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Consumption during the Great Recession in Italy

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E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

CONSUMPTION DURING THE GREAT RECESSION IN ITALY

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Abstract

We use Italian micro data to investigate how consumers reacted to the Great Recession. In particular, we study the age profiles of non-durable consumption, durable purchases and wealth over the 2008-2012 period for different year-of-birth cohorts, and how they departed from the way they would have been had consumer behavior been the same as it was over the 1995-2006 period. We find that consumption dropped most for younger households - only part of these drops can be explained by the increase in unemployment. We also investigate whether the crisis had an impact on the way consumers allocate their spending among broad consumption bundles. We find that the budget elasticity of the demand for food changed during the recession period, particularly among the young

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Introduction

Many European countries are going through a long and deep recession, that started with the financial crisis brought about by the collapse of Lehman Brothers (September 2008), but gained strength and momentum during 2011 – when the sovereign debt sustainability of some Euro area countries came under close scrutiny in international financial markets. Southern European countries in particular (as well as Ireland) were forced to implement tight fiscal policies to cut budget deficits and restore market confidence.

In this paper we use Italian micro data to investigate how consumers reacted to the crisis in one of the countries worst affected by the recession. In particular, we study the age profiles of non-durable consumption, durable purchases and wealth over the period 2008-2012 for different cohorts, and how they departed from the way they would have been had consumer behavior been the same as it was over the 1995-2006 period. We also investigate whether the crisis had an impact on the way consumers allocate their spending among broad consumption bundles. We find that the income elasticity of the demand for food changed during the recession period, particularly among younger generations, which are those that we find were worst hit by the crisis.

The analysis of household-level data allows us to address the issue of whether, to what extent and for how long public social transfers and other safety-net benefits, as well as informal insurance arrangements, have been able to mitigate the negative consequences of the Great Recession. Of particular interest in the Italian context (characterized by high savings and strong family ties, but limited formal unemployment insurance) is to understand how well self-insurance (savings) and family insurance mechanisms have been working in the presence of highly persistent adverse economic conditions. The distributional consequences of the crisis have attracted attention in other contexts, too: Petev et al. (2012) argue that three distinct features characterize the recent economic crisis in the United States: it has been deep, long and has hit differently different socio-demographic groups.

A similar description of the crisis applies to the Italian case, as we shall see in the sequel. The Great Recession has been deep and long – as we shall document in the next section using aggregate data. It has also had important distributional consequences, as the analysis of micro data will reveal. The hardest hit appear to have been the young – possibly reflecting the low job security they enjoy compared to older workers. We shall produce estimates of the direct role played by unemployment in reducing consumption for different cohorts – and show that the youngest cohorts not only experienced the largest consumption drops, but also that these drops could be to some extent directly linked to job losses of their members.

The sudden drop we observe in consumption should have consequences on the allocation of individual budget shares. Typical results on Engel curves would, for instance, suggest that during recessions food budget shares should increase. We show that the aggregate food share evolves in a highly unexpected way during the recession, and consider whether this is (entirely) due to aggregation effects or is instead attributable to changes in preferences for certain groups of individuals. To this end, we estimate Engel curves for the period 2002-2013 on household-level data using detailed information from the Italian National Statistical Office (ISTAT). We find that the food budget elasticity is not constant during the recession: for younger consumers – those who

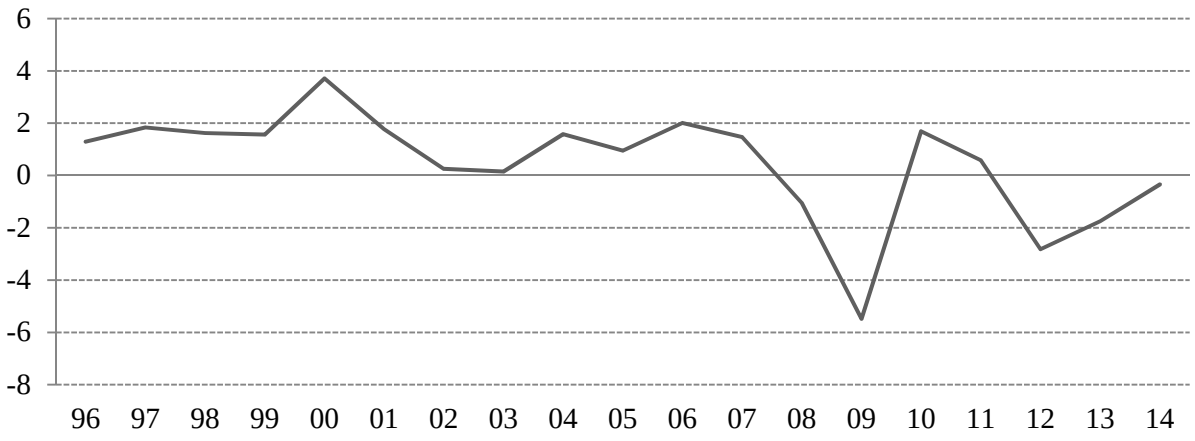
lose most during the recession - food has become less of a necessity. These findings suggest that major business cycle episodes may have unexpected consequences on preferences for food and other commodities and call for a disaggregated analysis of these effects at the individual level.

The paper is organized as follows. In section 1 we present the macro evidence on the way the Great Recession has affected Italy. In section 2 we present the micro data that we use for our cohort analysis. Section 3 explains the methodology and presents the specification that we estimate on the micro data. Section 4 presents and discusses estimation results. Section 5 provides evidence on how the Engel curves patterns have changed during the crisis, using micro level data from ISTAT. Section 6 concludes.

1. The Great Recession in Italy - the aggregate statistics.

The current recession is much more severe than all previous ones, including the 1993 episode that accompanied the currency crisis, when aggregate consumer expenditure fell by 2.5% in real terms (Miniaci and Weber, 1993). According to the Annual Report of the Bank of Italy, 2009 saw the largest GDP contraction (5%) since World War II. In fact, ISTAT estimates a 6% drop in real per capita GDP per capita (see Figure 1), but consumer expenditure at first fell much less. However, further smaller reductions in real GDP in 2011-13 led to aggregate consumer expenditure falls by 3.8% in 2012 and 2.8% in 2013, the largest annual drops since WWII.

Figure 1. Growth Rate - Real GDP per capita, Italy



Note: Growth rates are based on ISTAT data about Real Gross Domestic Product per capita (2010=100)

Table 1. Unemployment rate and real per capita consumption growth rate, Italy

	Unemployment rate			Growth rate	
	Age: 15+	Age: 15-24	Age: 25-34	Real per-capita consumer expenditure	Consumer Price Index
1996	11.2	29.9	11.5	1.0	2.02
1997	11.2	29.6	12.0	2.6	4.00
1998	11.3	29.2	12.1	2.7	1.98
1999	10.9	28.0	11.8	2.3	1.66
2000	10.0	26.2	10.7	2.5	2.55
2001	9.0	23.1	9.5	1.4	2.75
2002	8.5	22.0	8.8	0.1	2.50
2003	8.4	23.6	10.2	0.4	2.69
2004	8.0	23.5	10.4	0.2	2.21
2005	7.7	24.0	10.3	0.5	1.92
2006	6.8	21.6	9.2	0.6	2.12
2007	6.1	20.3	8.3	0.3	1.85
2008	**6.7**	**21.3**	**8.8**	**-1.3**	**3.33**
2009	**7.8**	**25.4**	**10.5**	**-1.6**	**0.81**
2010	**8.4**	**27.8**	**11.9**	**0.6**	**1.53**
2011	**8.4**	**29.1**	**11.7**	**-0.8**	**2.80**
2012	**10.7**	**35.3**	**14.9**	**-3.8**	**3.02**
2013	**12.2**	**40.0**	**17.7**	**-2.8**	**2.02**

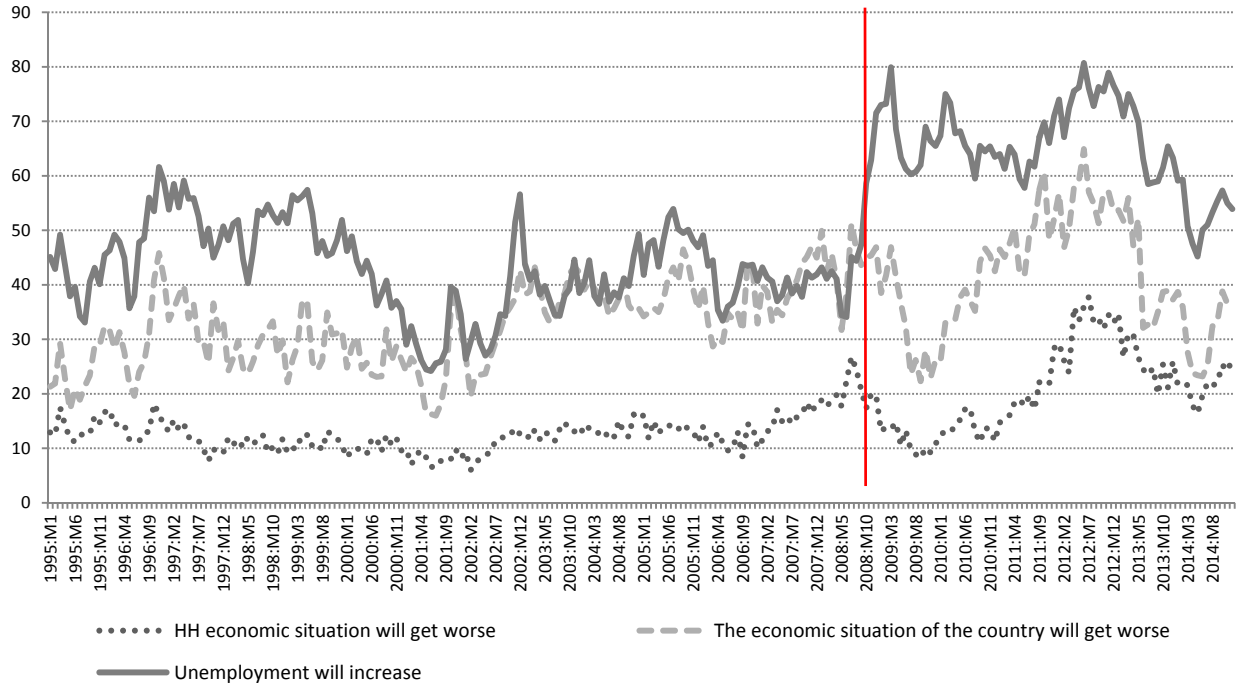
In Table 1 we report some key macroeconomic variables for the 1996-2013 period: unemployment rates, consumption growth rate and inflation. Columns 2-4 show unemployment rates for several age groups over time: all individuals aged 15 and over in column 2, individuals aged 15-24 in column 3, and individuals age 25-34 in column 4. We can see that from 2000 onwards the overall unemployment rate (15+) decreased steadily up to 2007 when it started increasing. In fact, the unemployment rate in 2013 – 12.2% – was exactly double the unemployment rate in 2007. A similar dynamics holds for the unemployment rate for individuals aged 15-24. The pattern is less clear cut when looking at the unemployment rate for those aged 25-34 that decreases up to 2002, increases in 2003-4 and decreases again till 2007. The differences in unemployment rate trends among the three age groups are largely determined by the segmented nature of the Italian labor market and by the reforms that came into force in this period. However, we notice in all unemployment rates an increasing dynamics from 2008 that is likely to explain part of the drop in consumption for working-age cohorts.

Column 5 of Table 1 presents the growth rate of real per capita consumer expenditure as reported in the national accounts. We can see that real expenditure fell in 2008 and 2009, recovered slightly in 2010, but dropped markedly afterwards, especially in 2012 and 2013. Compared to the 1993 crisis, the Great Recession seems to have had longer-lasting effects: households where hit immediately in 2008-09, but a second sharp decrease in consumption occurred in 2012-13.

Since expectations are important determinants of consumption decisions, we show in Figure 2 some indicators of the expected economic condition of the household, of the country and expected

unemployment (these are computed by ISTAT. De Nardi et al. (2012) show consumers' expectations of a fall in income, together with the negative wealth effect (coming from decreased stock market valuations and housing prices), were important factors in determining the observed consumption drop in the US. We see that Italian consumers at the onset of the financial crisis expected a rise in unemployment, but little else. When the sovereign debt crisis came to its peak (end of 2011) expectations markedly worsened also for both the economic situation of the country in general, and the situation of the household in particular.

Figure 2. Expectations about household economic condition, economic situation of the country and unemployment



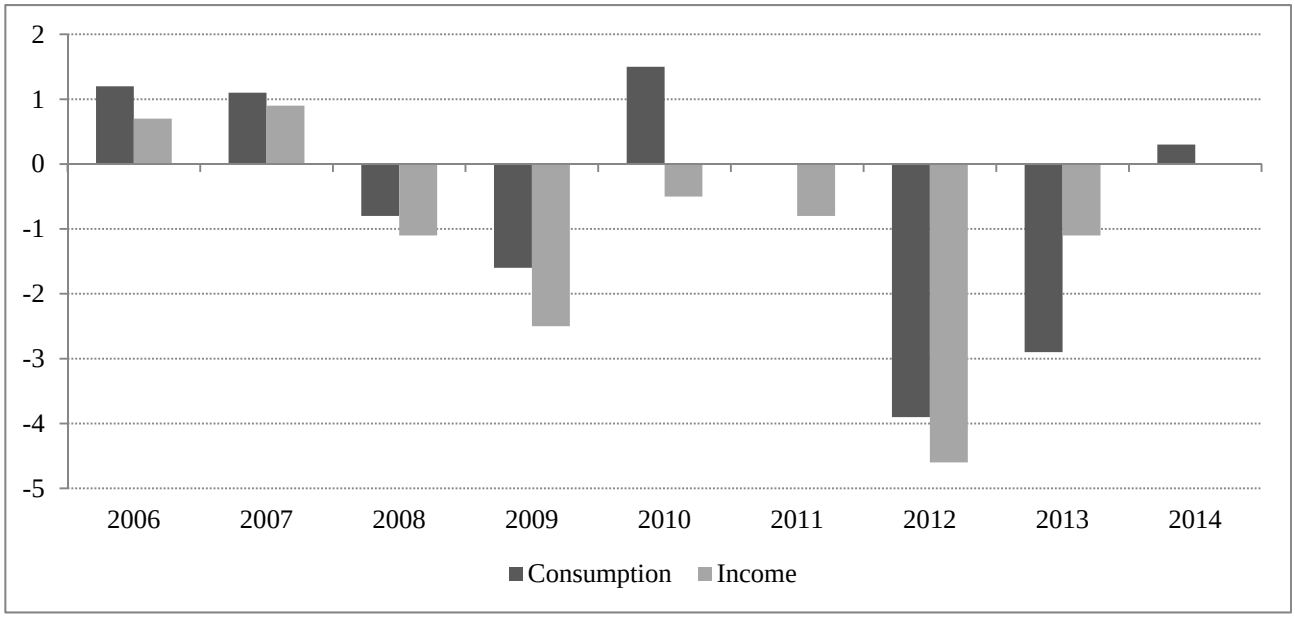
Note: Monthly data collected by ISTAT, in the figure we show the percentage of individuals who believe that the household (HH) economic situation will get worse, the economic situation of the country will get worse and unemployment will increase.

Table 2. Non-durable, semi-durable and durable goods, Italy – real growth rates

Goods	2006	2007	2008	2009	2010	2011	2012	2013	2014
Non-durable	0.4	-1.2	-1.6	-2.7	1.1	-1.3	-4.2	-3.4	-0.6
Semi-durable	0.4	0.5	-1.1	-5.1	5.1	0.5	-9	-5.2	-0.2
Durable	2.6	2.4	-6.7	-3.4	-0.3	-4.1	-12	-5.2	3.2

Note: Source Bank of Italy Annual Report

Figure 3. Consumption and Income growth rate, Italy



Note: Source Bank of Italy Annual Report

Figure 3 compares annual changes in real non-durable consumption and disposable income and shows in greater detail the dynamics described above, highlighting that in 2013 the decrease in consumption is larger than the reduction in income, possibly as a consequence of the persistently depressed labour market conditions. Table 2 displays the real growth rates of expenditure, distinguishing its non-durable, semi-durable and durable components. We can see that the decrease in consumption involved all the three components but was sharpest for durable goods, owing in part to their investment nature that made them more sensitive to the increased uncertainty over the economic prospects of individuals and the country as a whole.

The aggregate statistics show the remarkable consequences of the Great Recession for Italian households in terms of disposable income and consumption, suggesting that this severe downturn has not only jeopardized the ability of households to sustain their living standard but also undermined the prospects for recovery, translating a potentially temporary situation into a persistent one (possibly a permanent one in some cases).

2. The Micro Data: the Survey of Household Income and Wealth (SHIW)

We use micro-data drawn from SHIW as our main source of information regarding expenditure, income and wealth of Italian households. Detailed information about consumption behavior is collected also in the Household Budget Survey by ISTAT, however due to data restrictions from 2005 some key variables analysis are not released (in particular, age is only released in 5-year band, and this makes cohort analysis impossible).

The SHIW began in the 1960s, but individual records are available on a consistent basis only from 1987. We restrict our sample to nine waves from 1995 to 2012, and select individuals born between 1920 and 1984. Data are gathered by the Bank of Italy generally every two years, the only exception is 1998 where the field work took place after three years from the previous wave (1995). The data set is provided in two versions: historical and annual. The former is preferred when conducting analyses over time because it reduces the impact of differences in survey procedures. We will use largely the historical dataset to ensure harmonization over time; when more detailed information is needed this is retrieved from the corresponding annual datasets.

In SHIW, household respondents are asked to provide information about household composition, demographics, employment status and education of each household member. Information on assets, liabilities, income and expenditures is also collected.

We are interested in expenditure and wealth questions that are typically affected by non-response; D'Alessio and Faiella (2002) report that non-response in SHIW is non-random, and is more frequent among wealthier households, generating for instance an underestimation larger for financial assets (15-31%) than for income (5-14%). To mitigate non-response several measures have been adopted in the survey, including the replacement of non-cooperating households by others randomly selected in the same municipalities. The Bank of Italy provides in addition a set of weights that account also for the non-response process to reduce the estimation bias[1];we will use them as a robustness check (see Appendix).

Table 3 presents cohort definition and statistics on average cohort consumption (net of housing), income (net of housing) and net wealth (including housing) for the 2006 estimation sample. Cohorts are defined on the basis of the year of birth of the household head (defined as the person who is recorded as such in the municipal registers). We arbitrarily reset it to be the husband within couples, to reduce spurious variability in head's characteristics over time (recording practices changed over time).

[1] For further details see Faiella and Gambacorta (2007)

Table 3. Cohort definition and data description, 2006

			Log of Consumption		Log of Real Net Income		Net Wealth (thousands of Euros)	
Cohort	Mid-age	Cell size	Non-durable	Durable among buyers	Excluding income from financial assets	Including income from financial assets	Whole sample	Home-owners
1980-1984	24	59	9.30	7.17	9.85	9.71	114.78	242.90
1975-1979	29	202	9.51	7.80	9.97	9.91	109.97	276.69
1970-1974	34	407	9.56	7.80	10.14	10.12	125.02	223.37
1965-1969	39	647	9.61	7.70	10.18	10.16	181.14	290.09
1960-1964	44	736	9.66	7.59	10.26	10.25	285.32	396.78
1955-1959	49	734	9.68	7.77	10.32	10.31	244.65	339.49
1950-1954	54	814	9.67	7.88	10.37	10.36	281.02	364.81
1945-1949	59	838	9.64	7.76	10.33	10.32	302.22	385.92
1940-1944	64	740	9.52	7.54	10.19	10.20	284.10	349.47
1935-1939	69	809	9.40	7.41	10.09	10.10	290.91	364.32
1930-1934	74	693	9.30	7.35	9.96	9.97	261.31	331.67
1925-1929	79	589	9.18	6.84	9.80	9.81	199.51	258.56
1920-1924	84	371	9.15	6.65	9.78	9.79	182.94	254.97

3. Empirical strategy

One way to use the individual data described above is to estimate the Euler equation for non-durable consumption, exploiting the longitudinal nature of a part of the sample. This is the approach taken by Fiume and Weber (2015), who estimate the equation both in its log-linear form and in its fully non-linear form, after taking into account the presence of (non-classical) measurement error. Fiume and Weber plot residuals over time according to some observed characteristics. The prediction errors for the log linearized version and using a nonlinear GMM estimators - that accounts for heaping and rounding issues – show large, negative values in 2012 especially for the youngest individuals (aged 25-39), suggesting unequal, age-related, negative effects of this severe downturn.

To further investigate the effects of the Great Recession on consumption, income and wealth we first analyze age profiles according to a "semi-reduced form" method put forward by Attanasio and Weber (1994). We define a "control period" of relative stability (1995-2006) and a "treatment period" (2008-2012) that is affected by the crisis. We investigate the changes in the estimated age profiles that took place during the treatment period. These departures might differ among different cohorts depending on the demographic factors as well as their labor market status at that time. We are especially interested to figure out the role of unemployment as determinant of the consumption drop.

