 0.003 | −0.002 | −0.086 | −0.090 |
| | (0.172) | (0.172) | (0.151) | (0.150) | (0.334) | (0.335) |
| Crop loss | 0.261*** | 0.263*** | 0.171* | 0.175* | 0.429*** | 0.433*** |
| | (0.092) | (0.092) | (0.100) | (0.100) | (0.161) | (0.162) |
| Production animals | 0.058 | 0.058 | −0.041 | −0.041 | 0.173 | 0.172 |
| | (0.163) | (0.162) | (0.132) | (0.132) | (0.301) | (0.301) |
| Time | 0.037** | 0.038** | 0.012 | 0.014 | 0.107*** | 0.105*** |
| | (0.017) | (0.018) | (0.016) | (0.016) | (0.039) | (0.039) |
| HH head - age | −0.00001 | 0.001 | −0.002 | 0.001 | −0.007 | −0.002 |
| (interaction) | (0.004) | (0.003) | (0.004) | (0.002) | (0.011) | (0.005) |
| HH head - female | 0.022 | 0.030 | 0.036 | 0.055 | 0.004 | 0.077 |
| (interaction) | (0.115) | (0.105) | (0.096) | (0.090) | (0.194) | (0.185) |
| HH head - worked | −0.005 | 0.005 | −0.033 | 0.011 | −0.172 | −0.054 |
| (interaction) | (0.125) | (0.105) | (0.128) | (0.097) | (0.274) | (0.207) |
| HH head education - secondary | 0.043 | 0.023 | −0.031 | −0.012 | 0.102 | 0.143 |
| (interaction) | (0.120) | (0.106) | (0.094) | (0.087) | (0.210) | (0.203) |
| HH head education - university | 0.297 | 0.300 | 0.229* | 0.256* | 0.447 | 0.459 |
| (interaction) | (0.198) | (0.204) | (0.139) | (0.150) | (0.315) | (0.335) |
| Assets | 0.012** | 0.012** | 0.005 | 0.005 | 0.032* | 0.032* |
| | (0.006) | (0.006) | (0.005) | (0.005) | (0.019) | (0.019) |
| Inheritance | 0.005 | 0.006 | −0.002 | −0.001 | 0.012 | 0.012 |
| | (0.004) | (0.004) | (0.004) | (0.004) | (0.008) | (0.007) |
| Indigenous | 0.134 | 0.100 | 0.110 | 0.084 | 0.432 | 0.421 |
| (interaction) | (0.139) | (0.109) | (0.126) | (0.100) | (0.303) | (0.329) |
| Relatives USA | 0.010 | 0.001 | 0.008 | 0.010 | −0.123 | −0.120 |
| (interaction) | (0.087) | (0.085) | (0.078) | (0.075) | (0.178) | (0.168) |
| Children | −0.031** | −0.030** | −0.033*** | −0.032*** | −0.014 | −0.013 |
| | (0.012) | (0.012) | (0.012) | (0.012) | (0.028) | (0.028) |
| Adults | −0.046*** | −0.046*** | −0.036*** | −0.036*** | −0.052** | −0.052** |
| | (0.012) | (0.012) | (0.012) | (0.012) | (0.024) | (0.024) |
| Seniors | −0.060 | −0.060 | −0.069* | −0.068* | −0.039 | −0.033 |
| | (0.039) | (0.040) | (0.039) | (0.039) | (0.064) | (0.065) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Observations | 1,432 | 1,432 | 1,432 | 1,432 | 1,432 | 1,432 |
| $R^2$ | 0.367 | 0.369 | 0.399 | 0.401 | 0.250 | 0.250 |

*Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01

## C.10 Robustness check - Controling for the evolution of income and inheritance

Table C.10: Robustness check - Income (Broad)

