Electronic Journal of Applied Statistical Analysis
EJASA, Electron. J. App. Stat. Anal.
http://siba-ese.unisalento.it/index.php/ejasa/index
e-ISSN: 2070-5948
DOI: 10.1285/i20705948v12n1p277

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Published: 26 April 2019

Electronic Journal of Applied Statistical Analysis
Vol. 12, Issue 02, April 2019, 277-302
DOI: 10.1285/i20705948v12n1p277

Household's consumer behaviour: economic recession and quality of institution. The case of Italy

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Published: 26 April 2019

The recent crisis saw the Italian household cutting consumption spending reshaping expenses behaviors. In this respect, the role of macroeconomic factors like institutions received poor theoretical and empirical attention and is little investigated. Based on the ISTAT Household Budgetary Survey, this paper focuses on the effects of crisis on selected consumption items (energy; healthcare; leisure; travels; out-of-home food) controlling for micro and macro factors, such the Institutional-Quality-Index (Nifo and Vecchione, 2014, 2015) and the regional GDP. IQI emerges as crucial in determining household healthcare expenses before the recession: where the local endowment of institutional quality is higher, the private expenses for medical/dental care, pharmaceuticals and diagnostic tests, significantly decrease. The higher the quality of institutional quality, and then of public health services, the lower the private expenditure. The recession resets the impact of IQI and increases the positive correlation with strictly microeconomic variables such as income, wealth and the number of households' earners.

keywords: Household consumption behavior, institutional quality, territorial disparities, recession.

1 Introduction

Often, households' total expenditure on consumption turns out to be considered a good proxy of the health of the economy as well as of individuals' standards of living. Representing more than half of GDP in most developed countries (Lardy, 2016), is one of

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ISSN: 2070-5948
http://siba-ese.unisalento.it/index.php/ejasa/index

the main determinants behind the big fall of world economic growth during the recent hard crisis, declined sharply in many countries (Crossley, Low and O'Dea, 2013; Fry and Ritchie, 2011; Hurd, Rohwedder, 2010; Petev, Pistaferri and Saporta, 2011; Petev and Pistaferri, 2012). This fall has caught the attention of academic researchers and policy makers because the future household consumptions have tangible macroeconomic implications both for the recovery of each economy affected by the crisis and for global growth and current account imbalances (Blanchard, 2009; Lee, Rabanal and Sandri, 2010). In a financial and economic crisis, households face a high level of uncertainty about future costs and real estate prices, about increasing labour market risks, and about greater financial constraints. Household wealth falls sharply (Bottazzi, Trucchi and Wakefield, 2013), and at the same time the long-term growth prospects of the economy are revised down by an appreciable amount and credit availability is tight compared to the pre-crisis years. So, in line with economic theory, the fall in household consumption during the crisis is not surprising (Greenlaw et al., 2008). What is more interesting to focus on is the weight of the possible determinants of consumption behaviour that drive household choices. Economists have sought to identify the factors affecting private consumption choices and to calculate their relative weights in explaining inter-household differences. An appealing taxonomy of the determinants of the differentials in household consumption expenditure is the one that distinguishes between micro and macro factors, which can also be defined as, respectively, direct and indirect factors. The former label is used for factors connected to the features of households, and the latter for those connected to the outside environment rather than the insiders' behaviour. Disposable income has long been recognised as the main micro driver (Keynes, 1939) and together with wealth - financial and non-financial - has also been found to have a direct impact on consumption levels (Modigliani, Brumberg, 1954; Friedman, 1957). This is a crucial issue in forecasting models (see, among others, Aron et al. (2010); Buiter (2010); Carroll, Otsuka and Slacalek (2011); Modigliani (1971); Muellbauer (2010). In line with the Ricardian equivalence proposition, the fiscal stance could also influence household consumption because households internalise government budget constraints by adjusting their spe nding decisions (Barro, 1974). Recent estimates based on micro-data show differences in the impact of wealth on consumption according to age, home-ownership, or level of wealth (Attanasio et al., 2009; Bover, 2005; Campbell and Cocco, 2007; Disney, Gathergood and Henlev, 2010; Gittins and Luke, 2012; Guiso, Paiella and Visco, 2005; Kakamura and Du, 2012; Paiella, 2007). A further important point is that there are some key missing common determinants. In a more confident context and a high-trust society, where people typically respect the government and the law and observe rules and agreements, even informal ones (Fukuyama, 1995; Putnam, 1993), the environment is more favourable to innovation, interpersonal cooperation, and so on. Moreover, self-assessed expectations collected in household surveys play a significant role in explaining consumption choices (Disney, Gathergood and Henlev, 2010; Jappelli and Pistaferri, 2000; Pistaferri, 2001). This leads us to consider an additional channel by which asset price variations may have an effect on consumption: unexpected changes in economic conditions may cause households to revise their future income expectations, and thus to alter their consumption plans. This indirect effect is known as the confidence channel (Fenz and Fessler,