Borrowing from MaCurdy and Mroz (1990), Attanasio and Weber (1994) and Miniaci and Weber (1999), we specify a life-cycle consistent consumption function as follows:

$$X_{ht}^{c} = g(age, c) + \gamma Z_{ht}^{c} + \sum_{t=2008}^{2012} \beta_t^c D_t^c + \varepsilon_{ht}^{c}, \quad (1)$$

where X_{ht}^{c} is the logarithm of observed real expenditure[2] at time *t* for household *h* belonging to cohort *c*. Cohorts are defined as five year-of-birth intervals from 1920 to 1984. Z_{ht}^{c} is a vector of observable characteristics that include gender, marital status and education of the household head, area of residence, family size and composition, partner's education and dummies for housing tenure. The function g() is specified as follows:

$$g(age, c) = \alpha_0 + \alpha_1 age + \alpha_2 age^2 + \delta_c. \quad (2)$$

In this specification cohort effects enter additively, as normally assumed in simple versions of the life-cycle hypothesis (see Deaton, 1992, for a summary), while age effects are captured by a quadratic function. The role of demographics and age in the consumption function under uncertainty has been further investigated by Attanasio et al. (1999), who show that the hump-shaped age profile of consumption is partly driven by demographics, partly by precautionary saving.

We consider years from 2008 to 2012 as the recession 'treatment' period. To capture cohort-specific structural movements in consumption profiles during the crisis, we include also D_t^c that are year cohort-dummies for the treatment period: their coefficients can be interpreted as the deviations of cohort *c* consumption in period *t* from the pre-crisis predictions.

To investigate the role of unemployment in shaping expenditure levels during the recession, we consider a second specification:

$$X_{ht}^{c} = g(age, c) + \gamma Z_{ht}^{c} + \rho Z_{ht}^{*c} + \delta U_t^c + \sum_{t=2008}^{2012} \beta_t^c D_t^c \quad + \varepsilon_{ht}^{c}, \quad (3)$$

where Z_{ht}^{*c} is a vector of employment-related individual characteristics such as the proportion of retired members within the household that we assume to be mostly determined by long-term life-cycle considerations. U_t^c is instead a vector of employment related cohort-level variables (labour force participation, proportion of employees or self-employed among labour force participants, proportion of households with at least one person unemployed[3]) that are likely to be directly affected by the business cycle. We then show predictions of consumption, income and wealth, based on our model, keeping the cohort-level employment-related observable characteristics at their 2006 pre-crisis level for the treatment period.

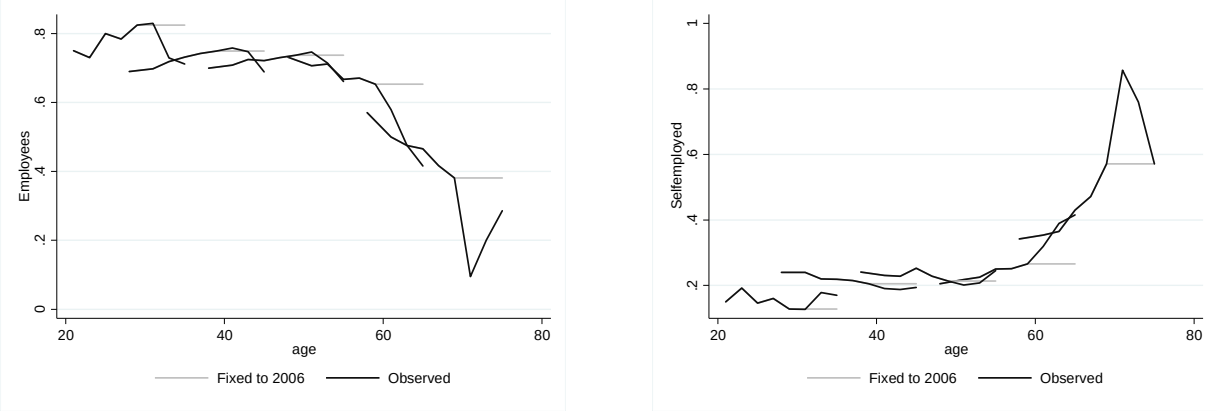
Figures 4a and 4b show cohort-level employment related variables. Focusing on the employment of the household's head, we can see that the proportion of employed heads, among labour force participants, decreased especially in 2012, compared to 2006, whereas the self-employed proportion increased in the same period. Figure 4b shows that the proportion of households with at least one unemployed member, compared to 2006, increased for cohorts born after 1954.

[2] Nominal values are deflated to 2005 prices using the Consumer Price Index for the whole nation (NIC) provided by ISTAT.

[3] We consider temporary lay-offs among the unemployed. We include labour force participation in the regression among cohort-level variables to capture the discouraged worker effect. Indeed, economic theory predicts that after failed job searches or when facing poor prospects of finding jobs, individuals may exit the labour force by giving up job searching.

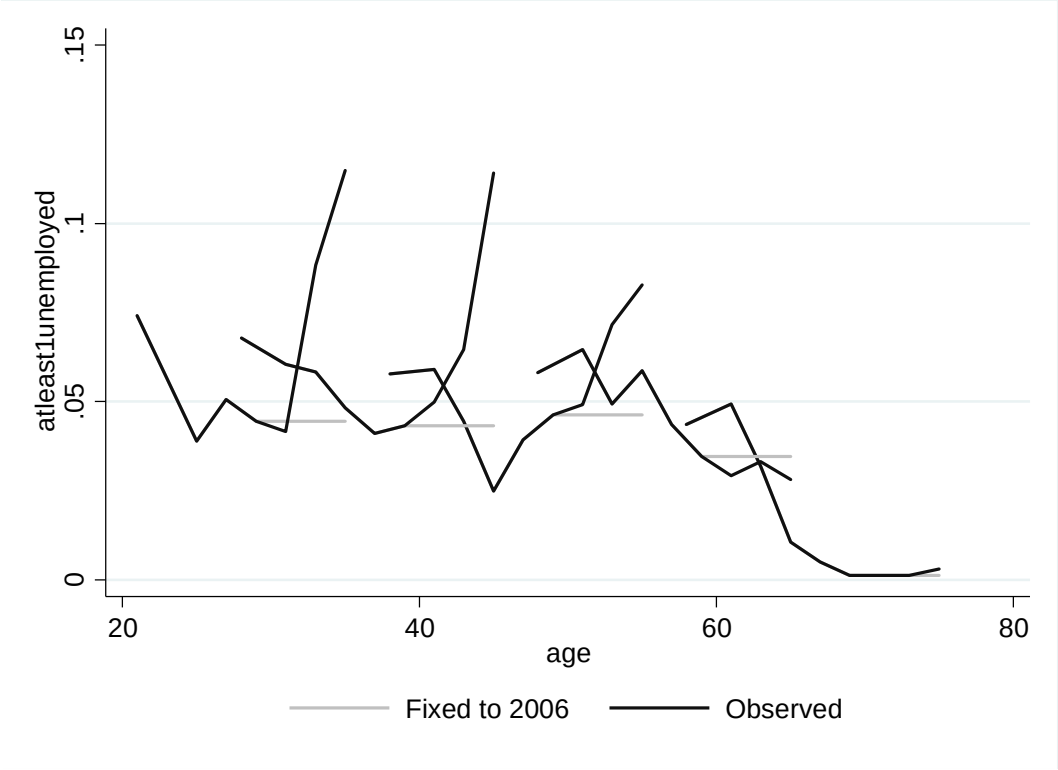
Figure 4a.Head employment among labour force participants by cohort.

Employees **Self-employed**



Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

Figure 4b. Households with at least one unemployed member by cohort.



Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

4. Estimation Results

Table 4a reports our baseline estimates for the logarithm of non-durable consumption, the purchase of durables (including and excluding cars), durable expenditure and total expenditure (including and excluding cars). These estimates correspond to model (1), that does not control for employment-related variables.

Focusing on column (1) we can see that (the logarithm of) non-durable consumption (net of housing) is a hump shaped function of age; characteristics such as female and living in the Centre or South of Italy are associated to a lower level of non-durable consumption compared to the reference category. We estimate positive coefficients for college education of the head and his/her partner (*Degree* and *Partner with degree*). Family size and composition variables are also highly significant: family size has a non-linear effect capturing economies of scale; consumption is lower the higher the proportion of children within the family, but increases with the proportion of adult children or children with a college degree. Home-owners and renters have higher levels of non-durable consumption compared to those who live in rent-free accommodation. As explained above, we control also for cohort effects. Constrained year dummies for the control period are also included following Deaton and Paxson (1994), as well as unconstrained year-cohort dummies for the treatment period. The bottom of Table 4 reports a battery of joint significance tests for the treatment period year-cohort dummies, taken altogether and year by year. The table reports p-values in percentages (so a value of 0.49 indicates 0.49%). In all cases, the tests reject the null of zero coefficients. Further tests of equality across cohorts of treatment effects reject the null in all three years. However, tests for equality of effects among younger (pre-retirement age) cohorts and among older (post-retirement age) cohorts sometimes reject the null less strongly.

For durable spending we need to break the analysis in two parts: the purchase decision (for which we adopt a linear probability model) and the spending decision, conditional on purchasing (where we restrict the sample to those who buy any durables, and take the logarithm of expenditure on durable goods as the dependent variable). This distinction is particularly important because tax incentives were introduced over some recession years for durable purchases of cars – but also of some durable appliances (such as energy efficient boilers and white durables). In evaluating the prediction errors on durable spending we will combine information from both sets of parameter estimates.

Columns (2) and (4) present parameter estimates for the purchase decision for the case where durables include (column 2) and exclude cars. In both cases, we have similar results: significant effects for age (non-linear), education, area of residence and family size/composition. Columns (3) and (5) present instead parameter estimates for the truncated sample analysis of the logarithm of durable expenditure, including (column 3) and excluding (column 5) cars. Age effects are weaker than in the purchase decision equations - other control variables have instead similar signs and significance. The two last columns report estimates for the logarithm of total expenditure (net of housing), including cars. Results are broadly similar to non-durable consumption estimates.

Table 4a. Estimated coefficients and test statistics - baseline

Dep. Var.	(1) Log (non-durable expend.)	(2) Purchase durables 0-1 dummy	(3) Log (durables)	(4) Purchase durables (less cars) 0-1 dummy	(5) Log (durables) (less cars)	(6) Log (total expend.)	(7) Log (total expend. - cars)
Age	0.025***	-0.011***	-0.022	-0.010***	-0.025	0.016***	0.016***
	(0.003)	(0.002)	(0.014)	(0.002)	(0.031)	(0.003)	(0.003)
Age^2	-0.015***	0.007***	-0.011	0.008***	0.068**	-0.010***	-0.010***
	(0.003)	(0.002)	(0.013)	(0.002)	(0.026)	(0.002)	(0.002)
Female	-0.105***	-0.038***	-0.313***	-0.010*	-0.068	-0.126***	-0.126***
	(0.008)	(0.007)	(0.037)	(0.006)	(0.049)	(0.009)	(0.009)
Married	0.012	0.003	0.106**	0.003	0.079	0.023**	0.023**
	(0.010)	(0.008)	(0.043)	(0.007)	(0.055)	(0.011)	(0.011)
Centre	-0.033***	-0.060***	0.004	-0.065***	-0.105**	-0.039***	-0.039***
	(0.006)	(0.006)	(0.027)	(0.005)	(0.042)	(0.007)	(0.007)
South	-0.272***	-0.138***	-0.254***	-0.107***	-0.176***	-0.301***	-0.301***
	(0.007)	(0.006)	(0.025)	(0.006)	(0.042)	(0.008)	(0.008)
Degree	0.273***	0.083***	0.305***	0.076***	0.355***	0.297***	0.297***
	(0.010)	(0.007)	(0.037)	(0.007)	(0.045)	(0.010)	(0.010)
Log(Famsize)	0.497***	0.093***	0.235***	0.095***	0.422***	0.496***	0.496***
	(0.016)	(0.016)	(0.078)	(0.014)	(0.120)	(0.018)	(0.018)
Log^2(Famsize)	-0.060***	-0.031***	-0.074**	-0.035***	-0.202***	-0.066***	-0.066***
	(0.007)	(0.009)	(0.037)	(0.008)	(0.065)	(0.008)	(0.008)
Children/Famsize	-0.190***	-0.001	-0.314***	-0.010	-0.428***	-0.220***	-0.220***
	(0.021)	(0.020)	(0.096)	(0.019)	(0.148)	(0.023)	(0.023)
Children 18+/Famsize	0.233***	0.098***	0.927***	0.045**	0.125	0.324***	0.324***
	(0.022)	(0.019)	(0.097)	(0.019)	(0.162)	(0.026)	(0.026)
Children with degree/Famsize	0.374***	0.104***	0.308**	0.090***	0.497**	0.388***	0.388***
	(0.027)	(0.024)	(0.149)	(0.023)	(0.240)	(0.032)	(0.032)
Partner with Degree	0.178***	0.063***	0.193***	0.058***	0.276***	0.200***	0.200***
	(0.009)	(0.009)	(0.038)	(0.010)	(0.043)	(0.009)	(0.009)
Home-owner	0.101***	0.006	0.065*	0.005	0.121**	0.100***	0.100***
	(0.008)	(0.007)	(0.035)	(0.006)	(0.055)	(0.008)	(0.008)
Renter	0.244***	-0.038***	-0.240***	-0.032***	-0.168***	0.207***	0.207***
	(0.007)	(0.008)	(0.037)	(0.008)	(0.063)	(0.008)	(0.008)
Constant	8.539***	0.588***	9.212***	0.446***	7.073***	8.313***	8.313***
	(0.089)	(0.059)	(0.418)	(0.067)	(0.586)	(0.085)	(0.085)
Observations	64,490	64,443	22,299	62,601	17,536	64,153	64,153
R^2	0.353	0.075	0.101	0.053	0.050	0.352	0.352
Adj R^2	0.353	0.074	0.099	0.052	0.046	0.351	0.351
p-values x 100							
F-test year-cohort dummies	0.000	0.000	0.000	0.000	0.000	0.000	0.000
F-test 2008 cohort dummies	0.000	0.000	0.000	0.000	0.000	0.000	0.000
F-test 2010 cohort dummies	0.000	0.000	0.000	0.000	0.000	0.000	0.000
F-test 2012 cohort dummies	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Equality β_t^c 2008	0.000	0.000	0.000	0.000	0.000	0.000	0.000
equality β_t^c 2010	0.000	0.000	0.000	0.000	0.000	0.000	0.000
equality β_t^c 2012	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Older cohorts:							
Equalityβ_t^c 2008	0.000	0.000	0.000	0.000	5.900	0.000	0.000
equalityβ_t^c 2010	0.000	0.000	0.100	0.000	3.300	0.000	0.000
Equalityβ_t^c 2012	0.000	2.900	0.000	49.900	0.000	0.000	0.000
Younger cohorts:							
Equalityβ_t^c 2008	0.000	0.000	0.000	0.000	0.000	0.200	0.200
equalityβ_t^c2010	0.300	0.000	0.000	2.300	0.000	0.000	0.000
Equalityβ_t^c 2012	0.300	0.000	0.000	0.000	0.900	3.800	3.800

Note: All specifications include cohort dummies, constrained year dummies and treatment cohort dummies. Robust standard errors in parentheses (clustered by cohort and year)*** p<0.01, ** p<0.05, * p<0.1

Table 4b reports our baseline estimates for the logarithm of income (excluding and including net financial income), and for net-wealth for the whole sample and for home-owners. These estimates correspond to model (1), that does not control for employment-related variables. The functional form is the same as for consumption, to enhance comparability.

Table 4b. Estimated coefficients and test statistics - baseline

Dep. Var.	(1) Log(income) (not financial)	(2) Log(Income)	(3) Net wealth	(4) Net wealth (home-owners)
Age	0.024***	0.032***	7.473***	14.162***
	(0.003)	(0.004)	(2.311)	(2.664)
Age^2	-0.014***	-0.022***	-2.176	-5.889***
	(0.003)	(0.004)	(1.919)	(2.180)
Female	-0.181***	-0.195***	-31.610***	-42.698***
	(0.009)	(0.011)	(4.233)	(7.324)
Married	-0.072***	-0.082***	-3.722	-10.900
	(0.012)	(0.012)	(5.462)	(7.907)
Centre	-0.094***	-0.113***	-5.330	-8.469
	(0.006)	(0.007)	(5.300)	(7.132)
South	-0.414***	-0.447***	-98.807***	-130.129***
	(0.008)	(0.009)	(4.559)	(5.686)
Degree	0.417***	0.453***	206.219***	247.824***
	(0.012)	(0.014)	(15.289)	(16.774)
Log(Famsize)	0.736***	0.782***	64.680***	88.833***
	(0.020)	(0.025)	(12.204)	(17.538)
Log^2(Famsize)	-0.099***	-0.104***	3.914	7.038
	(0.011)	(0.013)	(7.502)	(10.742)
Children/Famsize	-0.681***	-0.758***	-90.444***	-137.490***
	(0.029)	(0.036)	(15.949)	(24.318)
Children 18+/Famsize	0.718***	0.737***	41.091***	60.577***
	(0.044)	(0.047)	(15.385)	(22.409)
Children with degree/Famsize	0.594***	0.655***	286.939***	298.827***
	(0.040)	(0.043)	(39.007)	(44.748)
Partner with degree	0.308***	0.321***	93.005***	93.427***
	(0.010)	(0.010)	(12.797)	(15.057)
Home-owner	0.171***	0.163***	186.481***	
	(0.009)	(0.012)	(5.593)	
Renter	-0.017*	-0.013	-39.274***	
	(0.010)	(0.012)	(3.674)	
Constant	8.966***	8.195***	-402.619***	-522.964***
	(0.091)	(0.128)	(69.005)	(81.839)
Observations	63,982	64,242	64,794	44,809

R^2	0.416	0.346	0.134	0.074
Adj R^2	0.415	0.346	0.133	0.072
p-values x 100				
F-test year-cohort dummies	0.000	0.000	0.000	0.000
F-test 2008 cohort dummies	0.000	0.000	0.000	0.000
F-test 2010 cohort dummies	0.000	0.000	0.000	0.000
F-test 2012 cohort dummies	0.000	0.000	0.000	0.000
Equalityβ_t^c2008	0.000	0.000	0.000	0.000
Equalityβ_t^c2010	0.000	0.000	0.000	0.000
Equalityβ_t^c2012	0.000	0.000	0.000	0.000
Older cohorts:				
Equalityβ_t^c 2008	0.000	0.000	0.200	1.500
Equalityβ_t^c 2010	0.000	0.000	0.000	0.000
Equalityβ_t^c2012	0.000	0.000	0.000	7.800
Younger cohorts:				
Equalityβ_t^c 2008	0.000	0.000	0.000	0.000
Equalityβ_t^c2010	17.600	0.000	0.100	0.000
Equalityβ_t^c 2012	0.000	0.000	0.200	0.000

Note: All specifications include cohort dummies, constrained year dummies and treatment cohort dummies. Robust standard errors in parentheses (clustered by cohort and year)*** p<0.01, ** p<0.05, * p<0.1

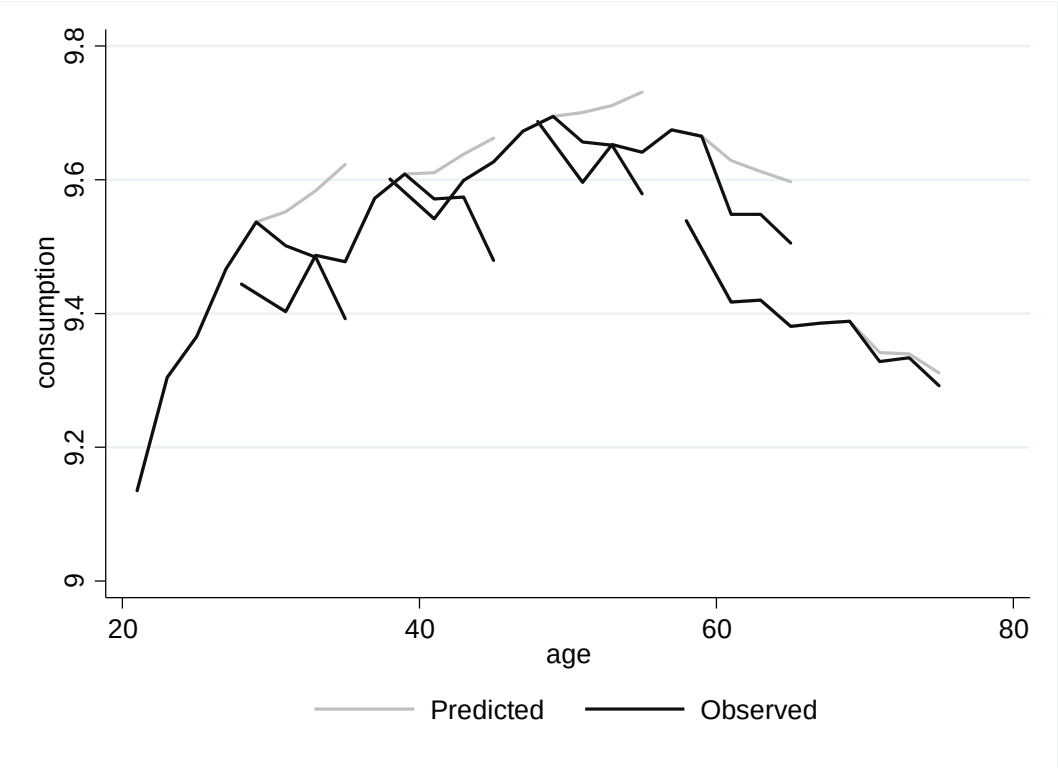
The estimated coefficients of treatment cohort-year dummies are reported in Table A1a and A1b in the appendix.