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | 0.030 | | 0.022 | | 0.733 | |
| | (0.214) | | (0.212) | | (0.628) | |
| Death spouse | | 0.044 | | −0.045 | | 0.172 |
| | | (0.128) | | (0.135) | | (0.411) |
| Death children | | 0.038 | | −0.044 | | 0.315 |
| | | (0.136) | | (0.113) | | (0.358) |
| Death parents | | −0.028 | | −0.127 | | 0.169 |
| | | (0.114) | | (0.108) | | (0.319) |
| Death other | | 0.028 | | −0.042 | | 0.227 |
| | | (0.137) | | (0.124) | | (0.345) |
| Death parents i.l. | | −0.054 | | −0.114 | | 0.165 |
| | | (0.124) | | (0.120) | | (0.356) |
| Death sibbling | | 0.017 | | −0.099 | | 0.229 |
| | | (0.126) | | (0.112) | | (0.324) |
| Death sibbling i.l. | | 0.045 | | 0.076 | | −0.049 |
| | | (0.178) | | (0.147) | | (0.608) |
| Death head | | 0.059 | | −0.029 | | 0.426 |
| | | (0.153) | | (0.130) | | (0.395) |
| Disease | 0.083** | 0.083** | 0.074** | 0.075** | 0.144** | 0.144** |
| | (0.032) | (0.033) | (0.033) | (0.033) | (0.068) | (0.068) |
| Unemployment | −0.051 | −0.053 | −0.056 | −0.058 | −0.025 | −0.027 |
| | (0.050) | (0.050) | (0.049) | (0.049) | (0.083) | (0.084) |
| Natural disaster | 0.021 | 0.019 | 0.053 | 0.049 | 0.004 | −0.013 |
| | (0.097) | (0.098) | (0.096) | (0.096) | (0.167) | (0.169) |
| Crop loss | 0.040 | 0.039 | 0.002 | 0.002 | 0.095 | 0.101 |
| | (0.085) | (0.085) | (0.090) | (0.090) | (0.122) | (0.122) |
| Production animals | 0.014 | 0.014 | −0.024 | −0.024 | 0.023 | 0.023 |
| | (0.145) | (0.146) | (0.138) | (0.139) | (0.229) | (0.230) |
| Time | 0.037** | 0.038** | 0.012 | 0.014 | 0.101*** | 0.103*** |
| | (0.015) | (0.015) | (0.015) | (0.015) | (0.034) | (0.034) |
| HH head - age | 0.0003 | 0.0002 | 0.0001 | 0.001 | −0.008 | −0.001 |
| (interaction) | (0.003) | (0.002) | (0.003) | (0.002) | (0.009) | (0.005) |
| HH head - female | −0.056 | −0.055 | −0.026 | −0.012 | −0.281 | −0.230 |
| (interaction) | (0.085) | (0.081) | (0.085) | (0.083) | (0.223) | (0.219) |
| HH head - worked | 0.028 | 0.046 | 0.015 | 0.060 | −0.119 | 0.020 |
| (interaction) | (0.092) | (0.080) | (0.094) | (0.083) | (0.262) | (0.235) |
| HH head education - secondary | 0.060 | 0.071 | 0.032 | 0.057 | 0.095 | 0.203 |
| (interaction) | (0.089) | (0.096) | (0.082) | (0.088) | (0.180) | (0.216) |
| HH head education - university | 0.184 | 0.205 | 0.122 | 0.157 | 0.241 | 0.303 |
| (interaction) | (0.156) | (0.161) | (0.139) | (0.140) | (0.232) | (0.240) |
| Assets | 0.017*** | 0.017*** | 0.010* | 0.010* | 0.043** | 0.043** |
| | (0.005) | (0.005) | (0.006) | (0.006) | (0.017) | (0.017) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Income | 0.002 | 0.002 | 0.002 | 0.002 | 0.009 | 0.009 |
| (broad) | (0.002) | (0.002) | (0.002) | (0.002) | (0.006) | (0.006) |
| Indigenous | −0.0003 | −0.005 | 0.027 | 0.024 | −0.011 | −0.007 |
| (interaction) | (0.079) | (0.078) | (0.073) | (0.072) | (0.259) | (0.263) |
| Relatives USA | −0.017 | −0.021 | −0.016 | −0.016 | −0.232 | −0.232 |
| (interaction) | (0.074) | (0.073) | (0.072) | (0.071) | (0.222) | (0.219) |
| Children | −0.026** | −0.026** | −0.033*** | −0.032*** | −0.016 | −0.016 |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.020) | (0.020) |
| Adults | −0.034*** | −0.033*** | −0.029*** | −0.029*** | −0.028 | −0.028 |
| | (0.010) | (0.011) | (0.010) | (0.010) | (0.022) | (0.022) |
| Seniors | −0.072** | −0.074** | −0.068** | −0.069** | −0.087 | −0.089 |
| | (0.030) | (0.030) | (0.030) | (0.031) | (0.054) | (0.054) |
| Observations | 2,120 | 2,120 | 2,120 | 2,120 | 2,120 | 2,120 |
| $R^2$ | 0.379 | 0.380 | 0.392 | 0.395 | 0.270 | 0.269 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Table C.11: Robustness check - Income (Narrow)