2008; Poterba, 2000) that together with trust are qualitative, emotion-based variables and powerful forces in the paths of economic growth. Confidence is about future developments and reflects a conviction that favourable economic trends will emerge, continue or accelerate. Trust is about relationships with other people, organizations and institutions. This highlights that a positive and important macroeconomic factor can be seen in the quality of institutions in the geographical area of the household. The decisive impact of institutions on the quality of goods and services and the environment, efficiency and development of an area, and generally the ability of institutions to lead to a better overall quality of life and higher quality public goods and services, have been the focus of a broad strand of the economic literature (Acemoglu, Johnson and Robinson , 2001; Djankov et al., 2002; Easterly and Levine, 2003; Glaeser et al., 2004; Hall and Jones, 1999; Kwok and Tadesse, 2006; LaPorta et al., 1998; Rodrik, 2004). There is no dispute in the literature that consumer confidence and trust reflect the sum of purely economic factors, but also that an area's social climate creates (or discourages) fertile ground for optimism and confidence. When household behaviour differentials are evidently connected to different geographical locations, the macro factors, such as local institutional quality, are expected to be especially significant in explaining the observed diversity in household consumption reactions. The case of Italy, in this respect, looks particularly interesting, because of the substantial and long-lasting socio-economic and institutional gap between the regions of the south vis-á-vis those in the rest of the country. As is well known, Italy was one of the countries hardest hit by the recent crisis, which delivered a severe blow to all sectors of the Italian economy. According to the latest available data, the greatest impact was on the labour market, where the unemployment rate is at a post-war high of 12%, with youth unemployment nearing 40%, a rise from 25% in 2005, and one of the highest rates among European countries (alongside Greece and Spain). Furthermore, based on the most recent data from Eurostat, Italy exhibits one of the highest ratios of government deficit and government debt: this has risen from 103% of GDP in 2005 to 123% of GDP in 2012. As a result, the crisis saw Italian households cutting spending on consumption and strongly reshaping their expenditure behaviour, with interesting nuances related to their microeconomic characteristics such as income, wealth, employment status and educational level of parents, number and age of children, and region of residence. This has been the focus of a broad strand in the economic literature. By contrast, the role of macroeconomic factors like institutions in determining household consumption behaviour has received less theoretical treatment and is less well understood. Although a number of previous studies (Aiello, Pupo and Ricotta , 2015; Del Monte and Giannola, 1997; Erbetta and Petraglia, 2011; Nifo, 2011; Scalera and Zazzaro, 2010) have argued that even at a sub-national level differences in economic behaviour might be explained on the basis of differences in institutional quality, nobody have tried to prove this relationship for household expenditure on consumption through an econometric investigation. Pinpointing the reasons for inter-regional consumption dynamics in Italy could be the key to understanding the performance of the Mezzogiorno during the crisis, which was worse than that of Center-Northern regions, and to some extent also the possible negative effects on development in southern Italy. This paper focuses on the effects of the crisis on the consumption of Italian households, aiming in

particular to evaluate the impact of the crisis on consumption choices by controlling for micro and macro characteristics; for these latter factors, the Institutional Quality Index (IQI) proposed by Nifo and Vecchione (Nifo and Vecchione, 2014, 2015) and the regional GDP are used as proxies. The novelty of our contribution to the extant literature is twofold. First, as we shall see below, we find evidence consistent with other studies for wide differences in households' reaction to the crisis that depend on the types of goods and services and the households' demographic and socio-economic characteristics. Secondly, our analysis provides evidence for an important role of institutional quality, in the absence of a crisis, in expenditure on public goods and services: there is a strong inverse correlation between institutional quality and private spending on healthcare, meaning that when institutional quality is higher, and therefore public health services are better, private expenditure on medical/dental treatments, diagnostic investigations and pharmaceuticals is lower. This result does not hold during a crisis, probably because the recession resets the impact of institutional quality on spending for health, and increases the positive correlation with strictly microeconomic variables such as income, wealth and the number of earners in the household. The paper is organized as follows: after the introduction, section 2 presents the descriptive statistics; section 3 describes the model and the variables; section 4 provides the main empirical findings; and the conclusions are discussed in section 5.