Based on the estimates of Tables 4a and 4b, we show in Figures 5-10 observed and predicted non-durable consumption, durable and total expenditure, income and net wealth. More precisely: 'observed' denotes fitted values when the treatment dummies are set to 1 for the relevant year and cohort; 'predicted' represents what the model predicts when all the treatment cohort dummies are set to zero. In Table 5 we report the estimated non-durable consumption drop based on specification (1) for 2012. On average cohorts reduce non-durable consumption by 10%, but there is ample heterogeneity: younger working-age cohorts are those with the largest drops (20% or more). Similar results can be found using sampling weights (Table A3 in the appendix).

Table 5. Estimated log consumption drop, 2012 - baseline

Cohort (year of birth)	84-80	79-75	74-70	69-65	64-60	59-55	54-50	49-45	44-40	39-35	34-30	29-25	24-20
Mid-age in 2012	30	35	40	45	50	55	60	65	70	75	80	85	90
Predicted	9.480	9.623	9.657	9.662	9.717	9.732	9.649	9.597	9.412	9.311	9.221	9.122	8.945
Observed	9.194	9.392	9.460	9.479	9.545	9.579	9.500	9.505	9.365	9.292	9.182	9.131	9.042
Total drop (x 100)	-28.6	-23.1	-19.7	-18.3	-17.2	-15.3	-14.9	-9.2	-4.7	-1.9	-3.9	0.9	9.7

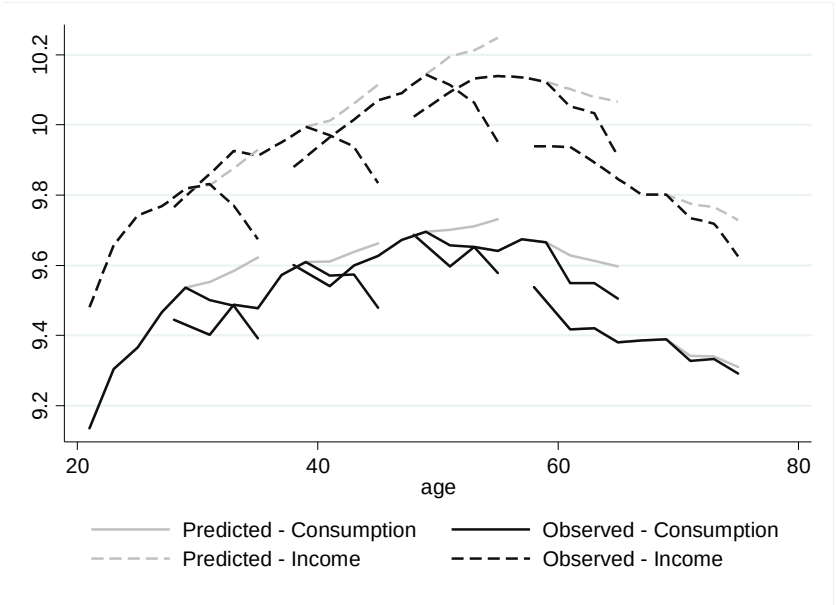
Figure 5. Non-durable consumption (logarithm)- baseline



Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

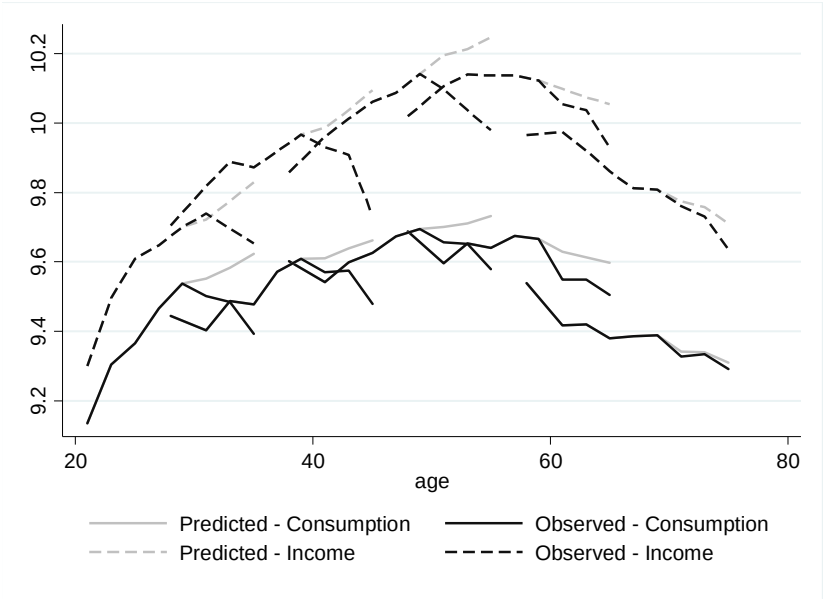
We compare in Figure 6 and 7 drops in non-durable consumption and income (respectively excluding and including financial asset income). We can see, especially in Figure 7 (that uses the broader definition of income), that consumption seems to anticipate decreases in household income.

Figure 6. Non-durable consumption and income (excluding financial assets income) - baseline



Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

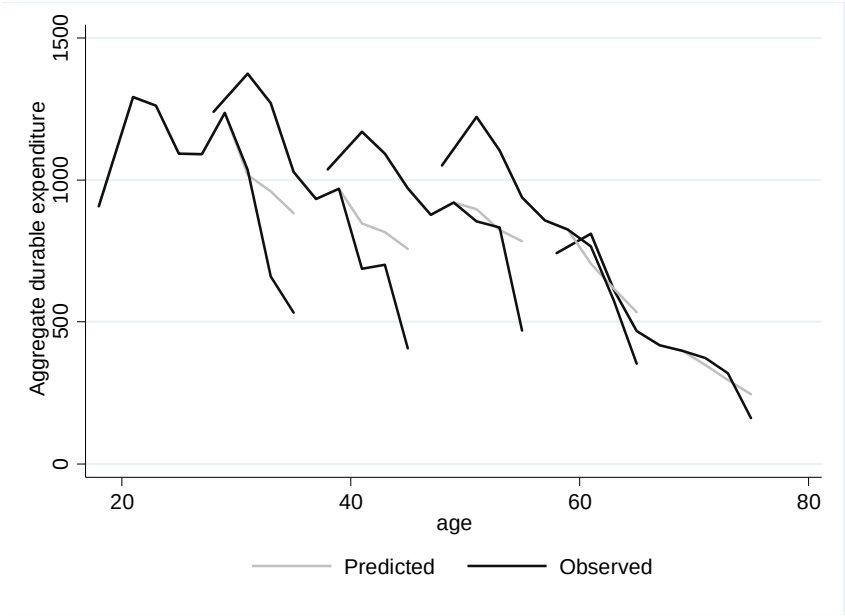
Figure 7. Non-durable consumption and income (including financial assets income)- baseline



Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

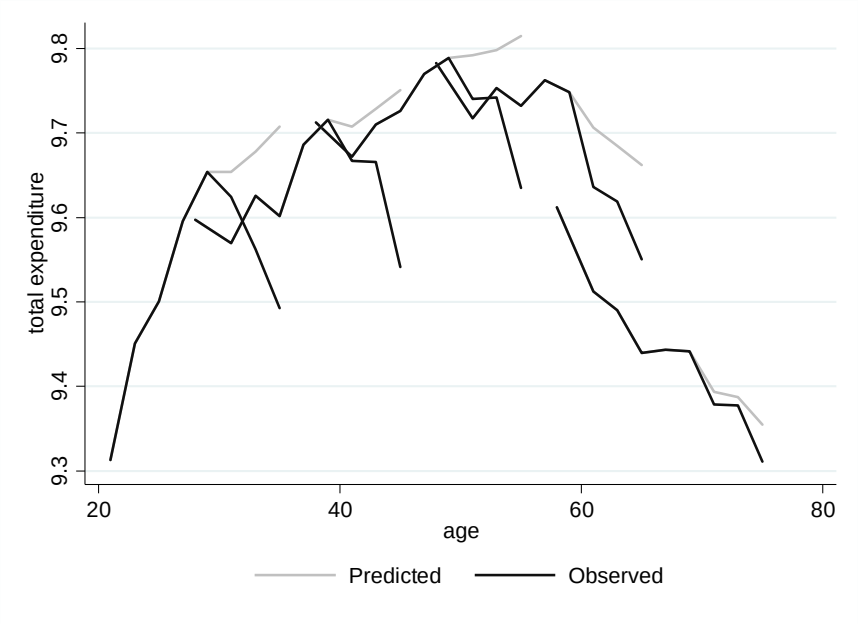
In Figure 8 we display observed and actual durable expenditure, in levels, obtained by combining parameter estimates from columns (2) and (3) of Table 4a. The observed and predicted proportion of buyers multiply the average spending corresponding to column (3) estimates. In this case sizable negative drops are estimated only for pre-retirement cohorts.

Figure 8. Durable expenditure (purchase and expenditure among buyers)- baseline



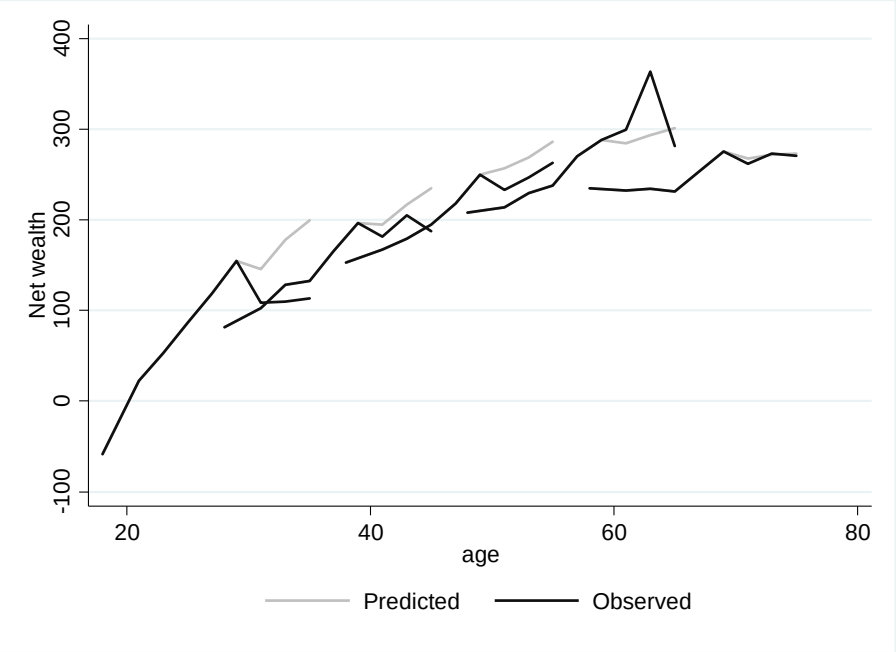
Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

Figure 9. Total expenditure(logarithm) - baseline



Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

Figure 10. Net wealth profiles(logarithm) - baseline



Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

Of particular interest is Figure 10 that shows the effects on net wealth of the recession. The youngest cohort, that was on a steeply ascending net wealth path, saw an actual reduction in net wealth in 2008, followed by minimal changes in 2010 and 2012. If we consider that net wealth includes housing wealth, a possible interpretation is that in 2008 young consumers used their financial wealth (or even borrowed) to sustain consumption, while in 2010 and 2012 they allowed

total expenditure to take the brunt of the income drop (as shown in Figure 9). The older working age cohorts displayed in Figure 10 also used their savings in 2008, but later started accumulating wealth while cutting total spending. The cohort that reached retirement age during the crisis actually increased their average wealth more than predicted by the model (this is probably due to the receipt of severance pay upon retirement – a large, lump sum payment worth three years'salary for employees with uninterrupted careers), while the oldest cohort kept their wealth as expected (and very slightly reduced total spending – see Figure 9). [4]

In the remainder of this section we investigate the role played by the deteriorating labour market conditions. More specifically, we ask what part of the consumption-income-net wealth drop can be attributed to the direct effect of increased unemployment of the cohort members in 2008, 2010 and 2012. The approach we take is to estimate equation (3) on the whole sample, and then check what the predictions would be if the unemployment rate had remained constant at its pre-crisis cohort-level, as measured in 2006.

In Table 5a and 5b we report estimates based on specification (3), where employment-related variables are included. We can see that labour force participation is highly significant for all our outcome variables with the exception of durable purchase and net wealth. Labour force participation is associated to higher levels of non-durable consumption, higher levels of total expenditure, and income. The proportion of retired members within the household is negatively associated with non-durable consumption, purchase of durables, durable expenditure among buyers, total expenditure, income and net wealth; it is not significant when looking at income in columns (2) of Table 5b. Cohort level employment variables are also significant: the higher the proportion of employee household heads the higher net wealth and the probability of buying durables. Regarding the proportion of self-employed household heads, it has a positive and significant effect on net wealth. The proportion of households with at least one unemployed member within the cohort has a significant and negative coefficient for non-durable consumption, total expenditure and income. Cohort treatment dummies are always jointly highly significant, see Table A2a and A2b in Appendix A for the estimated coefficients – and this suggests the employment-related variables don't fully explain the observed drops during the recession years. It is worth stressing that we tested for structural stability of the employment-related variables between control and treatment years and could not reject the null.

[4] Figures A1 and A2 in Appendix A show similar pictures for the cohorts not displayed in Figures 9 and 10.

Table 5a. Estimated coefficients and test statistics

Dep. Var.	(1) Log (non-durable expend.)	(2) Purchase durables 0-1 dummy	(3) Log (durables)	(4) Purchase durables (less cars) 0-1dummy	(5) Log (durables) (less cars)	(6) Log (total expend.)	(7) Log (total expend. - cars)
Age	0.020***	-0.012***	-0.005	-0.011***	0.005	0.012***	0.012***
	(0.002)	(0.002)	(0.016)	(0.002)	(0.031)	(0.002)	(0.002)
Age^2	-0.009***	0.009***	-0.028**	0.009***	0.042*	-0.005**	-0.005**
	(0.002)	(0.002)	(0.014)	(0.002)	(0.025)	(0.002)	(0.002)
Female	-0.104***	-0.037***	-0.296***	-0.009	-0.055	-0.123***	-0.123***
	(0.008)	(0.007)	(0.037)	(0.006)	(0.049)	(0.009)	(0.009)
Married	0.008	0.000	0.078*	0.001	0.049	0.017	0.017
	(0.010)	(0.008)	(0.042)	(0.007)	(0.054)	(0.011)	(0.011)
Centre	-0.033***	-0.060***	0.001	-0.065***	-0.108**	-0.039***	-0.039***
	(0.006)	(0.006)	(0.027)	(0.005)	(0.042)	(0.007)	(0.007)
South	-0.273***	-0.139***	-0.263***	-0.108***	-0.185***	-0.303***	-0.303***
	(0.007)	(0.006)	(0.025)	(0.006)	(0.042)	(0.008)	(0.008)
Degree	0.270***	0.081***	0.286***	0.075***	0.340***	0.293***	0.293***
	(0.010)	(0.007)	(0.037)	(0.007)	(0.045)	(0.010)	(0.010)
Log(Famsize)	0.500***	0.093***	0.244***	0.095***	0.422***	0.498***	0.498***
	(0.016)	(0.016)	(0.076)	(0.014)	(0.119)	(0.017)	(0.017)
Log^2(Famsize)	-0.061***	-0.030***	-0.062*	-0.035***	-0.189***	-0.066***	-0.066***
	(0.007)	(0.009)	(0.037)	(0.008)	(0.065)	(0.008)	(0.008)
Children/Famsize	-0.209***	-0.011	-0.421***	-0.016	-0.498***	-0.244***	-0.244***
	(0.020)	(0.020)	(0.094)	(0.019)	(0.152)	(0.022)	(0.022)
Children 18+/Famsize	0.223***	0.087***	0.827***	0.037*	0.009	0.306***	0.306***
	(0.022)	(0.019)	(0.096)	(0.019)	(0.165)	(0.026)	(0.026)
Children with degree/Famsize	0.382***	0.103***	0.262*	0.089***	0.434*	0.393***	0.393***
	(0.027)	(0.025)	(0.147)	(0.023)	(0.239)	(0.031)	(0.031)
Partner with degree	0.177***	0.063***	0.192***	0.058***	0.276***	0.200***	0.200***
	(0.009)	(0.009)	(0.038)	(0.010)	(0.043)	(0.009)	(0.009)
Home-owner	0.101***	0.006	0.068*	0.005	0.126**	0.101***	0.101***
	(0.008)	(0.007)	(0.035)	(0.006)	(0.056)	(0.009)	(0.009)
Renter	0.243***	-0.039***	-0.248***	-0.033***	-0.173***	0.205***	0.205***
	(0.007)	(0.008)	(0.036)	(0.008)	(0.063)	(0.008)	(0.008)
Retired/Famsize	-0.041***	-0.032***	-0.359***	-0.023***	-0.324***	-0.063***	-0.063***
	(0.013)	(0.009)	(0.048)	(0.007)	(0.055)	(0.014)	(0.014)
Proportion of employees by cohort	-0.006	0.088**	-0.496*	0.099**	0.241	0.006	0.006
	(0.043)	(0.034)	(0.267)	(0.043)	(0.437)	(0.043)	(0.043)
Proportion of self-employed by cohort	0.003	0.056	-0.151	0.057	0.185	0.022	0.022
	(0.036)	(0.039)	(0.270)	(0.038)	(0.354)	(0.038)	(0.038)
Proportion of households with at least 1 unemployed by cohort	-1.086***	0.016	0.829	0.215	5.690	-0.793***	-0.793***
	(0.219)	(0.243)	(1.886)	(0.222)	(4.051)	(0.294)	(0.294)
LFparticipant by cohort	0.168***	0.006	-0.362**	-0.008	-0.773**	0.135***	0.135***
	(0.023)	(0.030)	(0.177)	(0.026)	(0.342)	(0.030)	(0.030)
Constant	8.538***	0.552***	9.470***	0.379***	6.749***	8.356***	8.356***
	(0.094)	(0.090)	(0.590)	(0.093)	(0.655)	(0.089)	(0.089)
Observations	64,490	64,443	22,299	62,601	17,536	64,153	64,153
R^2	0.354	0.075	0.104	0.054	0.051	0.353	0.353
Adj R^2	0.353	0.0747	0.10143	0.052	0.047	0.352	0.352
p-values x 100							
F-test year-cohort	0.000	0.000	0.000	0.000	0.000	0.000	0.000

dummies							
F-test 2008 cohort dummies	0.000	0.000	0.000	0.000	0.000	0.000	0.000
F-test 2010 cohort dummies	0.000	0.000	0.000	0.000	0.000	0.000	0.000
F-test 2012 cohort dummies	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Equalityβ_t^c2008	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Equalityβ_t^c2010	0.000	0.000	0.002	0.000	0.000	0.000	0.000
Equalityβ_t^c 2012	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Older cohorts:							
Equalityβ_t^c 2008	0.000	0.000	0.006	0.000	8.646	0.003	0.003
Equalityβ_t^c 2010	0.001	0.000	1.980	0.000	0.624	0.000	0.000
Equalityβ_t^c 2012	0.000	12.837	0.000	14.348	0.002	0.000	0.000
Younger cohorts:							
Equalityβ_t^c 2008	0.000	0.040	0.004	0.000	0.000	0.002	0.002
Equalityβ_t^c2010	0.000	0.000	0.000	10.898	0.024	0.003	0.003
Equalityβ_t^c 2012	0.044	0.000	0.000	0.000	3.699	0.512	0.512

Note: All specifications include cohort dummies, constrained year dummies and treatment cohort dummies. Robust standard errors in parentheses (clustered by cohort and year)*** p<0.01, ** p<0.05, * p<0.1

Table 5b. Estimated coefficients and test statistics

Dep. Var.	(1) Log(income) (not financial)	(2) Log(Income)	(3) Net wealth	(4) Net wealth (home-owners)
Age	0.020***	0.023***	7.686***	14.046***
	(0.003)	(0.003)	(2.350)	(2.623)
Age^2	-0.009***	-0.014***	-1.671	-4.342**
	(0.002)	(0.003)	(1.946)	(2.163)
Female	-0.178***	-0.195***	-27.933***	-37.162***
	(0.009)	(0.010)	(4.235)	(7.283)
Married	-0.078***	-0.079***	-13.177**	-25.047***
	(0.011)	(0.012)	(5.591)	(8.206)
Centre	-0.094***	-0.113***	-5.624	-8.636
	(0.006)	(0.007)	(5.349)	(7.170)
South	-0.416***	-0.446***	-101.855***	-134.798***
	(0.009)	(0.009)	(4.821)	(6.016)
Degree	0.412***	0.453***	200.561***	240.016***
	(0.013)	(0.015)	(14.828)	(16.148)
Log(Famsize)	0.737***	0.785***	64.168***	90.467***
	(0.019)	(0.025)	(12.189)	(17.470)
Log^2(Famsize)	-0.097***	-0.107***	7.370	11.814
	(0.011)	(0.013)	(7.372)	(10.521)
Children/Famsize	-0.707***	-0.761***	-116.594***	-185.878***
	(0.029)	(0.036)	(16.502)	(25.572)
Children 18+/Famsize	0.698***	0.753***	10.062	22.248
	(0.044)	(0.051)	(15.958)	(22.459)
Children with degree/Famsize	0.596***	0.669***	278.765***	293.253***
	(0.040)	(0.044)	(38.778)	(44.273)
Partner with degree	0.308***	0.320***	93.218***	94.132***
	(0.010)	(0.010)	(12.885)	(15.166)
Home-owner	0.172***	0.163***	187.509***	