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | 0.027 | | 0.023 | | 0.729 | |
| | (0.215) | | (0.212) | | (0.630) | |
| Death spouse | | 0.039 | | −0.043 | | 0.163 |
| | | (0.129) | | (0.135) | | (0.413) |
| Death children | | 0.037 | | −0.044 | | 0.313 |
| | | (0.136) | | (0.113) | | (0.358) |
| Death parents | | −0.029 | | −0.126 | | 0.166 |
| | | (0.115) | | (0.108) | | (0.319) |
| Death other | | 0.027 | | −0.041 | | 0.225 |
| | | (0.138) | | (0.124) | | (0.345) |
| Death parents i.l. | | −0.055 | | −0.113 | | 0.163 |
| | | (0.124) | | (0.120) | | (0.356) |
| Death sibling | | 0.016 | | −0.099 | | 0.228 |
| | | (0.126) | | (0.112) | | (0.325) |
| Death sibling i.l. | | 0.050 | | 0.073 | | −0.040 |
| | | (0.179) | | (0.146) | | (0.609) |
| Death head | | 0.057 | | −0.028 | | 0.422 |
| | | (0.154) | | (0.130) | | (0.396) |
| Disease | 0.081** | 0.082** | 0.075** | 0.076** | 0.142** | 0.142** |
| | (0.033) | (0.033) | (0.033) | (0.033) | (0.068) | (0.069) |
| Unemployment | −0.052 | −0.054 | −0.055 | −0.058 | −0.027 | −0.029 |
| | (0.050) | (0.050) | (0.049) | (0.049) | (0.082) | (0.083) |
| Natural disaster | 0.021 | 0.019 | 0.053 | 0.049 | 0.004 | −0.012 |
| | (0.098) | (0.098) | (0.096) | (0.096) | (0.168) | (0.169) |
| Crop loss | 0.038 | 0.037 | 0.003 | 0.003 | 0.093 | 0.099 |
| | (0.085) | (0.085) | (0.090) | (0.090) | (0.122) | (0.122) |
| Production animals | 0.026 | 0.026 | −0.030 | −0.030 | 0.041 | 0.043 |
| | (0.138) | (0.138) | (0.140) | (0.140) | (0.234) | (0.234) |
| Time | 0.036** | 0.037** | 0.013 | 0.014 | 0.100*** | 0.101*** |
| | (0.015) | (0.015) | (0.015) | (0.015) | (0.034) | (0.035) |
| HH head - age | 0.0003 | 0.0003 | 0.0001 | 0.001 | −0.008 | −0.001 |
| (interaction) | (0.003) | (0.002) | (0.003) | (0.002) | (0.009) | (0.005) |
| HH head - female | −0.054 | −0.052 | −0.027 | −0.014 | −0.277 | −0.225 |
| (interaction) | (0.086) | (0.081) | (0.085) | (0.083) | (0.224) | (0.220) |
| HH head - worked | 0.030 | 0.047 | 0.015 | 0.059 | −0.116 | 0.022 |
| (interaction) | (0.092) | (0.080) | (0.094) | (0.082) | (0.262) | (0.235) |
| HH head education - secondary | 0.059 | 0.069 | 0.032 | 0.058 | 0.093 | 0.199 |
| (interaction) | (0.090) | (0.097) | (0.081) | (0.088) | (0.181) | (0.218) |
| HH head education - university | 0.184 | 0.204 | 0.122 | 0.157 | 0.241 | 0.302 |
| (interaction) | (0.156) | (0.161) | (0.139) | (0.141) | (0.232) | (0.240) |
| Assets | 0.017*** | 0.017*** | 0.010* | 0.010* | 0.044*** | 0.044*** |
| | (0.005) | (0.005) | (0.006) | (0.006) | (0.017) | (0.017) |
| Inheritance | 0.004 | 0.004 | −0.002 | −0.002 | 0.006 | 0.007 |
| | (0.004) | (0.004) | (0.004) | (0.004) | (0.008) | (0.008) |
| Income | 0.002 | 0.002 | 0.002 | 0.002 | 0.009 | 0.008 |

| | | | | | | |
|---|---|---|---|---|---|---|
| (narrow) | (0.002) | (0.002) | (0.002) | (0.002) | (0.006) | (0.006) |
| Indigenous | −0.003 | −0.007 | 0.028 | 0.026 | −0.015 | −0.011 |
| (interaction) | (0.080) | (0.079) | (0.072) | (0.072) | (0.260) | (0.264) |
| Relatives USA | −0.020 | −0.024 | −0.015 | −0.014 | −0.236 | −0.237 |
| (interaction) | (0.074) | (0.073) | (0.072) | (0.071) | (0.221) | (0.219) |
| Children | −0.026** | −0.026** | −0.033*** | −0.032*** | −0.016 | −0.016 |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.020) | (0.020) |
| Adults | −0.034*** | −0.033*** | −0.029*** | −0.029*** | −0.028 | −0.028 |
| | (0.010) | (0.010) | (0.010) | (0.010) | (0.022) | (0.022) |
| Seniors | −0.072** | −0.074** | −0.068** | −0.069** | −0.087 | −0.088 |
| | (0.030) | (0.030) | (0.030) | (0.031) | (0.054) | (0.054) |
| Observations | 2,120 | 2,120 | 2,120 | 2,120 | 2,120 | 2,120 |
| $R^2$ | 0.380 | 0.381 | 0.393 | 0.395 | 0.270 | 0.269 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

Table C.12: Robustness check - Real Income (Broad)

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | 0.023 | | 0.014 | | 0.718 | |
| | (0.214) | | (0.212) | | (0.620) | |
| Death spouse | | 0.043 | | −0.046 | | 0.171 |
| | | (0.128) | | (0.135) | | (0.405) |
| Death children | | 0.040 | | −0.043 | | 0.314 |
| | | (0.134) | | (0.113) | | (0.353) |
| Death parents | | −0.033 | | −0.132 | | 0.163 |
| | | (0.114) | | (0.108) | | (0.315) |
| Death other | | 0.021 | | −0.050 | | 0.216 |
| | | (0.137) | | (0.124) | | (0.341) |
| Death parents i.l. | | −0.057 | | −0.117 | | 0.161 |
| | | (0.125) | | (0.121) | | (0.354) |
| Death sibling | | 0.016 | | −0.100 | | 0.229 |
| | | (0.124) | | (0.113) | | (0.320) |
| Death sibling i.l. | | 0.041 | | 0.072 | | −0.051 |
| | | (0.179) | | (0.147) | | (0.608) |
| Death head | | 0.062 | | −0.026 | | 0.421 |
| | | (0.154) | | (0.130) | | (0.390) |
| Disease | 0.080** | 0.081** | 0.071** | 0.072** | 0.141** | 0.141** |
| | (0.032) | (0.033) | (0.033) | (0.033) | (0.068) | (0.068) |
| Unemployment | −0.051 | −0.053 | −0.056 | −0.058 | −0.025 | −0.027 |
| | (0.050) | (0.050) | (0.048) | (0.049) | (0.083) | (0.083) |
| Datural disaster | 0.024 | 0.022 | 0.056 | 0.052 | 0.006 | −0.011 |
| | (0.101) | (0.102) | (0.101) | (0.100) | (0.169) | (0.171) |
| Crop loss | 0.039 | 0.039 | 0.001 | 0.002 | 0.095 | 0.101 |
| | (0.086) | (0.087) | (0.091) | (0.091) | (0.122) | (0.122) |
| Production animals | 0.016 | 0.016 | −0.023 | −0.023 | 0.025 | 0.025 |
| | (0.145) | (0.146) | (0.138) | (0.139) | (0.229) | (0.230) |
| Time | 0.037** | 0.038** | 0.013 | 0.014 | 0.102*** | 0.103*** |
| | (0.015) | (0.015) | (0.015) | (0.015) | (0.034) | (0.034) |
| HH head - age | 0.0003 | 0.0002 | 0.0002 | 0.001 | −0.007 | −0.001 |
| (interaction) | (0.003) | (0.002) | (0.003) | (0.002) | (0.009) | (0.005) |
| HH head - female | −0.058 | −0.057 | −0.028 | −0.015 | −0.280 | −0.230 |
| (interaction) | (0.085) | (0.080) | (0.085) | (0.083) | (0.220) | (0.216) |
| HH head - worked | 0.030 | 0.049 | 0.017 | 0.062 | −0.113 | 0.023 |
| (interaction) | (0.092) | (0.080) | (0.094) | (0.082) | (0.259) | (0.232) |
| HH head education - secondary | 0.061 | 0.072 | 0.032 | 0.058 | 0.094 | 0.201 |
| (interaction) | (0.088) | (0.096) | (0.081) | (0.088) | (0.179) | (0.214) |
| HH head education - university | 0.190 | 0.211 | 0.128 | 0.163 | 0.246 | 0.306 |
| (interaction) | (0.156) | (0.161) | (0.140) | (0.142) | (0.231) | (0.239) |
| Assets | 0.017*** | 0.017*** | 0.011* | 0.010* | 0.044*** | 0.043*** |
| (real) | (0.005) | (0.005) | (0.006) | (0.006) | (0.017) | (0.017) |
| Income | 0.002 | 0.002 | 0.002 | 0.002 | 0.009 | 0.009 |
| (real - broad) | (0.002) | (0.002) | (0.002) | (0.002) | (0.006) | (0.006) |
| Indigenous | 0.002 | −0.004 | 0.029 | 0.025 | −0.009 | −0.006 |