	(0.009)	(0.012)	(5.642)	
Renter	-0.019**	-0.013	-41.732***	
	(0.010)	(0.012)	(3.756)	
Retired/Famsize	-0.071***	0.025	-94.463***	-126.909***
	(0.017)	(0.019)	(9.192)	(12.786)
Proportion of employees by cohort	-0.008	-0.002	48.354**	55.876**
	(0.065)	(0.062)	(21.158)	(23.762)
Proportion of self-employed by cohort	-0.038	-0.042	49.995**	63.129***
	(0.049)	(0.045)	(20.516)	(23.288)
Proportion of households with at least one unemployed by cohort	-0.932***	-1.987***	227.303	161.428
	(0.339)	(0.410)	(273.273)	(335.654)
LF participant by cohort	0.100***	0.218***	-51.682*	-26.545
	(0.033)	(0.044)	(27.191)	(34.405)
Constant	9.011***	8.435***	-409.785***	-549.551***
	(0.106)	(0.128)	(79.388)	(88.987)
Observations	63,982	64,242	64,794	44,809
R^2	0.417	0.347	0.136	0.078
Adj R^2	0.416	0.346	0.135	0.076
p-values x 100				
F-test treatment cohort dummies	0.000	0.000	0.000	0.000
F-test 2008 cohort dummies	0.000	0.000	0.000	0.000
F-test 2010 cohort dummies	0.000	0.000	0.000	0.000
F-test 2012 cohort dummies	0.000	0.000	0.000	0.000
Equalityβ_t^c 2008	0.000	0.000	0.000	0.000
Equalityβ_t^c 2010	0.000	0.000	0.000	0.000
Equalityβ_t^c 2012	0.000	0.000	0.000	0.000
Older cohorts:				
Equalityβ_t^c 2008	0.000	0.018	3.066	0.971
Equalityβ_t^c 2010	0.000	0.000	0.000	0.000
Equalityβ_t^c 2012	0.000	0.000	0.028	0.017
Youngercohorts:				
Equalityβ_t^c 2008	0.008	0.000	0.000	0.000
Equalityβ_t^c 2010	9.958	0.000	1.198	0.008
Equalityβ_t^c 2012	0.000	0.000	0.420	0.005

Note: All specifications include cohort dummies, constrained year dummies and treatment cohort dummies. Robust standard errors in parentheses (clustered by cohort and year)*** p<0.01, ** p<0.05, * p<0.1

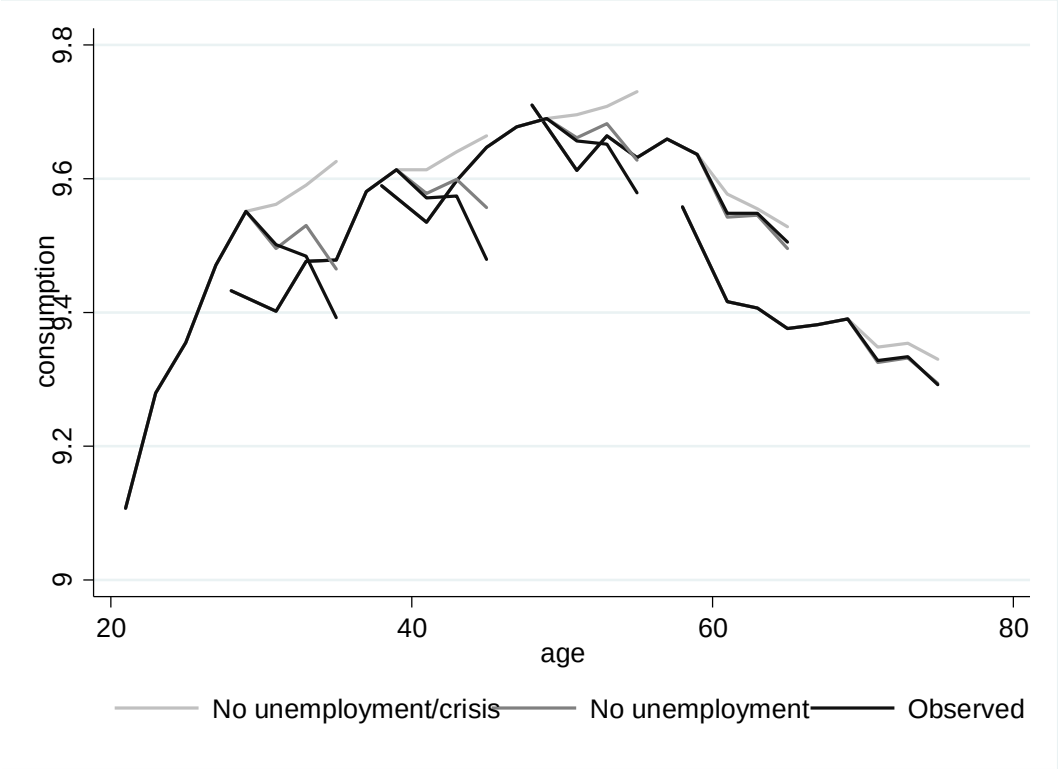
Based on Table 5a estimates, we draw Figures 11-13. In these figures we use the following notation: 'observed' denotes fitted values when the treatment dummies are set to 1 and the cohort-level employment related variables are set to their actual values. 'No unemployment/no crisis' represents what the model predicts when all the treatment dummies are set to zero and employment related variables are set to their 2006 values. 'No unemployment' denotes the scenario in which all the treatment dummies are set to 1 and employment related variables are set to their 2006 values. The vertical distance between observed and the 'No unemployment' scenario can be attributed to unemployment whereas the distance between 'No unemployment' and 'No unemployment/no crisis' predictions represents the 'unexplained' part of the consumption drop. Those differences are summarized in Table 6 for the year 2012: we can see that among working age individuals,

unemployment explains on average one sixth of the drop. Similar results can be found using sampling weights (Table A4 in appendix A).

Figure 11 presents a decomposition of the non-durable consumption drop by cohort. For each cohort, we plot three different lines for the treatment period. One of this (in bold) represents the average observed (log of non-durable) consumption (this obtains by using the estimated β_t^c's and the observed U_t^c's). The thick, grey line (marked "no unemployment"), corresponds to the model where the cohort-level employment-related variables are kept at their 2006 levels, while the β_t^c's are set at their estimated values. The difference between these two lines can be interpreted as the contribution of unemployment to the consumption drop for each cohort. Finally, the pale grey line corresponds to setting the β_t^c's to zero and the U_t^c's to their 2006 levels. The difference between this (pale grey) line and the previous (dark grey) line represents the part of the consumption drop that cannot be explained by the observed changes in unemployment.

For the youngest cohort displayed in Figure 11, we see that unemployment explains a consumption drop close to 5%, out of a total drop of almost 24%. For older cohorts the contribution of unemployment is even more reduced. Table 6 provides estimates for all cohorts used in estimation for 2012.

Figure 11. Non-durable consumption

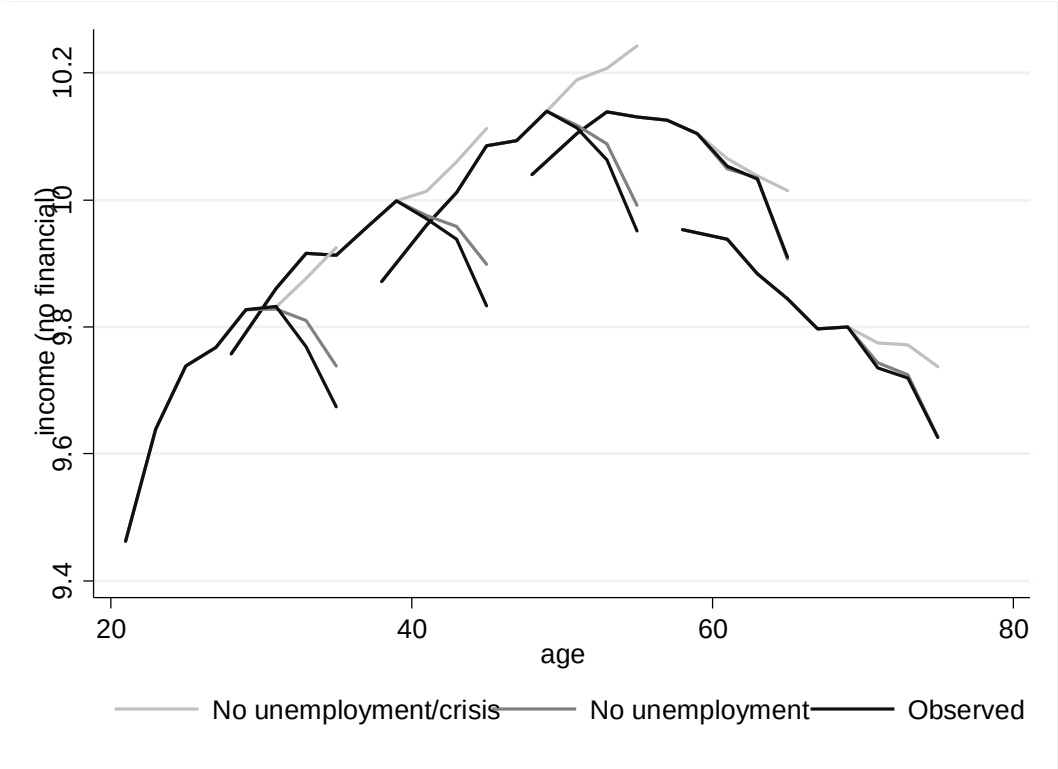


Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

Table 6. Estimated non-durable consumption drop, 2012

Cohort	84-80	79-75	74-70	69-65	64-60	59-55	54-50	49-45	44-40	39-35	34-30	29-25	24-20
Mid-age	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**
No unemployment/no crisis	9.471	9.626	9.665	9.664	9.715	9.73	9.649	9.529	9.391	9.33	9.255	9.166	8.991
No unemployment/crisis	9.273	9.465	9.523	9.557	9.616	9.628	9.57	9.496	9.345	9.293	9.184	9.138	9.040
Observed	9.194	9.392	9.460	9.479	9.545	9.579	9.5	9.505	9.365	9.292	9.182	9.131	9.042
Total drop (x 100)	-27.7	-23.4	-20.5	-18.5	-17	-15.1	-14.9	-2.4	-2.6	-3.8	-7.3	-3.5	5.1
Drop due to unemployment	-7.9	-7.3	-6.3	-7.8	-7.1	-4.9	-7	0.9	2	-0.1	-0.2	-0.7	0.2

Figure 12. Income (excluding income from financial assets) profiles

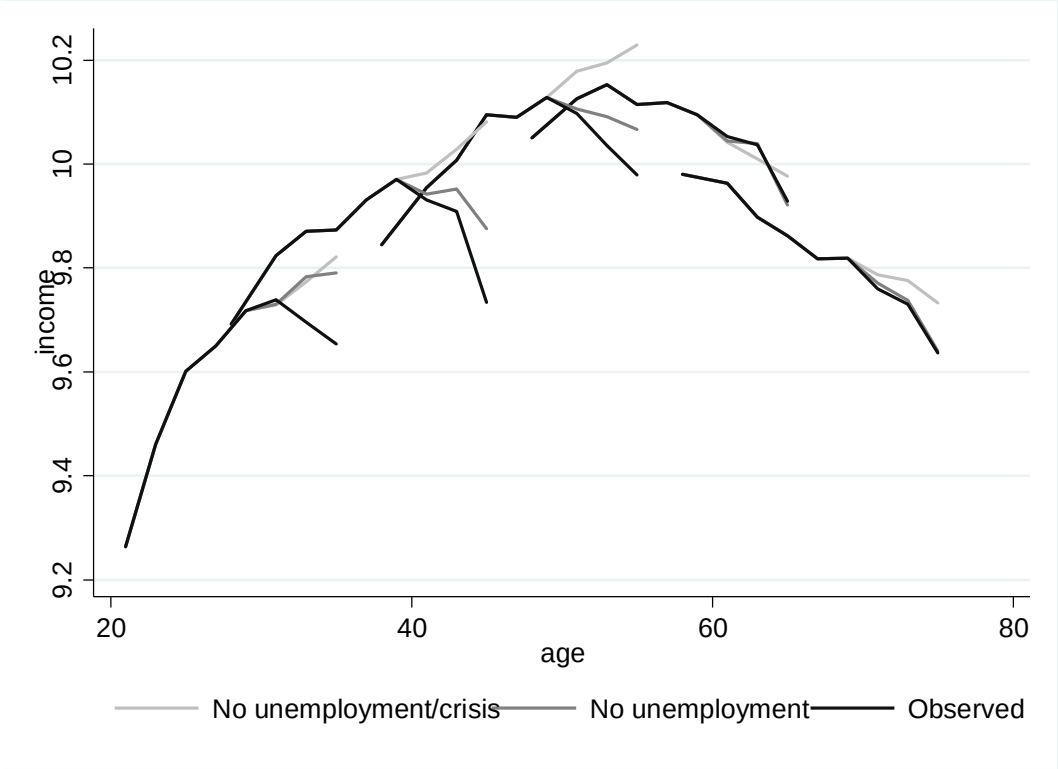


Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

In Figures 12 and 13 we show a similar decomposition for the logarithm of income excluding net financial income (figure 12) and including net financial income (figure 13). We stress that net financial income is defined as the difference between investment income (excluding imputed rent from owner-occupation) and the interest paid on debt (credit card and mortgages). Given the low debt among Italian consumers, the negative component is of some relevance only for younger cohorts.

Similar pictures are not shown for durables and net wealth, because we find that the coefficients on cohort employment variables are not significant in the respective equations.

Figure 13. Income (including income from financial assets) profiles



Note: Cohorts displayed: 1975-79 1965-69 1955-59 1945-49 1935-39

5. Engel Curve estimation

The remarkably large and persistent consumption drops documented above should, in principle, have consequences on the allocation of expenditure among broad commodity bundles. If preferences are non-homothetic, the budget shares of some goods (necessities) should increase, while budget shares of other goods (luxuries) should decrease.

Food at home is the standard example of a necessity – the decline of its budget share with household income (or budget) is known as Engel's law, and has been documented in almost every study on consumer demand patterns using both micro and aggregate data.

For this reason, we plot in Figure 14 the aggregate food at home expenditure share out of non-durable expenditure versus the logarithm of non-durable expenditure (non-durable expenditure is the sum of semi/non-durable goods and services minus actual and imputed rents and housing maintenance) as obtained from official statistics, where each observation corresponds to one year. As highlighted above, Engel's law dictates that decreasing non-durable consumption should be associated with increasing food budget share. This is what we observe up to 2007 where, as a consequence of steadily rising consumption expenditures, food budget shares are on a negative slope. During the years of the Great Recession, however, an interesting pattern emerges. In the first two years of the crisis (2008 and 2009), the food budget share increases as expected in response to the drop in total non-durable expenditure. However, in the following recovery years (2010-11) the food budget share falls to a lower level and remains at that level in 2012-13 despite the major fall in non-durable expenditure that accompanies the sovereign debt crisis. The same dynamics holds when using different definitions of non-durable expenditure (including or excluding semi-durable goods or housing, or deflating nominal values using different prices indexes - see Appendix B).

In Figure 15 we show how the food budget share evolved in other European countries. We use Eurostat data to compare Italy with selected European countries over the same period: Germany, Spain and the UK. Looking at the graph, we can observe that Germany and Spain show the expected pattern during the crisis: the negative relation between food share and non-durable consumption holds during the recession. The UK instead, has a different dynamics that can be explained by the strong, exchange-rate driven increases in the relative price for food during the crisis (as argued in Griffith et al., 2014). Relative food price changes were relatively minor in Italy during the Great Recession. This is evident from Figure 16 which graphs the log ratio of food prices to non-durables prices (in 2010 euros) over the 2002-2013 time window. The vertical line marks the beginning of the Great Recession: no major change in relative prices is observed that could explain the changed relationship between food budget shares and total non-durable expenditure.

Other things being equal, the way the food budget share falls during the latter part of the crisis in Italy would point to Engel curves being flat, or even positively sloped, and would cast doubts on Engel's law according to which food is a necessity. The existence of a structural break in the aggregate food share equation is confirmed in Figure 17, that shows the predictions for the food share based on a regression using yearly data from national accounts till 2007. Among covariates we include the logarithm of the total non-durable expenditure and the logarithm of relative food price (defined as food price/non-durable price index). Figure 17 clearly shows that out-of-sample

predictions (dashed line) that take into account relative price changes are very different from actual values (solid line) at least after 2009.

A less clear-cut, but similar picture, emerges when we aggregate micro data from the diary-based expenditure survey run by ISTAT (the Italian Official Statistical Office), that has been run annually on a comparable basis since 1997. The public use tape of this data set does not contain information on the year of birth (age is reported in 5-year bands), and therefore the data set cannot be used for cohort analysis as performed in previous sections, but is perfectly suited for estimation of Engel curves or complete demand systems. Using micro data from this survey (known as Household Budgets Survey, or "Inchiesta sui bilanci delle famiglie") we then investigate whether this pattern may be explained by aggregation or by some change in preferences.

We should stress that the aggregates obtained by adding up the expenditures recorded in the HBS do not match the National Accounts figures. For instance, the logarithm of average non-durable expenditure in our diary-based data starts falling well before the beginning of the recession, and this can only be partly due to a decreasing trend in family size. This growing divergence between survey data on household expenditure and national accounts is a feature common to other developed countries. As we know from Carroll et al (2015), the US Consumer Expenditure survey also fails to match the aggregate total consumer expenditure. It is possible that the less centralized spending patterns within a household and the rise in non-cash means of payments make this type of surveys where one individuals records cash layouts for the whole household increasingly less accurate and comprehensive.

However, it is comforting to us that the relative spending on non-durable goods and services by age group in the HBS are in line with what we have seen in SHIW (a survey that better mimics aggregate spending patterns). In Figure 18 we report the evolution of the logarithm of total non-durable expenditure for the years 1997-2013 for individuals belonging to different age groups in differences from the year average. As previously documented, younger households appear to be those worst affected by the Great Recession, while the oldest age group experience the smallest drop in consumption. It is also evident from the figure that years 2009 and 2012 are associated with the largest drop in expenditures.

Figure 14. Food share as a function of log consumption in aggregate data

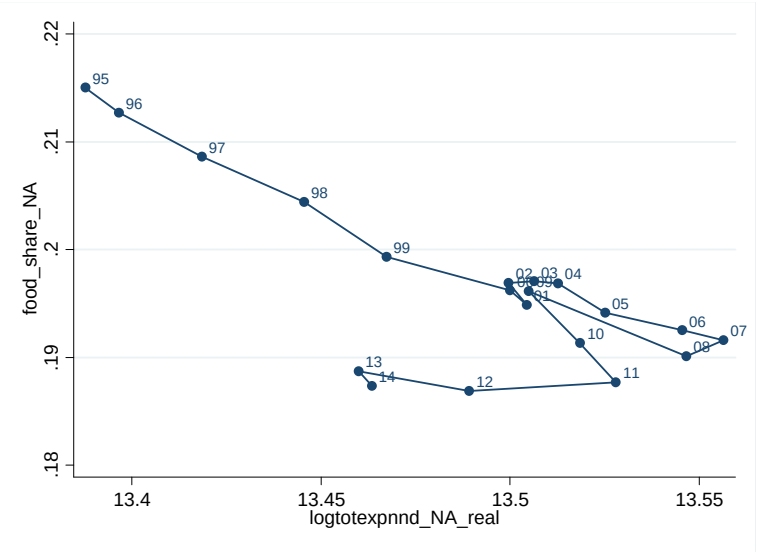


Figure 15. Food share as a function of log consumption in aggregate data for selected European countries

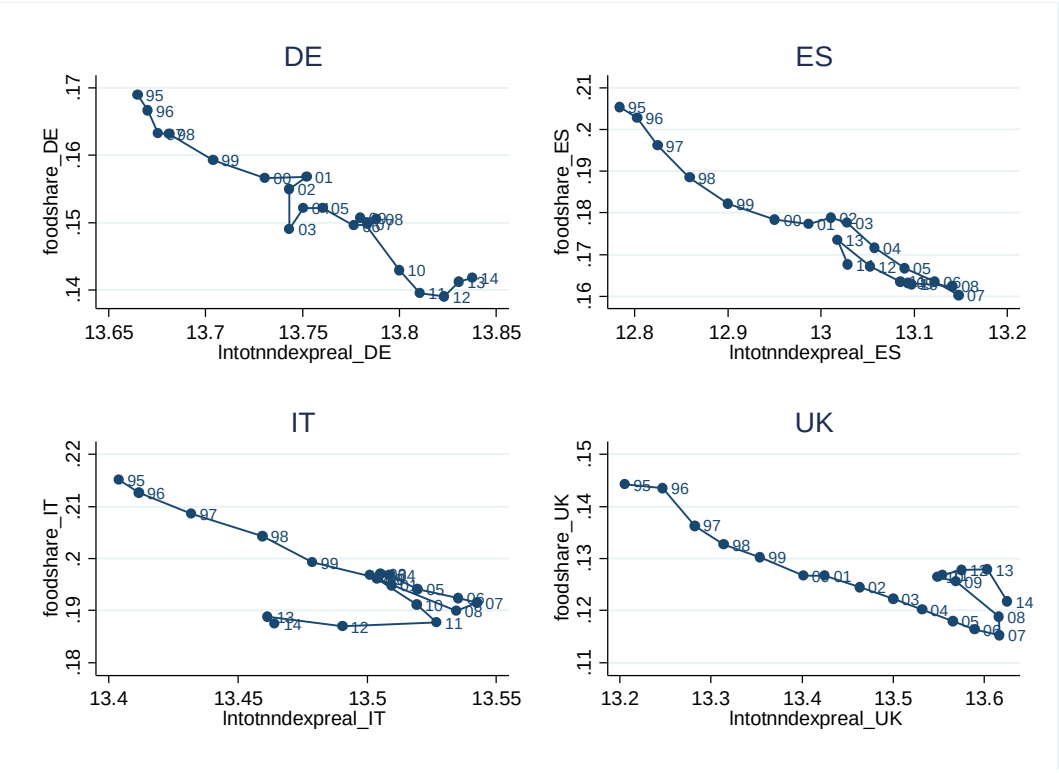


Figure 16. Relative prices.