| | | | | | | |
|---|---|---|---|---|---|---|
| (interaction) | (0.079) | (0.079) | (0.073) | (0.073) | (0.256) | (0.260) |
| Relatives USA | −0.013 | −0.018 | −0.012 | −0.013 | −0.227 | −0.227 |
| (interaction) | (0.074) | (0.072) | (0.072) | (0.072) | (0.218) | (0.215) |
| Children | −0.027** | −0.026** | −0.033*** | −0.033*** | −0.016 | −0.016 |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.020) | (0.020) |
| Adults | −0.034*** | −0.034*** | −0.030*** | −0.030*** | −0.029 | −0.029 |
| | (0.011) | (0.011) | (0.010) | (0.010) | (0.021) | (0.022) |
| Seniors | −0.072** | −0.074** | −0.067** | −0.069** | −0.086 | −0.088 |
| | (0.030) | (0.031) | (0.030) | (0.031) | (0.054) | (0.054) |
| Observations | 2,120 | 2,120 | 2,120 | 2,120 | 2,120 | 2,120 |
| $R^2$ | 0.345 | 0.346 | 0.340 | 0.342 | 0.272 | 0.271 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Table C.13: Robustness check - Real Income (Narrow)

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | Total consumption | | Food consumption | | Non-Food consumption | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Death | 0.016 | | 0.013 | | 0.701 | |
| | (0.215) | | (0.212) | | (0.623) | |
| Death spouse | | 0.040 | | −0.042 | | 0.171 |
| | | (0.129) | | (0.135) | | (0.404) |
| Death children | | 0.037 | | −0.043 | | 0.306 |
| | | (0.133) | | (0.113) | | (0.351) |
| Death parents | | −0.033 | | −0.131 | | 0.165 |
| | | (0.114) | | (0.109) | | (0.312) |
| Death other | | 0.019 | | −0.050 | | 0.209 |
| | | (0.138) | | (0.124) | | (0.340) |
| Death parents i.l. | | −0.060 | | −0.118 | | 0.157 |
| | | (0.124) | | (0.121) | | (0.355) |
| Death sibling | | 0.016 | | −0.099 | | 0.232 |
| | | (0.123) | | (0.112) | | (0.313) |
| Death sibling i.l. | | 0.050 | | 0.073 | | −0.033 |
| | | (0.184) | | (0.150) | | (0.613) |
| Death head | | 0.065 | | −0.022 | | 0.431 |
| | | (0.155) | | (0.131) | | (0.387) |
| Disease | 0.079** | 0.080** | 0.072** | 0.074** | 0.141** | 0.140** |
| | (0.033) | (0.033) | (0.033) | (0.033) | (0.068) | (0.069) |
| Unemployment | −0.053 | −0.055 | −0.056 | −0.059 | −0.031 | −0.032 |
| | (0.050) | (0.050) | (0.048) | (0.049) | (0.082) | (0.083) |
| Natural disaster | 0.025 | 0.023 | 0.057 | 0.053 | 0.010 | −0.005 |
| | (0.101) | (0.101) | (0.100) | (0.100) | (0.167) | (0.169) |
| Crop loss | 0.038 | 0.037 | 0.003 | 0.003 | 0.097 | 0.103 |
| | (0.086) | (0.086) | (0.091) | (0.092) | (0.122) | (0.122) |