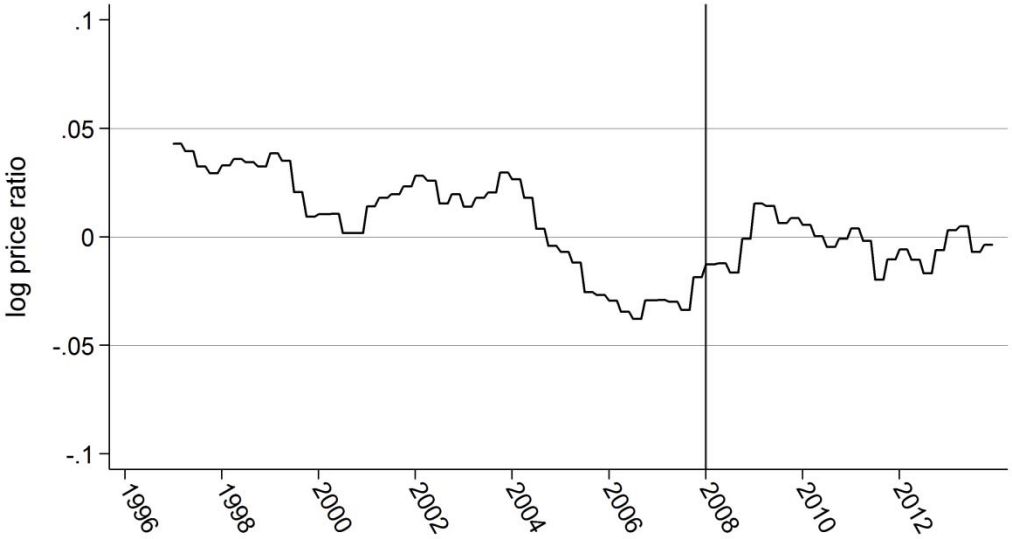


Figure 17. Out-of-sample predictions

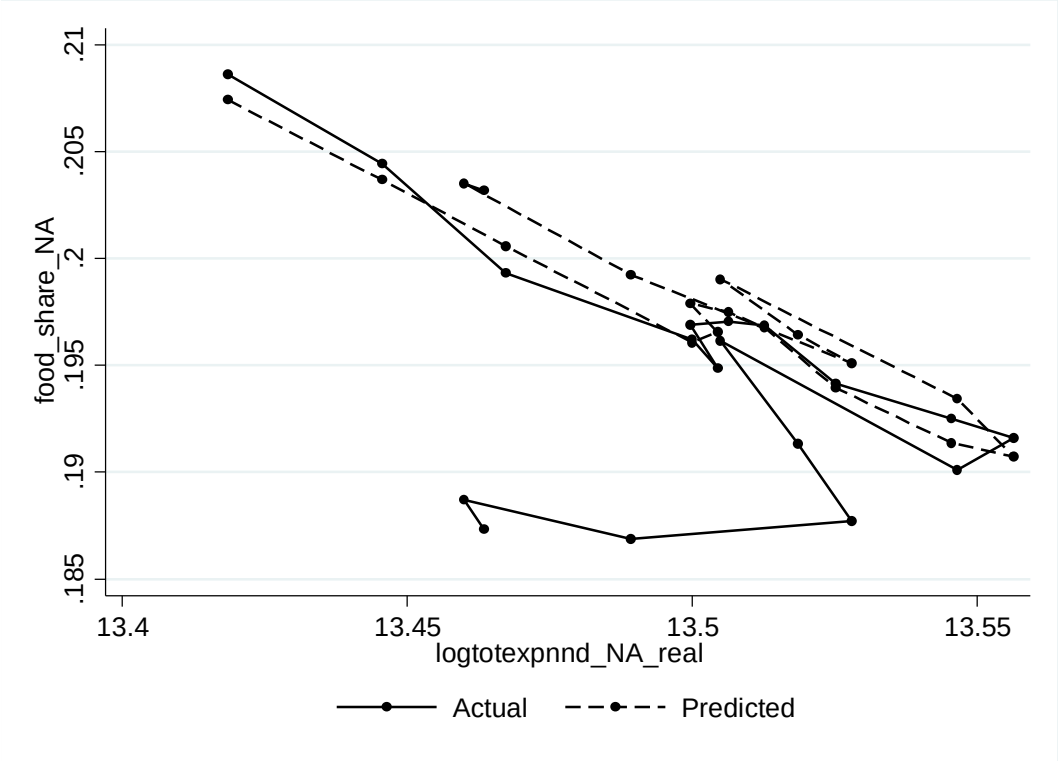
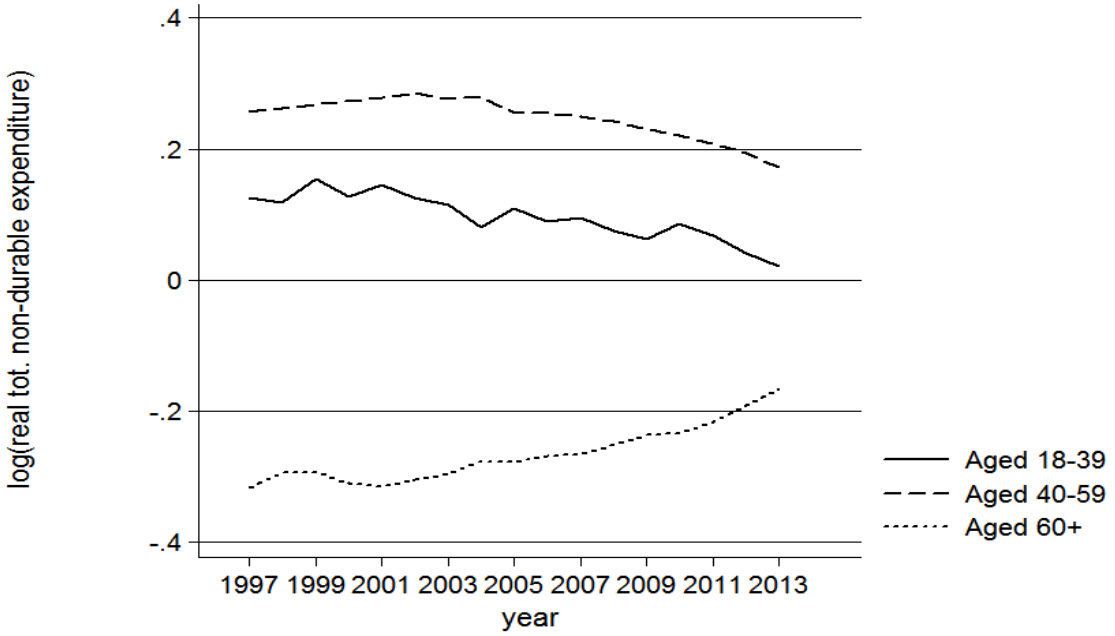


Figure 18. Log(consumption) by age group and year (in difference from average)



In order to reconcile micro and macro based evidence we first ask the question of whether the way the food share changes over time in the National Accounts data may be due to aggregation bias. Engel curves are commonly defined at the individual level and, to the extent that aggregation to the country level does not leave the parameters of the relationship unchanged, the pattern emerging from Figure 14 may be an artifact.

Let the Engel curve for food be a function of the logarithm of consumption and some other covariates, Z_1, that affect the intercept, and (Z_2) also the slope:

$$\frac{food_{th}}{C_{th}} = \alpha_t + \theta' Z_{1th} + \beta(Z_{2th})\ln(C_{th}) + \nu_{th}$$

where $food_{th}$ is food expenditure and C is total non-durable expenditure at time t for household h. The intercept is time varying to allow for relative price effects (that in our case do not seem to play a major role – estimates are available upon request).

Blundell, Pashardes and Weber (1993) show that, if $\beta(Z_{2th}) = \beta + \gamma Z_{2th}$ an equivalent relation holds in the aggregate:

$$\frac{food_t}{C_t} = \alpha_t + \theta' \sum_h \mu_{th} Z_{1th} + \beta \ln(C_t) + \beta \sum_h \mu_{th} \ln(C_{th}/C_t) + \gamma \sum_h \mu_{th} Z_{2th} \ln(C_{th}) + \nu_{th}$$

where $food_t$ and C_t are the aggregate food and total non-durable expenditures respectively, while $\mu_{ht} = \frac{C_{ht}}{C_t}$ is a weight that captures the relative importance of the h^{th} household in total non-durable consumption. The aggregate food share is then a linear function of the average *Z* and their interactions with the logarithm of average *C*. But in aggregate data one typically observes the average *Z* (for instance, the proportion of individuals in a certain age group), not the average of the product of Z and log consumption. Also, one observes the logarithm of average consumption, not the average of log consumption.

Blundell, Pashardes and Weber (1993) argue that, as long as some aggregation factors are stable over time, estimates for the structural Engel curve at the micro level can be equivalently obtained from aggregate quantities. In fact, the aggregate equation can be rewritten as:

$$\frac{food_t}{C_t} = \alpha_t + \theta' \sum_h \mu_{th} Z_{1th} + \beta \sum_h \pi_{0t} \ln(C_t) + \gamma \sum_h \pi_{2t} Z_{2t} \ln(C_t) + \nu_t$$

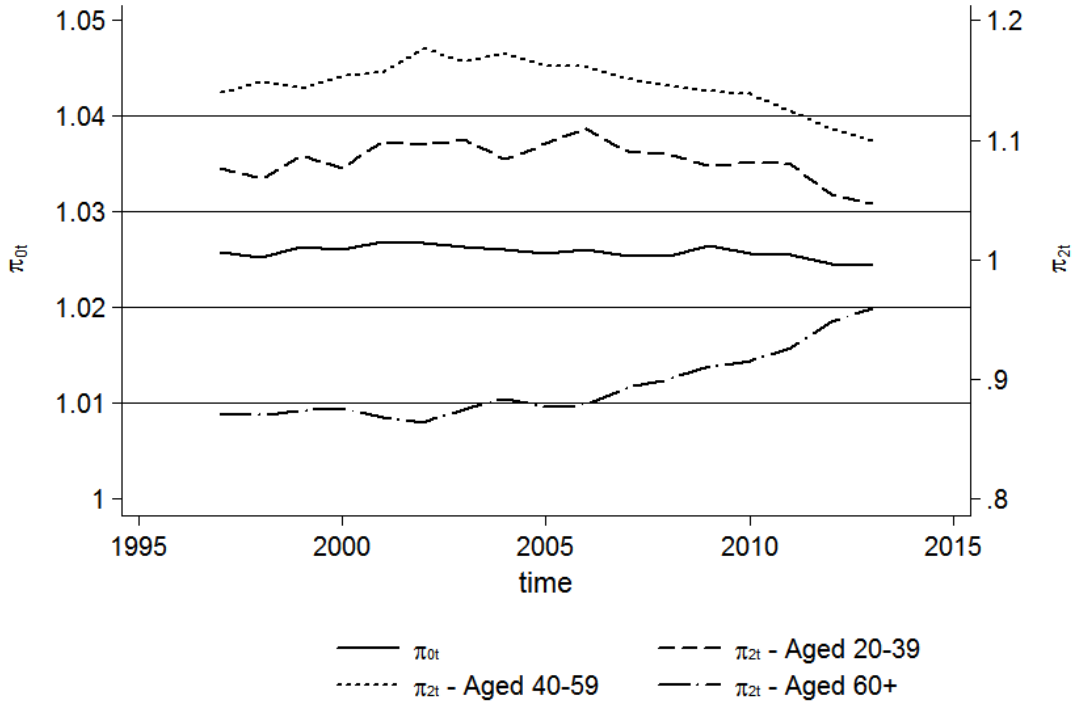
where

$$\pi_{0t} = \frac{E[\mu_{th} \ln(C_{th})]}{E[\ln(C_{th})]}; \quad \pi_{2t} = \frac{E[Z_{2th} \mu_{th} \ln(C_{th})]}{E[Z_{2th}] E[\ln(C_{th})]}$$

To compute aggregation factors that are relevant to our application, we use micro data drawn from the Household Budget Survey (HBS) provided by ISTAT, which collects detailed information regarding household consumption expenditure. Unlike SHIW, that asks respondents their average monthly expenditure on all items, three main categories of durable goods and monthly expenditure on food alone, the HBS gathers expenditure data on several goods and services that the household buy for final consumption. In addition to expenditure information, the HBS collects data about socio-economic characteristics of the households, features of the house where they live (facilities, number of rooms, …), owned durable goods, and, only for selected years, shopping habits. For data protection reasons, some information is not released - for the same reason some variables are grouped into categories. Unfortunately in recent years (2005 onwards) age is available only in classes, and this prevents carrying out any type of cohort analysis.

Figure 19 reports the evolution over time of π_{0t} and π_{2t} where Z_2 is a set of age group dummies (for ages 18-39, 40-59 or 60 and above). The figure clearly shows that the first aggregation factor, π_{0t}, is fairly constant, but the aggregation factors that capture the interaction with age display clear patterns, with an increasing trend for older generations that accelerates during the recession period. This is largely due to the patterns in total non-durable consumption that we saw in the first part of the paper and points to the fact that the aggregate relationship between food expenditure and total non-durable expenditure might provide biased conclusions on the individual level parameters of interest. It would be interesting to understand to what extent aggregation bias is responsible for the patterns observed in Figure 14.

Figure 19 Aggregation factors



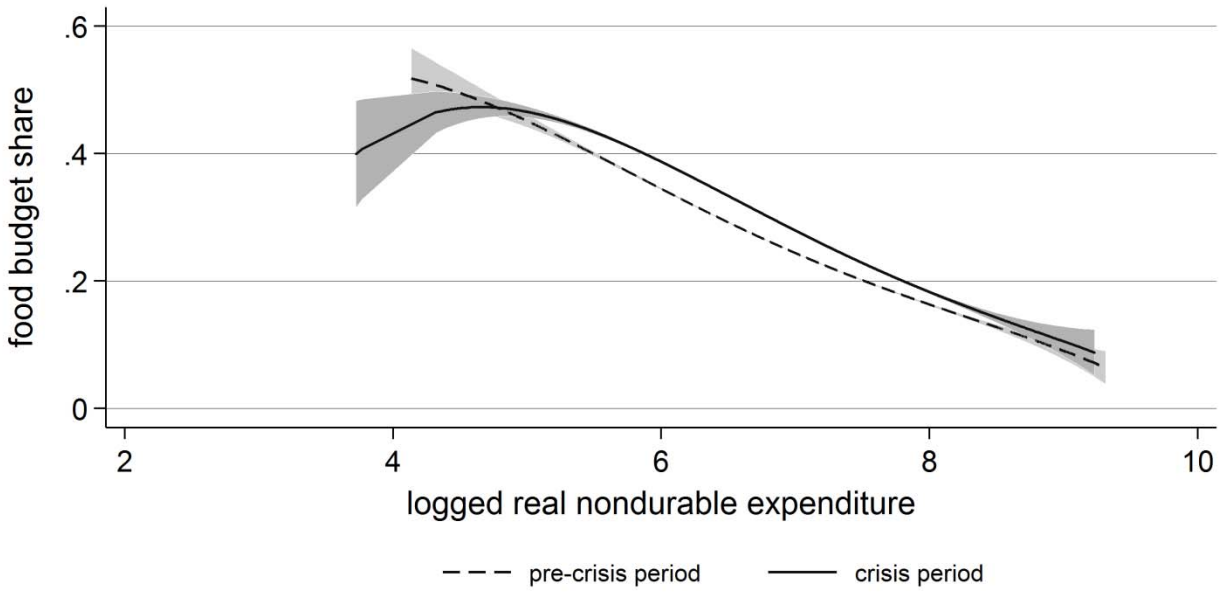
An alternative explanation of why the slope of the aggregate Engel curve changes during the Great Recession is that the structural parameters of the individual level Engel curves do not remain constant throughout our available data period.

To investigate whether the relation between the food share and the logarithm of C_t (total real non-durable expenditure), that is the Working-Leser Engel curve, has changed between the pre-crisis and the crisis period we first estimate it non-parametrically. In Figure 20 we show the estimated curves when we include all individuals aged 60 or lower separately for the two periods. Estimation is obtained using a sieve estimator along the lines of Chen (2007). The specification adopted is then

$$w_{th} = \theta' Z_{th} + \sum_{j=0}^{J} \rho_j(\ln(C_{th})) + v_{th}$$

where w_{th} is the budget share on food for household h at time t and we include controls (Z_{th}) for gender, household size, macro-area and high-school degree of both household head and his spouse as well as for relative prices of food over non-durables. In our exercise we consider polynomial basis functions, that is $\rho_j(x) = x^j$, and the smoothing parameter J is set to 4, as sensibility checks suggest this as an optimal choice for the data at hand.

Figure 20 Non-parametric estimate of the Engel curve for food

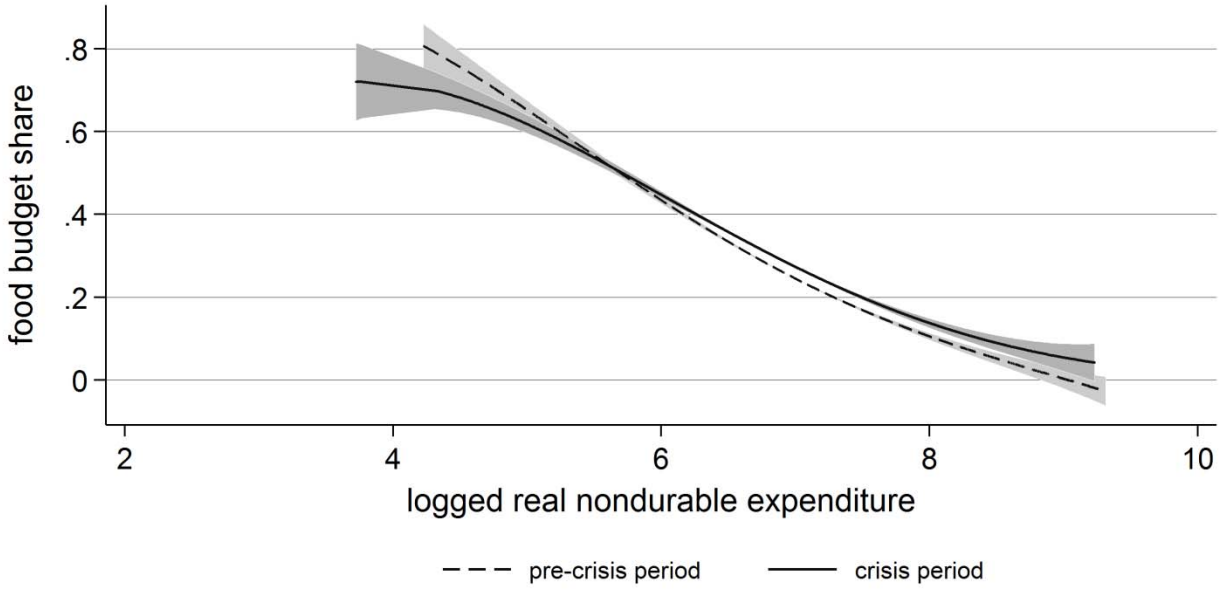


The estimated Engel curve is almost linearly downward sloping over the entire support of nondurable expenditures during the pre-crisis period (dashed line), while it presents an upward-sloping section in the left portion over the crisis period (solid line). These results, however, do not take into account the potential endogeneity of nondurable expenditures and might in principle reflect simple correlation rather than actual structural parameters changes. In order to correct for this, we instrument $\ln(C_{th})$ with the number of rooms in the house of residence, as this variable has a strong relationship with life-time wealth and is not affected by short-run changes in resources. In the spirit of Attanasio et al. (2012) and Blundell et al. (1998) we control for the endogeneity of nondurable expenditures by means of a control function approach.
We then estimate:

$$w_h = \theta' Z_h + \sum_{j=0}^{J} \rho_j (\ln(C_h)) + \eta \hat{r}_h + \nu_h$$

where $\hat{r}_h$ are the first stage residuals of logged non durable consumption on the instruments. Results are presented in Figure 21. The shape of the pre-crisis Engel curve is almost unaffected, while the slope of the post-crisis Engel curve is basically flat on the left portion of the support of nondurable expenditures.
Overall estimation results point to a change of shape of the Engel curve for food during the crisis mostly affecting poorer households, for which food is less of a necessity, while for richer households the shape is virtually unaffected.