| Production animals | 0.028 | 0.028 | −0.028 | −0.029 | 0.043 | 0.044 |
| | (0.138) | (0.138) | (0.140) | (0.140) | (0.234) | (0.235) |
| Time | 0.046* | 0.047* | 0.022 | 0.023 | 0.159** | 0.159** |
| | (0.026) | (0.026) | (0.024) | (0.024) | (0.076) | (0.076) |
| HH head - age | 0.0004 | 0.0002 | 0.0002 | 0.001 | −0.007 | −0.001 |
| (interaction) | (0.003) | (0.002) | (0.003) | (0.002) | (0.009) | (0.005) |
| HH head - female | −0.055 | −0.055 | −0.028 | −0.017 | −0.273 | −0.226 |
| (interaction) | (0.086) | (0.081) | (0.085) | (0.083) | (0.220) | (0.217) |
| HH head - worked | 0.034 | 0.051 | 0.019 | 0.063 | −0.103 | 0.030 |
| (interaction) | (0.092) | (0.080) | (0.094) | (0.082) | (0.258) | (0.232) |
| HH head education - secondary | 0.060 | 0.070 | 0.034 | 0.059 | 0.094 | 0.197 |
| | (0.090) | (0.097) | (0.081) | (0.088) | (0.181) | (0.215) |
| HH head education - university | 0.193 | 0.213 | 0.130 | 0.165 | 0.257 | 0.316 |
| (interaction) | (0.158) | (0.162) | (0.143) | (0.144) | (0.236) | (0.241) |
| Assets | 0.017*** | 0.017*** | 0.011* | 0.010* | 0.044*** | 0.043*** |
| (real) | (0.005) | (0.006) | (0.006) | (0.006) | (0.017) | (0.017) |
| Income | 0.001 | 0.001 | 0.001 | 0.001 | 0.007 | 0.007 |
| (real - narrow) | (0.002) | (0.002) | (0.002) | (0.002) | (0.007) | (0.007) |
| Inheritance | 0.004 | 0.004 | −0.001 | −0.002 | 0.007 | 0.007 |

| | | | | | | |
|---|---|---|---|---|---|---|
| (real) | (0.004) | (0.004) | (0.004) | (0.004) | (0.008) | (0.008) |
| Indigenous | −0.003 | −0.009 | 0.028 | 0.024 | −0.021 | −0.019 |
| (indigenous) | (0.080) | (0.080) | (0.073) | (0.073) | (0.254) | (0.258) |
| Relatives USA | −0.017 | −0.022 | −0.011 | −0.012 | −0.232 | −0.234 |
| (interaction) | (0.074) | (0.073) | (0.072) | (0.072) | (0.218) | (0.215) |
| Children | −0.026** | −0.026** | −0.033*** | −0.032*** | −0.016 | −0.016 |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.020) | (0.020) |
| Adults | −0.033*** | −0.033*** | −0.029*** | −0.029*** | −0.027 | −0.027 |
| | (0.010) | (0.011) | (0.010) | (0.010) | (0.021) | (0.021) |
| Seniors | −0.071** | −0.073** | −0.067** | −0.068** | −0.081 | −0.084 |
| | (0.030) | (0.031) | (0.030) | (0.031) | (0.054) | (0.054) |
| Observations | 2,120 | 2,120 | 2,120 | 2,120 | 2,120 | 2,120 |
| $R^2$ | 0.345 | 0.346 | 0.339 | 0.342 | 0.270 | 0.270 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

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