Figure 21 Non-parametric estimate of the Engel curve for food controlling for endogeneity of nondurable expenditures



Estimates so far have been obtained by pooling data over different years. We then inspect whether important nonlinearities might be detected by considering a breakdown by year. To this end we also estimate parametrically a standard Working-Leser Engel curve for food, using individual micro data, for each year between 2002 and 2013, adopting the following specification:

$$w_{th} = \alpha_t + \theta' Z_{th} + \beta_t \ln(C_{th}) + \nu_{th}$$

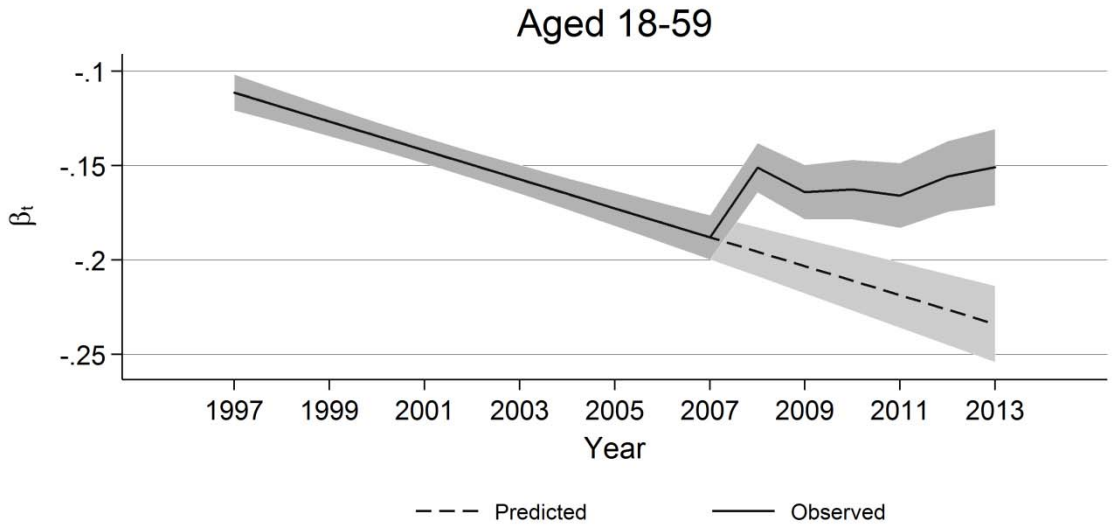
Linear Engel curves are considered given that in our nonparametric exercise linearity seems a reasonable approximation for the vast majority of the population.

Estimates are obtained by pooling regressions over different years interacting $\ln(C_{th})$ with a linear coefficient in time and dummies for recession years.

Figure 22 reports final estimates for the slope of the Working-Leser Engel curve (β_t) for individuals aged 18-59. Shaded areas show the corresponding 95% confidence intervals. Detailed estimates for all the estimated coefficients are outlined in Appendix C. Given that food is a necessity, we expect β_t to be negative as it is confirmed by the figure. Interestingly, however, point estimates consistently rise above the pre-crisis predicted pattern after 2007. This would suggest that food is becoming less of a necessity during the recession period for this age group, consistently with the above nonparametric estimates. A similar pattern is observed for the older (60+) individuals, as reported in Figure 23, at least for the first years of the recession. Unlike the structural change

observed for the younger generations, however, this seems to be a temporary fluctuation, with the value of β_t in 2013 being again very close to the predicted one under the no crisis scenario.

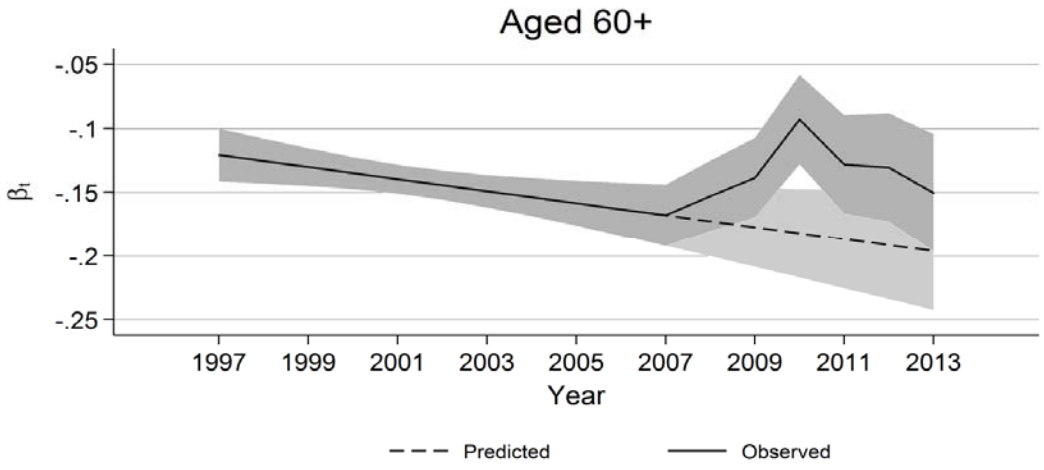
Figure 22. Slope of the Working-Leser Engel curve for food (households aged 18-59)



This result further raises the question of which other component of total non-durable expenditures is becoming more of a necessity or less of a luxury, as in a system of demand the sum of the β_t coefficients, at each point in time, is restricted to be zero ("adding up restriction"). Figure B.4 in Appendix B reports similar figures for all of the components of non-durable expenditures available in the survey.

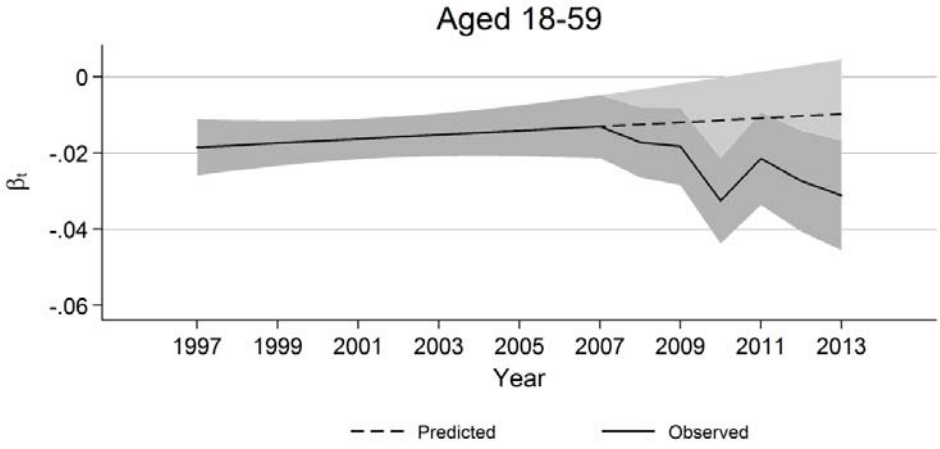
The most promising candidate to offset the above effect on food expenditures seems to be transportation which, given our estimates, has become less of a luxury over this period. Figure 24 reports such estimates. Transportation is a necessity in our estimated demand system, albeit with a coefficient not far from zero - during the years of the Great Recession this coefficient falls sharply for the younger age group.

Figure 23. Slope of the Working-Leser Engel curve for food (households aged 60+)



These results might in principle contribute to explaining why the pattern of aggregate food budget share has the unusual shape shown in Figure 14 and could signal a change in preferences that is somehow connected with the negative shocks brought about by the Great Recession in Italy.

Figure 24. Slope of the Working-Leser curve for transportation (households aged 18-59)



6. Conclusions

In this paper we have used Italian micro data to investigate how consumers reacted to the Great Recession. In particular, we study the age profiles of non-durable consumption, durable purchases and saving rates over the period 2008-2012 for different year-of-birth cohorts, and investigate how they departed from the way they would have been had consumer behavior been the same as it was over the 1995-2006 period. Our most important findings are that young households cut consumption most, that only a fraction of this reduction was related to the increase in unemployment, and that consumers reacted to the crisis by first using some of their wealth to buffer the income shock (2008), but later by cutting consumption even more than income.

We have also shown that the crisis had an impact on the aggregate Engel curve, that has lost its negative slope after 2009. We have shown that this cannot be explained by relative prices, and argued that it could be due to changes in composition (as the young have lost weight relatively to the old) or in preferences. We have used diary-based micro data to investigate changes in the way consumers of different age groups allocate their spending to various broad consumption bundles – and found that the budget elasticity of the demand for food significantly rose during the crisis, particularly for young consumers, making food at home less of a necessity.

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Appendix A

Table A1a. Estimated coefficients and test statistics, cohort treatment dummies - baseline

Dep. Var.	(1) Non-durables consumption	(2) Purchase durables	(3) Durables	(4) Purchase durables (less cars)	(5) Durables (less cars)	(6) Total expenditure	(7) Total expenditure (less cars)
2008							
cohort 1920-24	0.113***	0.049***	0.115	0.054***	-0.202*	0.111***	0.111***
	(0.016)	(0.013)	(0.083)	(0.013)	(0.103)	(0.015)	(0.015)
cohort 1925-29	0.026***	0.031***	-0.040	0.037***	-0.316**	0.017*	0.017*
	(0.009)	(0.008)	(0.061)	(0.008)	(0.126)	(0.009)	(0.009)
cohort 1930-34	0.019*	0.093***	-0.081	0.102***	-0.300***	0.015	0.015
	(0.011)	(0.008)	(0.067)	(0.006)	(0.071)	(0.012)	(0.012)
cohort 1935-39	-0.014*	0.076***	-0.197***	0.082***	-0.197*	-0.015*	-0.015*
	(0.008)	(0.005)	(0.048)	(0.006)	(0.105)	(0.009)	(0.009)
cohort 1940-44	-0.064***	0.096***	-0.276***	0.102***	-0.450***	-0.061***	-0.061***
	(0.010)	(0.007)	(0.044)	(0.005)	(0.062)	(0.011)	(0.011)
cohort 1945-49	-0.080***	0.044***	-0.034	0.062***	-0.219***	-0.070***	-0.070***
	(0.009)	(0.006)	(0.040)	(0.006)	(0.066)	(0.009)	(0.009)
cohort 1950-54	-0.025**	0.050***	-0.174***	0.072***	-0.195***	-0.028***	-0.028***
	(0.011)	(0.007)	(0.035)	(0.007)	(0.070)	(0.009)	(0.009)
cohort 1955-59	-0.044***	0.048***	-0.164***	0.077***	0.026	-0.052***	-0.052***
	(0.010)	(0.005)	(0.045)	(0.006)	(0.094)	(0.011)	(0.011)
cohort 1960-64	-0.069***	0.054***	-0.291***	0.056***	-0.415***	-0.073***	-0.073***
	(0.007)	(0.009)	(0.065)	(0.007)	(0.085)	(0.010)	(0.010)
cohort 1965-69	-0.040***	0.057***	-0.346***	0.085***	-0.334***	-0.041***	-0.041***
	(0.008)	(0.008)	(0.042)	(0.006)	(0.082)	(0.008)	(0.008)
cohort 1970-74	-0.013	0.052***	-0.169***	0.053***	-0.141	-0.019	-0.019
	(0.014)	(0.011)	(0.046)	(0.007)	(0.115)	(0.011)	(0.011)
cohort 1975-79	-0.051***	0.073***	-0.138**	0.118***	0.294*	-0.030	-0.030
	(0.018)	(0.007)	(0.069)	(0.011)	(0.173)	(0.020)	(0.020)
cohort 1980-84	-0.064	0.077***	0.275	0.090***	0.081	-0.020	-0.020
	(0.070)	(0.004)	(0.198)	(0.026)	(0.100)	(0.086)	(0.086)
2010							
cohort 1920-24	0.106***	0.076***	-0.114	0.067***	-0.707***	0.105***	0.105***
	(0.019)	(0.014)	(0.095)	(0.014)	(0.132)	(0.018)	(0.018)
cohort 1925-29	0.056***	0.059***	-0.094	0.061***	-0.626***	0.052***	0.052***
	(0.012)	(0.009)	(0.075)	(0.009)	(0.145)	(0.012)	(0.012)
cohort 1930-34	0.038***	0.072***	-0.331***	0.076***	-0.742***	0.026*	0.026*
	(0.013)	(0.009)	(0.078)	(0.007)	(0.090)	(0.014)	(0.014)
cohort 1935-39	-0.006	0.085***	-0.228***	0.095***	-0.467***	-0.010	-0.010
	(0.010)	(0.006)	(0.058)	(0.007)	(0.111)	(0.010)	(0.010)
cohort 1940-44	-0.029***	0.110***	-0.207***	0.119***	-0.483***	-0.031***	-0.031***
	(0.011)	(0.007)	(0.051)	(0.006)	(0.068)	(0.011)	(0.011)
cohort 1945-49	-0.064***	0.037***	-0.170***	0.063***	-0.565***	-0.066***	-0.066***
	(0.010)	(0.007)	(0.042)	(0.007)	(0.072)	(0.010)	(0.010)
cohort 1950-54	-0.057***	0.046***	-0.185***	0.058***	-0.398***	-0.065***	-0.065***
	(0.012)	(0.008)	(0.039)	(0.008)	(0.075)	(0.010)	(0.010)
cohort 1955-59	-0.059***	0.046***	-0.103**	0.072***	-0.041	-0.056***	-0.056***
	(0.011)	(0.006)	(0.050)	(0.007)	(0.101)	(0.012)	(0.012)
cohort 1960-64	-0.085***	0.061***	-0.175**	0.080***	-0.337***	-0.089***	-0.089***
	(0.008)	(0.010)	(0.070)	(0.008)	(0.095)	(0.011)	(0.011)
cohort 1965-69	-0.064***	0.050***	-0.273***	0.075***	-0.409***	-0.063***	-0.063***

	(0.010)	(0.009)	(0.049)	(0.006)	(0.100)	(0.009)	(0.009)
cohort 1970-74	-0.109***	0.054***	-0.273***	0.059***	-0.294**	-0.114***	-0.114***
	(0.015)	(0.012)	(0.053)	(0.009)	(0.134)	(0.012)	(0.012)
cohort 1975-79	-0.099***	0.032***	-0.447***	0.085***	-0.021	-0.116***	-0.116***
	(0.019)	(0.009)	(0.077)	(0.013)	(0.189)	(0.021)	(0.021)
cohort 1980-84	-0.083	0.087***	0.330	0.084***	0.146	-0.030	-0.030
	(0.071)	(0.006)	(0.201)	(0.026)	(0.125)	(0.086)	(0.086)
2012							
cohort 1920-24	0.097***	0.049***	0.503***	0.036**	-0.504***	0.108***	0.108***
	(0.022)	(0.016)	(0.110)	(0.016)	(0.165)	(0.021)	(0.021)
cohort 1925-29	0.009	0.037***	-0.160*	0.027**	-1.104***	0.007	0.007
	(0.016)	(0.011)	(0.090)	(0.011)	(0.169)	(0.014)	(0.014)
cohort 1930-34	-0.039***	0.028**	-0.402***	0.035***	-1.004***	-0.057***	-0.057***
	(0.015)	(0.011)	(0.089)	(0.009)	(0.111)	(0.016)	(0.016)
cohort 1935-39	-0.018	0.021***	-0.505***	0.041***	-0.713***	-0.044***	-0.044***
	(0.012)	(0.008)	(0.069)	(0.008)	(0.120)	(0.012)	(0.012)
cohort 1940-44	-0.047***	0.019**	-0.352***	0.034***	-0.845***	-0.062***	-0.062***
	(0.012)	(0.008)	(0.060)	(0.007)	(0.081)	(0.013)	(0.013)
cohort 1945-49	-0.092***	0.003	-0.422***	0.039***	-0.917***	-0.112***	-0.112***
	(0.011)	(0.008)	(0.046)	(0.008)	(0.080)	(0.011)	(0.011)
cohort 1950-54	-0.150***	-0.047***	-0.471***	-0.023***	-0.845***	-0.179***	-0.179***
	(0.013)	(0.008)	(0.045)	(0.008)	(0.081)	(0.011)	(0.011)
cohort 1955-59	-0.153***	-0.008	-0.491***	0.022***	-0.530***	-0.180***	-0.180***
	(0.012)	(0.007)	(0.055)	(0.008)	(0.108)	(0.013)	(0.013)
cohort 1960-64	-0.172***	-0.055***	-0.344***	-0.034***	-0.604***	-0.199***	-0.199***
	(0.009)	(0.010)	(0.076)	(0.009)	(0.103)	(0.013)	(0.013)
cohort 1965-69	-0.183***	0.017*	-0.665***	0.048***	-0.702***	-0.210***	-0.210***
	(0.011)	(0.010)	(0.057)	(0.008)	(0.114)	(0.011)	(0.011)
cohort 1970-74	-0.197***	-0.030**	-0.622***	-0.006	-0.787***	-0.223***	-0.223***
	(0.016)	(0.013)	(0.061)	(0.010)	(0.152)	(0.013)	(0.013)
cohort 1975-79	-0.230***	0.001	-0.507***	0.010	-0.644***	-0.215***	-0.215***
	(0.021)	(0.010)	(0.086)	(0.014)	(0.210)	(0.022)	(0.022)
cohort 1980-84	-0.286***	-0.097***	-0.118	-0.098***	-0.449***	-0.293***	-0.293***
	(0.071)	(0.008)	(0.205)	(0.027)	(0.158)	(0.087)	(0.087)

Note: All specifications include cohort dummies, constrained year dummies and treatment cohort dummies. Robust standard errors in parentheses (clustered by cohort and year)*** p<0.01, ** p<0.05, * p<0.1

Table A1b. Estimated coefficients and test statistics, cohort treatment dummies - baseline

Dep. Var	(1) Income (no financial)	(2) Income	(3) Net wealth	(4) Net wealth (home-owners)
2008				
cohort 1920-24	0.083***	0.114***	-18.526**	-3.473
	(0.020)	(0.021)	(7.545)	(7.983)
cohort 1925-29	0.009	0.030***	-7.730	1.057
	(0.010)	(0.012)	(6.443)	(7.169)
cohort 1930-34	0.011	0.035***	-19.819***	-16.713*
	(0.010)	(0.012)	(7.118)	(8.561)
cohort 1935-39	-0.040***	-0.014*	-5.774	-12.007*
	(0.008)	(0.007)	(5.508)	(6.209)
cohort 1940-44	-0.015*	-0.000	2.796	-0.464
	(0.008)	(0.008)	(5.542)	(7.232)
cohort 1945-49	-0.048***	-0.045***	14.695**	15.724*
	(0.008)	(0.012)	(6.456)	(8.794)
cohort 1950-54	-0.056***	-0.058***	45.720***	57.751***

	(0.014)	(0.014)	(6.022)	(7.279)
cohort 1955-59	-0.081***	-0.097***	-23.724***	-36.903***
	(0.010)	(0.015)	(6.319)	(8.797)
cohort 1960-64	-0.082***	-0.118***	-5.576	-9.167
	(0.012)	(0.015)	(11.573)	(12.452)
cohort 1965-69	-0.042***	-0.056***	-13.182	-14.010
	(0.013)	(0.019)	(8.289)	(8.997)
cohort 1970-74	-0.026	-0.025	-43.082***	-53.187**
	(0.019)	(0.021)	(15.767)	(21.908)
cohort 1975-79	0.004	0.017	-37.326*	-56.374**
	(0.023)	(0.048)	(19.645)	(22.669)
cohort 1980-84	-0.169**	-0.218***	-40.152**	-38.545
	(0.066)	(0.034)	(19.331)	(26.000)
2010				
cohort 1920-24	0.074***	0.112***	-17.517*	2.623
	(0.023)	(0.025)	(9.736)	(10.503)
cohort 1925-29	0.028**	0.045***	4.899	9.320
	(0.014)	(0.015)	(8.173)	(9.223)
cohort 1930-34	0.009	0.024	-16.978**	-16.125
	(0.012)	(0.014)	(8.056)	(9.805)
cohort 1935-39	-0.047***	-0.027***	1.397	-4.636
	(0.009)	(0.009)	(6.245)	(6.964)
cohort 1940-44	-0.038***	-0.010	-0.272	-8.472
	(0.009)	(0.009)	(6.022)	(7.820)
cohort 1945-49	-0.047***	-0.037***	69.830***	80.824***
	(0.009)	(0.013)	(6.887)	(9.466)
cohort 1950-54	-0.136***	-0.153***	-5.052	-17.345**
	(0.015)	(0.015)	(6.727)	(8.255)
cohort 1955-59	-0.149***	-0.176***	-21.806***	-33.876***
	(0.012)	(0.017)	(7.350)	(10.011)
cohort 1960-64	-0.149***	-0.224***	-23.748*	-39.754***
	(0.014)	(0.017)	(12.803)	(13.998)
cohort 1965-69	-0.122***	-0.128***	-11.832	-10.200
	(0.014)	(0.021)	(9.758)	(10.771)
cohort 1970-74	-0.161***	-0.252***	-43.530**	-60.216**
	(0.020)	(0.022)	(16.801)	(23.108)
cohort 1975-79	-0.108***	-0.078	-68.123***	-117.407***
	(0.024)	(0.048)	(20.563)	(23.635)
cohort 1980-84	-0.202***	-0.079**	-54.618***	-46.005*
	(0.066)	(0.035)	(20.038)	(26.736)
2012				
cohort 1920-24	0.035	0.097***	-23.810*	-8.635
	(0.027)	(0.029)	(12.027)	(13.012)
cohort 1925-29	-0.034**	-0.004	-17.277*	-10.989
	(0.017)	(0.019)	(10.098)	(11.532)
cohort 1930-34	-0.071***	-0.048***	-35.791***	-32.981***
	(0.015)	(0.017)	(9.264)	(11.395)
cohort 1935-39	-0.102***	-0.074***	-2.735	-23.200***
	(0.011)	(0.011)	(7.222)	(8.028)
cohort 1940-44	-0.067***	-0.019*	-5.981	-18.476**
	(0.010)	(0.011)	(6.657)	(8.561)
cohort 1945-49	-0.156***	-0.126***	-20.198***	-29.387***
	(0.010)	(0.014)	(7.369)	(10.181)
cohort 1950-54	-0.217***	-0.245***	-34.576***	-52.099***
	(0.016)	(0.016)	(7.368)	(9.279)
cohort 1955-59	-0.296***	-0.267***	-23.885***	-40.698***
	(0.014)	(0.019)	(8.250)	(11.153)

cohort 1960-64	-0.273***	-0.318***	-33.102**	-56.659***
	(0.016)	(0.019)	(13.855)	(15.390)
cohort 1965-69	-0.280***	-0.359***	-47.281***	-72.680***
	(0.016)	(0.023)	(11.063)	(12.375)
cohort 1970-74	-0.289***	-0.325***	-75.844***	-114.753***
	(0.021)	(0.023)	(17.908)	(24.204)
cohort 1975-79	-0.255***	-0.176***	-86.221***	-165.392***
	(0.025)	(0.048)	(21.588)	(24.997)
cohort 1980-84	-0.409***	-0.596***	-52.523**	-34.979
	(0.067)	(0.037)	(21.140)	(28.009)

Note: All specifications include cohort dummies, constrained year dummies and treatment cohort dummies. Robust standard errors in parentheses (clustered by cohort and year)*** p<0.01, ** p<0.05, * p<0.1

Table A2a. Estimated coefficients and test statistics, cohort treatment dummies

Dep. Var.	(1) Non-durables consumption	(2) Purchase durables	(3) Durables	(4) Purchase durables (less cars)	(5) Durables (less cars)	(6) Total expenditure	(7) Total expenditure (less cars)
2008							
cohort 1920-24	0.108***	0.045***	0.052	0.051***	-0.253**	0.103***	0.103***
	(0.015)	(0.013)	(0.091)	(0.013)	(0.108)	(0.013)	(0.013)
cohort 1925-29	0.022**	0.028***	-0.090	0.035***	-0.361***	0.011	0.011
	(0.009)	(0.008)	(0.063)	(0.008)	(0.132)	(0.008)	(0.008)
cohort 1930-34	0.017*	0.092***	-0.113	0.101***	-0.329***	0.012	0.012
	(0.010)	(0.008)	(0.068)	(0.006)	(0.074)	(0.012)	(0.012)
cohort 1935-39	-0.012	0.077***	-0.189***	0.084***	-0.187*	-0.011	-0.011
	(0.008)	(0.006)	(0.049)	(0.006)	(0.104)	(0.009)	(0.009)
cohort 1940-44	-0.058***	0.101***	-0.237***	0.105***	-0.415***	-0.052***	-0.052***
	(0.010)	(0.007)	(0.045)	(0.005)	(0.061)	(0.010)	(0.010)
cohort 1945-49	-0.074***	0.048***	0.010	0.065***	-0.185***	-0.062***	-0.062***
	(0.008)	(0.006)	(0.042)	(0.006)	(0.068)	(0.008)	(0.008)
cohort 1950-54	-0.024**	0.050***	-0.172***	0.072***	-0.193***	-0.028***	-0.028***
	(0.011)	(0.007)	(0.034)	(0.007)	(0.070)	(0.009)	(0.009)
cohort 1955-59	-0.045***	0.048***	-0.174***	0.076***	0.018	-0.053***	-0.053***
	(0.010)	(0.005)	(0.045)	(0.006)	(0.093)	(0.011)	(0.011)
cohort 1960-64	-0.071***	0.053***	-0.297***	0.055***	-0.420***	-0.075***	-0.075***
	(0.007)	(0.009)	(0.065)	(0.007)	(0.086)	(0.010)	(0.010)
cohort 1965-69	-0.041***	0.056***	-0.349***	0.084***	-0.337***	-0.043***	-0.043***
	(0.008)	(0.008)	(0.042)	(0.006)	(0.083)	(0.008)	(0.008)
cohort 1970-74	-0.013	0.051***	-0.164***	0.053***	-0.136	-0.019*	-0.019*
	(0.014)	(0.011)	(0.047)	(0.008)	(0.114)	(0.011)	(0.011)
cohort 1975-79	-0.051***	0.073***	-0.132*	0.118***	0.299*	-0.030	-0.030
	(0.018)	(0.007)	(0.068)	(0.011)	(0.173)	(0.020)	(0.020)
cohort 1980-84	-0.064	0.078***	0.282	0.090***	0.077	-0.019	-0.019
	(0.070)	(0.004)	(0.195)	(0.026)	(0.099)	(0.086)	(0.086)
2010							
cohort 1920-24	0.100***	0.072***	-0.200*	0.064***	-0.782***	0.096***	0.096***
	(0.018)	(0.015)	(0.103)	(0.014)	(0.138)	(0.016)	(0.016)
cohort 1925-29	0.051***	0.055***	-0.162**	0.058***	-0.684***	0.044***	0.044***
	(0.012)	(0.010)	(0.078)	(0.009)	(0.152)	(0.011)	(0.011)
cohort 1930-34	0.035***	0.070***	-0.381***	0.075***	-0.788***	0.022	0.022
	(0.012)	(0.009)	(0.080)	(0.007)	(0.094)	(0.013)	(0.013)
cohort 1935-39	-0.005	0.085***	-0.228***	0.095***	-0.467***	-0.008	-0.008
	(0.010)	(0.007)	(0.059)	(0.007)	(0.113)	(0.010)	(0.010)
cohort 1940-44	-0.024**	0.113***	-0.183***	0.121***	-0.462***	-0.024**	-0.024**

	(0.010)	(0.008)	(0.051)	(0.006)	(0.068)	(0.011)	(0.011)
cohort 1945-49	-0.057***	0.042***	-0.119***	0.066***	-0.521***	-0.056***	-0.056***
	(0.009)	(0.007)	(0.045)	(0.006)	(0.074)	(0.009)	(0.009)
cohort 1950-54	-0.055***	0.047***	-0.180***	0.059***	-0.390***	-0.063***	-0.063***
	(0.012)	(0.007)	(0.039)	(0.008)	(0.076)	(0.010)	(0.010)
cohort 1955-59	-0.061***	0.045***	-0.117**	0.071***	-0.054	-0.059***	-0.059***
	(0.011)	(0.006)	(0.050)	(0.007)	(0.100)	(0.012)	(0.012)
cohort 1960-64	-0.086***	0.060***	-0.186***	0.079***	-0.347***	-0.091***	-0.091***
	(0.008)	(0.009)	(0.071)	(0.008)	(0.096)	(0.011)	(0.011)
cohort 1965-69	-0.066***	0.049***	-0.279***	0.074***	-0.414***	-0.065***	-0.065***
	(0.009)	(0.009)	(0.050)	(0.006)	(0.100)	(0.009)	(0.009)
cohort 1970-74	-0.110***	0.053***	-0.272***	0.059***	-0.294**	-0.116***	-0.116***
	(0.015)	(0.012)	(0.054)	(0.009)	(0.134)	(0.012)	(0.012)
cohort 1975-79	-0.099***	0.032***	-0.436***	0.085***	-0.011	-0.116***	-0.116***
	(0.019)	(0.009)	(0.075)	(0.013)	(0.189)	(0.021)	(0.021)
cohort 1980-84	-0.083	0.087***	0.327	0.084***	0.137	-0.029	-0.029
	(0.070)	(0.006)	(0.198)	(0.026)	(0.124)	(0.086)	(0.086)
2012							
cohort 1920-24	0.089***	0.044**	0.416***	0.032*	-0.570***	0.098***	0.098***
	(0.021)	(0.017)	(0.117)	(0.016)	(0.171)	(0.019)	(0.019)
cohort 1925-29	0.001	0.032***	-0.249***	0.024**	-1.174***	-0.004	-0.004
	(0.014)	(0.012)	(0.094)	(0.011)	(0.177)	(0.013)	(0.013)
cohort 1930-34	-0.044***	0.025**	-0.466***	0.033***	-1.061***	-0.064***	-0.064***
	(0.014)	(0.011)	(0.092)	(0.009)	(0.115)	(0.015)	(0.015)
cohort 1935-39	-0.019	0.020**	-0.529***	0.041***	-0.736***	-0.045***	-0.045***
	(0.011)	(0.008)	(0.069)	(0.008)	(0.123)	(0.012)	(0.012)
cohort 1940-44	-0.042***	0.023***	-0.324***	0.037***	-0.824***	-0.054***	-0.054***
	(0.011)	(0.008)	(0.060)	(0.007)	(0.081)	(0.012)	(0.012)
cohort 1945-49	-0.084***	0.008	-0.358***	0.043***	-0.857***	-0.100***	-0.100***
	(0.011)	(0.008)	(0.049)	(0.007)	(0.083)	(0.011)	(0.011)
cohort 1950-54	-0.147***	-0.045***	-0.464***	-0.022***	-0.835***	-0.175***	-0.175***
	(0.013)	(0.008)	(0.045)	(0.008)	(0.082)	(0.011)	(0.011)
cohort 1955-59	-0.155***	-0.009	-0.501***	0.021***	-0.538***	-0.182***	-0.182***
	(0.012)	(0.007)	(0.055)	(0.007)	(0.107)	(0.012)	(0.012)
cohort 1960-64	-0.174***	-0.057***	-0.355***	-0.035***	-0.613***	-0.202***	-0.202***
	(0.009)	(0.010)	(0.076)	(0.009)	(0.104)	(0.012)	(0.012)
cohort 1965-69	-0.185***	0.015	-0.678***	0.047***	-0.714***	-0.213***	-0.213***
	(0.011)	(0.010)	(0.057)	(0.008)	(0.115)	(0.010)	(0.010)
cohort 1970-74	-0.199***	-0.031**	-0.617***	-0.007	-0.783***	-0.225***	-0.225***
	(0.016)	(0.013)	(0.062)	(0.010)	(0.152)	(0.013)	(0.013)
cohort 1975-79	-0.230***	0.001	-0.492***	0.010	-0.630***	-0.215***	-0.215***
	(0.021)	(0.010)	(0.084)	(0.014)	(0.210)	(0.022)	(0.022)
cohort 1980-84	-0.287***	-0.097***	-0.125	-0.099***	-0.464***	-0.294***	-0.294***
	(0.071)	(0.008)	(0.202)	(0.027)	(0.157)	(0.086)	(0.086)

Note: All specifications include cohort dummies, constrained year dummies and treatment cohort dummies. Robust standard errors in parentheses (clustered by cohort and year)*** p<0.01, ** p<0.05, * p<0.1

Table A2b. Estimated coefficients and test statistics, cohort treatment dummies

	(1)	(2)	(3)	(4)
Dep. Var	Income (no financial)	Income	Net wealth	Net wealth (home-owners)
2008				

cohort 1920-24	0.074***	0.117***	-29.748***	-16.886*
	(0.018)	(0.021)	(9.287)	(8.933)
cohort 1925-29	0.002	0.032***	-16.474**	-10.155
	(0.009)	(0.012)	(7.899)	(8.384)
cohort 1930-34	0.008	0.036***	-23.737***	-22.337***
	(0.009)	(0.012)	(7.399)	(8.420)
cohort 1935-39	-0.036***	-0.015*	-0.611	-6.399
	(0.006)	(0.008)	(6.920)	(7.681)
cohort 1940-44	-0.005	-0.003	14.759***	13.811**
	(0.008)	(0.008)	(4.975)	(5.652)
cohort 1945-49	-0.039***	-0.048***	26.195***	29.524***
	(0.007)	(0.013)	(7.205)	(9.033)
cohort 1950-54	-0.055***	-0.058***	46.192***	56.809***
	(0.014)	(0.014)	(6.032)	(7.192)
cohort 1955-59	-0.083***	-0.096***	-26.077***	-42.472***
	(0.010)	(0.015)	(6.256)	(8.479)
cohort 1960-64	-0.085***	-0.117***	-8.720	-14.312
	(0.012)	(0.015)	(10.819)	(11.026)
cohort 1965-69	-0.044***	-0.055***	-16.401*	-19.246**
	(0.013)	(0.019)	(8.656)	(9.167)
cohort 1970-74	-0.027	-0.024	-44.252***	-53.828**
	(0.018)	(0.022)	(16.544)	(22.600)
cohort 1975-79	0.004	0.017	-37.612*	-57.256**
	(0.023)	(0.048)	(20.048)	(23.173)
cohort 1980-84	-0.169**	-0.218***	-39.297**	-39.147
	(0.065)	(0.034)	(18.808)	(24.206)
2010				
cohort 1920-24	0.063***	0.115***	-30.195**	-13.533
	(0.021)	(0.025)	(11.657)	(11.538)
cohort 1925-29	0.020	0.047***	-5.741	-4.948
	(0.012)	(0.015)	(9.689)	(10.348)
cohort 1930-34	0.004	0.025*	-22.643***	-25.113**
	(0.011)	(0.015)	(8.620)	(9.831)
cohort 1935-39	-0.046***	-0.027***	2.994	-3.276
	(0.008)	(0.010)	(7.904)	(8.615)
cohort 1940-44	-0.031***	-0.012	9.760*	2.178
	(0.009)	(0.009)	(5.697)	(6.455)
cohort 1945-49	-0.036***	-0.040***	83.559***	97.812***
	(0.008)	(0.014)	(7.629)	(9.565)
cohort 1950-54	-0.134***	-0.154***	-2.526	-15.998**
	(0.015)	(0.016)	(6.749)	(8.068)
cohort 1955-59	-0.152***	-0.175***	-25.530***	-41.413***
	(0.012)	(0.017)	(7.278)	(9.631)
cohort 1960-64	-0.152***	-0.224***	-26.504**	-44.625***
	(0.014)	(0.017)	(12.066)	(12.514)
cohort 1965-69	-0.125***	-0.127***	-15.856	-17.137
	(0.014)	(0.021)	(10.064)	(10.807)
cohort 1970-74	-0.163***	-0.251***	-46.327***	-64.755***
	(0.019)	(0.022)	(17.548)	(23.719)
cohort 1975-79	-0.108***	-0.078	-67.915***	-117.212***
	(0.023)	(0.048)	(20.944)	(24.024)
cohort 1980-84	-0.202***	-0.079**	-54.060***	-45.248*
	(0.066)	(0.035)	(19.550)	(24.913)
2012				
cohort 1920-24	0.024	0.101***	-38.582***	-29.704**
	(0.024)	(0.029)	(14.180)	(14.204)
cohort 1925-29	-0.046***	-0.001	-32.507***	-33.168**

	(0.015)	(0.019)	(11.831)	(12.767)
cohort 1930-34	-0.079***	-0.046***	-45.878***	-49.158***
	(0.014)	(0.017)	(10.154)	(11.686)
cohort 1935-39	-0.104***	-0.074***	-4.326	-25.785***
	(0.010)	(0.012)	(9.112)	(9.826)
cohort 1940-44	-0.058***	-0.022*	5.598	-5.359
	(0.010)	(0.011)	(6.629)	(7.368)
cohort 1945-49	-0.143***	-0.130***	-3.755	-8.879
	(0.009)	(0.015)	(8.175)	(10.238)
cohort 1950-54	-0.212***	-0.247***	-28.335***	-44.421***
	(0.016)	(0.017)	(7.408)	(8.974)
cohort 1955-59	-0.299***	-0.266***	-27.315***	-49.095***
	(0.013)	(0.019)	(8.180)	(10.714)
cohort 1960-64	-0.276***	-0.317***	-37.214***	-64.013***
	(0.016)	(0.019)	(13.142)	(13.865)
cohort 1965-69	-0.284***	-0.358***	-52.341***	-81.467***
	(0.016)	(0.023)	(11.290)	(12.203)
cohort 1970-74	-0.292***	-0.324***	-78.648***	-119.317***
	(0.020)	(0.023)	(18.615)	(24.708)
cohort 1975-79	-0.255***	-0.177***	-85.843***	-165.213***
	(0.024)	(0.049)	(21.945)	(25.259)
cohort 1980-84	-0.410***	-0.596***	-53.127**	-37.074
	(0.066)	(0.037)	(20.695)	(26.205)

Note: All specifications include cohort dummies, constrained year dummies and treatment cohort dummies. Robust standard errors in parentheses (clustered by cohort and year)*** p<0.01, ** p<0.05, * p<0.1

Table A3. Estimated log consumption drop (sampling weights used), 2012 - baseline

Cohort (year of birth)	84-80	79-75	74-70	69-65	64-60	59-55	54-50	49-45	44-40	39-35	34-30	29-25	24-20
Mid-age in 2012	30	35	40	45	50	55	60	65	70	75	80	85	90
Predicted	9.422	9.605	9.621	9.665	9.72	9.748	9.672	9.599	9.389	9.316	9.197	9.097	8.946
Observed	9.203	9.357	9.463	9.495	9.555	9.542	9.498	9.482	9.307	9.286	9.119	9.08	9.002
Total drop (x 100)	-21.9	-24.8	-15.8	-17	-16.5	-20.6	-17.4	-11.7	-8.2	-3	-7.8	-1.7	5.6

Table A4. Estimated consumption drop (sampling weights used), 2012

Cohort	84-80	79-75	74-70	69-65	64-60	59-55	54-50	49-45	44-40	39-35	34-30	29-25	24-20
Mid-age	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**
No unemployment/no crisis	9.409	9.604	9.627	9.667	9.719	9.749	9.672	9.527	9.363	9.334	9.235	9.144	9.003
No unemployment/crisis	9.266	9.423	9.518	9.564	9.617	9.589	9.567	9.484	9.302	9.291	9.128	9.083	8.997
Observed	9.203	9.357	9.463	9.495	9.555	9.542	9.498	9.482	9.307	9.286	9.119	9.08	9.002
Total drop (x 100)	-20.6	-24.7	-16.4	-17.2	-16.4	-20.7	-17.4	-4.5	-5.7	-4.8	-11.5	-6.4	-0.1
Drop due to unemployment	-6.4	-6.7	-5.5	-6.9	-6.3	-4.6	-6.9	-0.3	0.5	-0.5	-0.9	-0.4	0.4

Table A5. Summary statistics - SHIW

Variable	%	Mean	SD
Age		56.22	14.79
Female	0.22		
Married	0.67		
Centre	0.21		
South	0.34		
Degree	0.09		
Log(Famsize)		0.86	0.53
Children/Famsize		0.24	0.24
Children 18+/Famsize		0.13	0.20
Children with degree/Famsize		0.02	0.07
Partner with degree	0.06		
Home-owner	0.69		
Renter	0.21		
LF participant	0.49		
Retired/Famsize		0.34	0.41
Proportion of employees by cohort		0.54	0.24
Proportion of self-employed by cohort		0.39	0.24
Proportion of households with at least 1 unemployed by cohort	0.03		
cohort 1920-24	0.06		
cohort 1925-29	0.08		
cohort 1930-34	0.09		
cohort 1935-39	0.11		
cohort 1940-44	0.10		
cohort 1945-49	0.11		
cohort 1950-54	0.11		
cohort 1955-59	0.10		
cohort 1960-64	0.10		
cohort 1965-69	0.07		
cohort 1970-74	0.04		
cohort 1975-79	0.02		
cohort 1980-84	0.01		
Log non-durable consumption		9.47	0.53
Log income (no financial)		9.88	0.67
Log income (no financial)		9.87	0.76
Purchase of durables		0.35	0.48
Log durable expenditure among buyers		7.53	1.49
Purchase of durables (no cars)		0.28	0.45
Log durable expenditure among buyers (no cars)		6.68	1.96
Net wealth (thousands)		212.92	411.46
Log total expenditure		9.55	0.58
Log total expenditure (no cars)		9.55	0.58

Cohorts displayed in red

year of birth	84-80	79-75	74-70	69-65	64-60	59-55	54-50	49-45	44-40	39-35	34-30	29-25	24-20
age in 2012	30	35	40	45	50	55	60	65	70	75	80	85	90

Figure A1. Total expenditure profiles - baseline

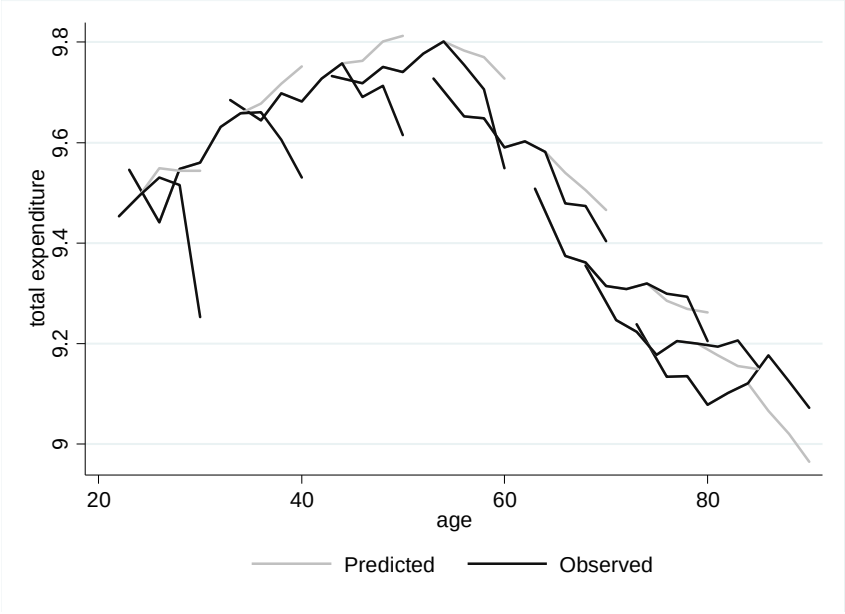
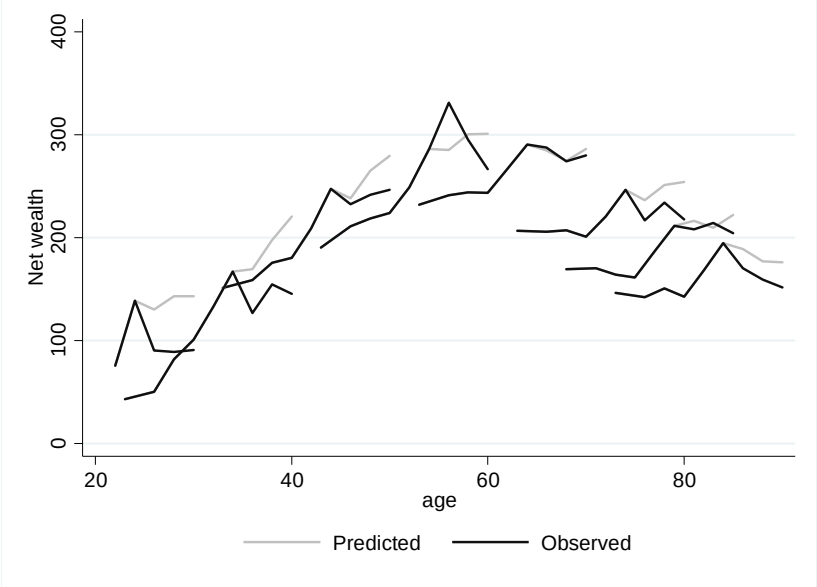
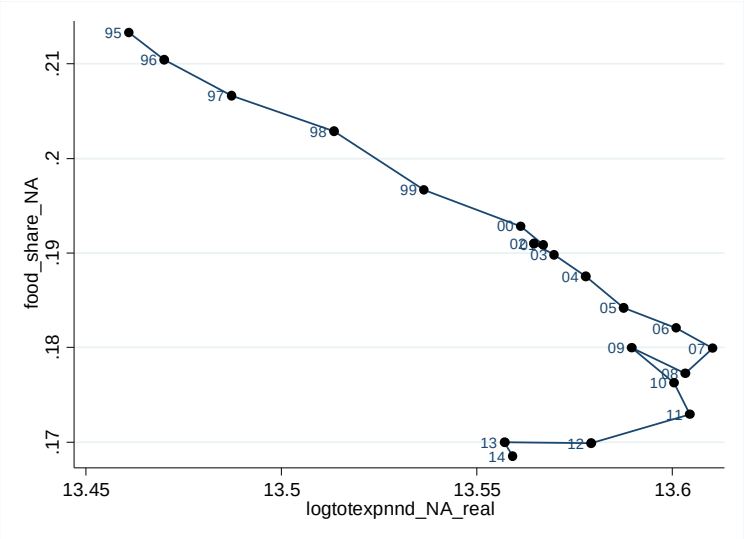


Figure A2. Net wealth profiles - baseline



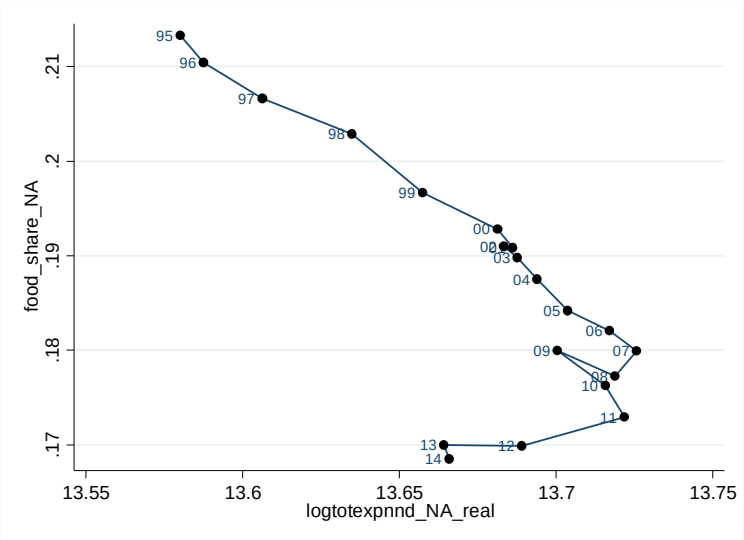
Appendix B.

Figure B.1 Food share as a function of log non-durable consumption in aggregate data (real values deflated to 2010 prices, provided by ISTAT) - version 1



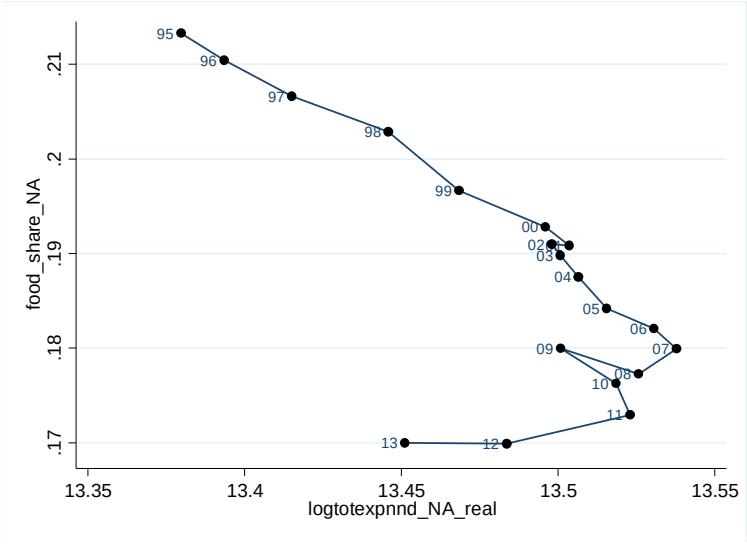
Note: Non-durable consumption includes non-durable goods and services. NA: National Accounts.

Figure B.2 Food share as a function of log non-durables consumption in aggregate data (real values deflated to 2010 prices, provided by ISTAT) - version 2



Note: Non-durable consumption includes non-durable goods, semi-durables goods and services. NA: National Accounts.

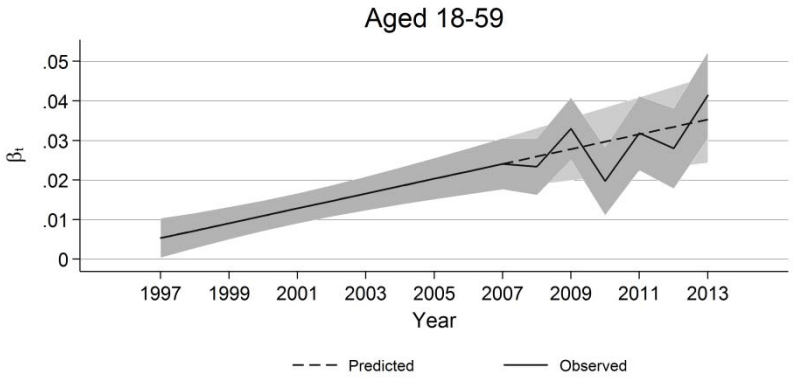
Figure B.3 Food share as a function of log non-durable consumption in aggregate data (real values deflated to 2010 prices, provided by ISTAT) - version 3



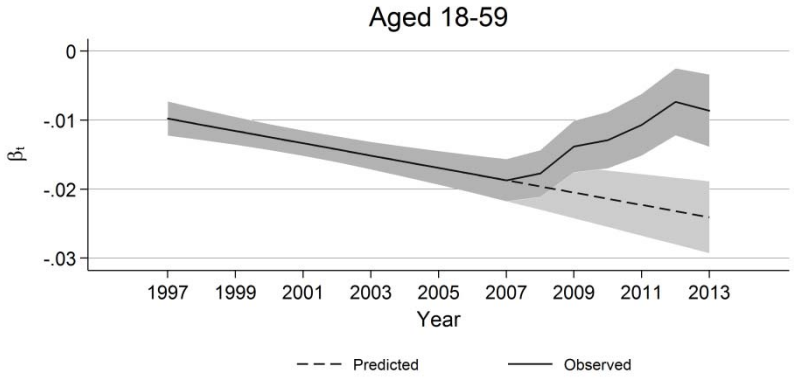
Note: Non-durable consumption includes non-durable goods, semi-durables goods and services (housing related expenses excluded: rent and maintenance). NA: National Accounts.

Figure B.4 Slope of the Working-Leser curve for different components of non-durable expenditures (households aged 18-59)

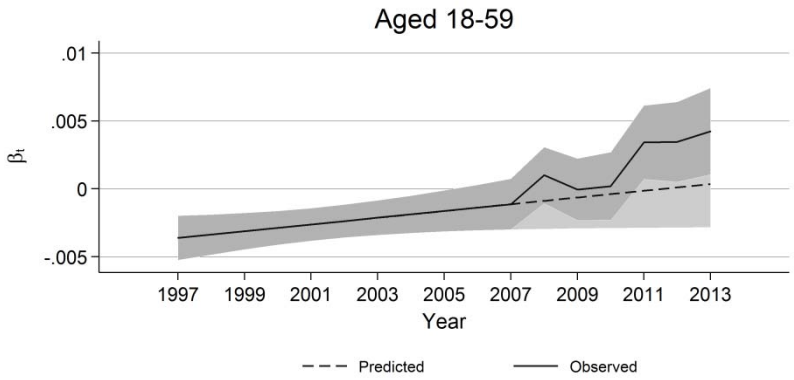
Food Away



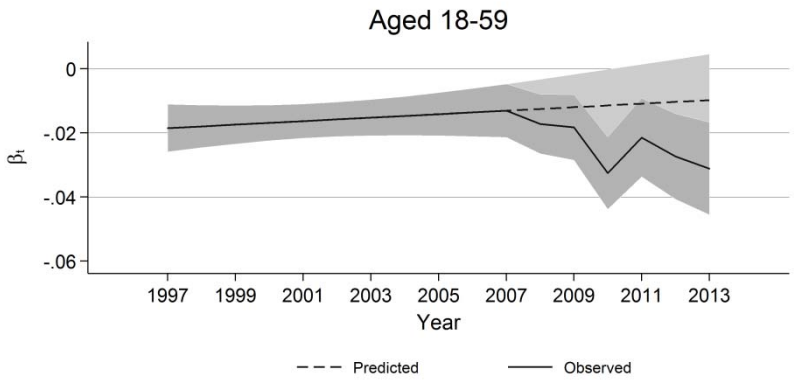
Tobacco



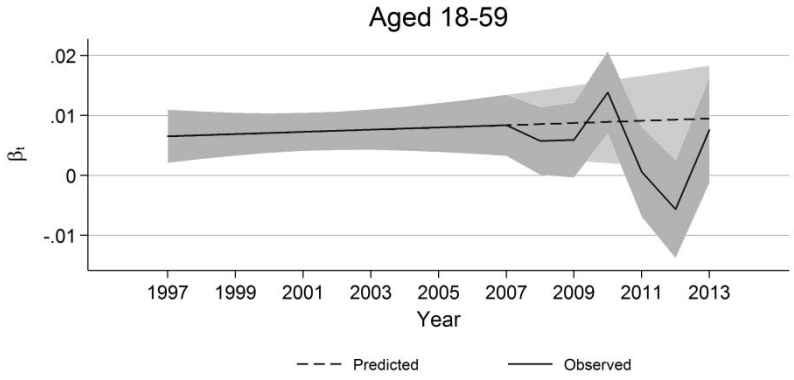
Alcohol



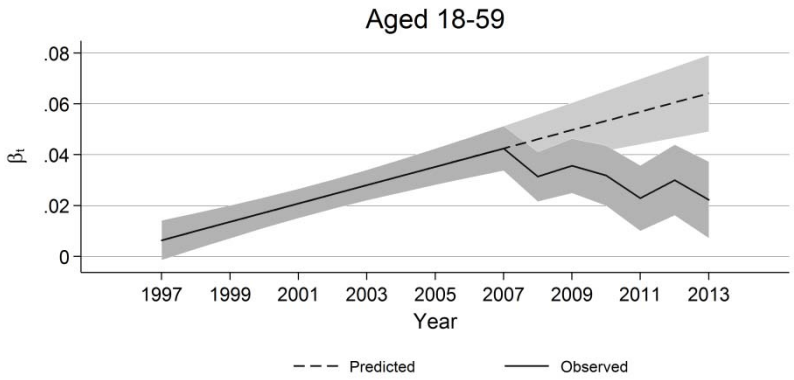
Transportation



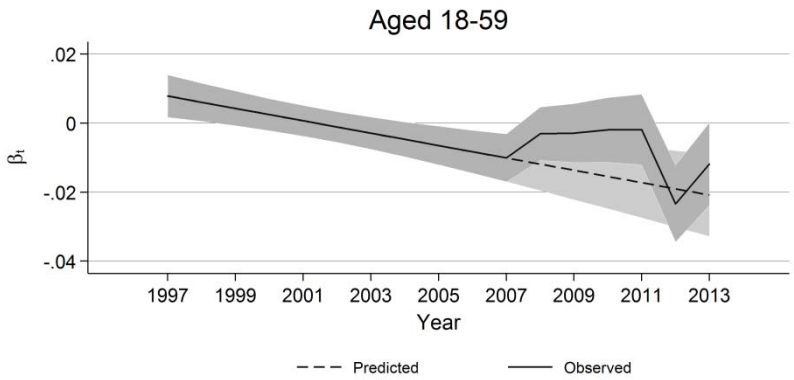
Education



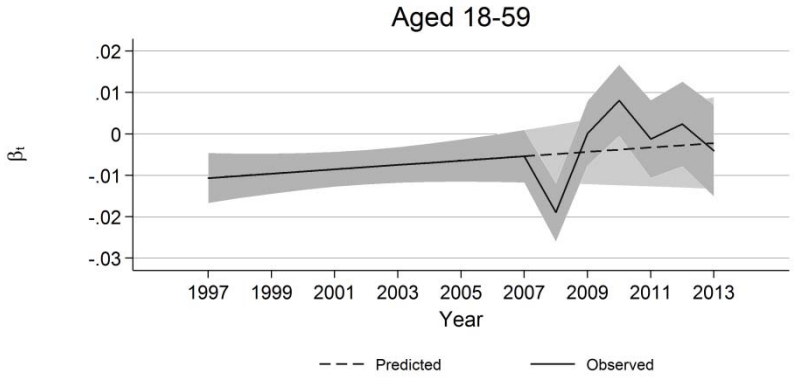
Leisure



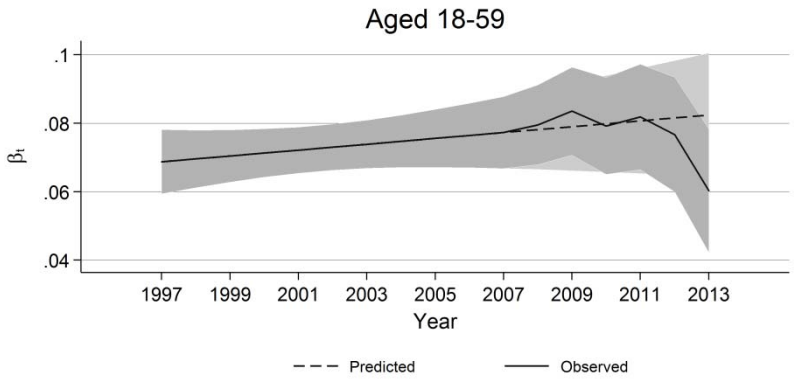
Household goods and services



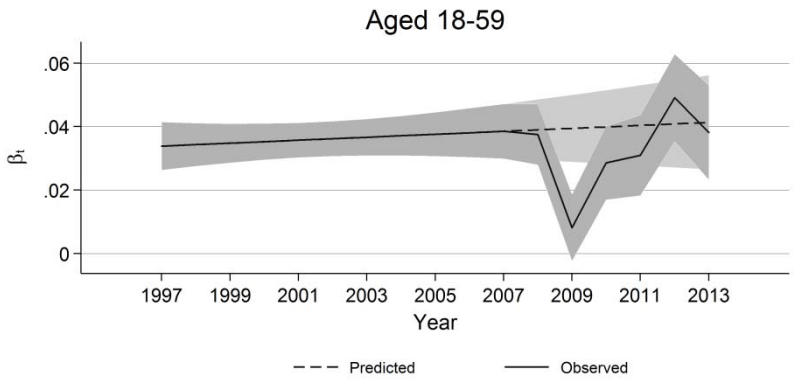
Health



Fuel



Clothing



Appendix C

VARIABLES	(1) Aged 18-59	(2) Aged 18-59	(3) Aged 60+	(4) Aged 60+
logged nondurable exp.	-0.193***	-0.196***	-0.177***	-0.189***
	(0.007)	(0.007)	(0.014)	(0.014)
logged nondurable exp. * Year	-0.007***	-0.008***	-0.005***	-0.007***
	(0.001)	(0.001)	(0.002)	(0.002)
logged nondurable exp. * year2008	0.042***	0.044***	0.026	0.032
	(0.011)	(0.011)	(0.025)	(0.025)
logged nondurable exp. * year2009	0.037***	0.039***	0.042	0.055**
	(0.011)	(0.011)	(0.027)	(0.027)
logged nondurable exp. * year2010	0.046***	0.048***	0.093***	0.108***
	(0.013)	(0.013)	(0.029)	(0.029)
logged nondurable exp. * year2011	0.050***	0.053***	0.060**	0.078***
	(0.013)	(0.013)	(0.028)	(0.028)
logged nondurable exp. * year2012	0.067***	0.071***	0.068**	0.086***
	(0.014)	(0.014)	(0.028)	(0.028)
logged nondurable exp. * year2013	0.079***	0.083***	0.052*	0.074**
	(0.014)	(0.014)	(0.031)	(0.031)
NorthWest	-0.021***	-0.021***	-0.017***	-0.017***
	(0.001)	(0.001)	(0.002)	(0.002)
NorthEast	-0.042***	-0.042***	-0.039***	-0.039***
	(0.001)	(0.001)	(0.002)	(0.002)
Centre	-0.015***	-0.015***	-0.012***	-0.012***
	(0.001)	(0.001)	(0.001)	(0.001)
highschool	-0.013***	-0.013***	-0.020***	-0.020***
	(0.001)	(0.001)	(0.002)	(0.002)
female	0.009***	0.009***	0.021***	0.021***
	(0.001)	(0.001)	(0.001)	(0.001)
married	0.005***	0.006***	0.020***	0.021***
	(0.002)	(0.002)	(0.002)	(0.002)
separated_divorced	-0.009***	-0.009***	-0.001	-0.001
	(0.002)	(0.002)	(0.003)	(0.003)
single	-0.012***	-0.011***	0.004	0.005*
	(0.002)	(0.002)	(0.003)	(0.003)
widowed	0.009***	0.009***	0.012***	0.012***
	(0.002)	(0.002)	(0.002)	(0.002)
homeowner	0.001	0.001	-0.005***	-0.005***
	(0.001)	(0.001)	(0.002)	(0.002)
renter	0.005***	0.005***	-0.001	-0.002
	(0.001)	(0.001)	(0.002)	(0.002)
under18	0.008**	0.008*	0.001	0.002
	(0.004)	(0.004)	(0.033)	(0.033)
over18	-0.020***	-0.020***	-0.063*	-0.063*
	(0.004)	(0.004)	(0.033)	(0.034)
Year	0.057***	0.055***	0.045***	0.051***
	(0.006)	(0.006)	(0.013)	(0.013)
food price (log)		0.184***		0.308***
		(0.020)		(0.027)
year2008	-0.295***	-0.314***	-0.172	-0.218
	(0.077)	(0.077)	(0.169)	(0.170)
year2009	-0.266***	-0.286***	-0.291	-0.386**
	(0.080)	(0.080)	(0.181)	(0.181)
year2010	-0.325***	-0.343***	-0.632***	-0.730***
	(0.092)	(0.092)	(0.194)	(0.194)
year2011	-0.352***	-0.373***	-0.407**	-0.529***
	(0.089)	(0.089)	(0.187)	(0.186)
year2012	-0.475***	-0.497***	-0.470**	-0.591***
	(0.094)	(0.094)	(0.185)	(0.185)

year2013	-0.562***	-0.590***	-0.361*	-0.510**
	(0.098)	(0.098)	(0.206)	(0.206)
Constant	1.643***	1.666***	1.552***	1.645***
	(0.046)	(0.046)	(0.095)	(0.095)
Observations	220,151	220,151	166,778	166,778
R-squared	0.302	0.302	0.359	0.358