2 Data and descriptive statistics

The data used in this research come from the ISTAT Household Budgetary Survey (HBS) carried out in 2005 and 2012 and relate to the five selected basic and non-basic areas of household expenditure in Italy: ENERGY (energy, gas and other fuels); HEALTH (medical/dental visits, diagnostic investigations and pharmaceuticals); LEISURE (sport, recreation and culture); TRAVEL (trips and holidays); and EATING OUT. According to Gittins and Luke (2012), goods and services can be classified into partly or wholly non-discretionary items (energy and healthcare), and discretionary items (recreational and cultural activities and meals out). Even if there is no complete definition that splits discretionary and non-discretionary spending, energy and health expenditure can be considered partly or wholly non-discretionary, on the assumption that they are generally 'necessities' and that the consumer can only partially control how much is spent on them and how much is purchased. By contrast, spending on leisure, travel and eating out can be considered discretionary: the consumer can exercise a high degree of choice over whether or not to buy. In order to ensure a correct comparison of the results that takes into account the variation in consumer prices between 2005 and 2012, the Harmonized Index of Consumer Prices was used to normalize the expenditure, with 2005 as the base year. In table 1 are collected the descriptive statistics.

2.1 First results

The comparison over time shows an overall decline in total monthly expenditure by around 16%, with a difference of almost 400 euro in constant 2012 prices (Table 2).

Table 1: Descriptive statistics

	%frequency	
	2005	2012
Household's socio-demographic characteristics		
Age of the RP (miss=217; 139)		
<35 years	9.4	7.2
15-64 years	55.4	56.8
65 years and over	34.3	35.4
Family composition		
Single or in couple with age of RP <35	5.0	4.0
Single or in couple with age of RP 35-64	17.1	20.3
Single or in couple with age of RP 65+	25.8	27.2
Couple with 1-2 children	34.2	30.9
Couple with 3+ children and single parent	12.3	12.1
Other	5.6	5.6
Educational level		
Low	48.0	40.6
Medium	36.0	39.2
High	15.9	20.2
Household's socio-economic characteristics		
Socio-professional status of the RP		
Low	2.1	2.4
Medium	39.4	10.2
High	10.3	39.0
Unemployed or housewife	10.3	11.7
Retired	38.0	36.7
Homeownership (miss=7; 11)		
No one	24.9	23.9
Only 1	68.7	68.3
2 and over	6.4	7.8
Number of earners		
No one	2.1	3.1
Only 1	24.0	24.2
2 and over	44.1	39.4
n.a.*	29.8	33.3

*single parent households with maximum one earner

Table 2: Mean and median monthly expenditure* by selected items, differences between 2012 and 2005. (Absolute values and percentages)

	2012					2005						differences	
	(22932 households)					(24107 households)						2012-2005	
Expenditure items	mean	$mean^1$	$median^1$	RelSD	consumers	mean	$mean^2$	$mean^{1,2}$	$median^{1,2}$	RelSD	abs. consumers	%	
Monthly consumption expenditure	1928	—	1567	0.80	—	1953	2295	—	1826	0.82	—	-367	-16,0/—
Not or semi discretionary goods and services													
Electricity, gas and other fuels	120.4	—	90.3	0.82	100.0	104.4	145.8	—	108.2	0.86	100.0	-25.4	-17.4/—
Med./dental visits, physioth.	30.8	202.9	110.0	4.95	15.2	35.0	41.3	260.8	118.1	5.19	15.8	-10.5/-57.9	-25.4/-22.2
Clinic. tests, eco-radiog., medic.	47.7	88.1	58.1	1.65	54.1	46.5	54.9	100.9	67.3	1.65	54.3	-7.2/-12.8	-13.2/-12.7
Discretionary goods and services													
Sport activities	9.5	98.8	60.0	4.98	9.6	7.6	9.0	90.2	59.0	4.69	10.0	+0.5/+8.6	+5.3/+9.5
Recreation and culture	15.8	63.4	35.0	2.47	49.6	22.1	26.0	71.9	30.5	1.97	63.0	-10.2/-8.5	-39.4/-11.8
Travels	54.0	680.3	424.0	5.17	7.9	58.6	60.9	802.8	520.0	5.12	7.6	-7.0/-122.5	-11.4/-15.3
Out-of-home food consumption	76.7	123.4	70.9	1.66	62.1	71.3	85.2	135.4	78.6	1.63	62.9	-8.6/-12.0	-10.0/-8.9

*= not including imputed rental and mortgage
1=computed on effective consumers
2=at 2012 constant prices

In 2005, half of all households spent more than 1826 euro per month, but in 2012 the same trigger point was met by only 43% of households. As concerns so-called 'partly or wholly non-discretionary' goods and services, the economic crisis forced Italian households into, above all, a marked reduction of health expenditure, notably spending on specialized medical visits, dental treatment and physiotherapy (-25%): even if over time the percentage of consumers spending money on health items remained more or less the same, the average spending per household decreased by almost 60 euro. Energy consumption comes second: the decline amounts to 17%, corresponding to 25 euro per capita per month. As concerns 'discretionary' expenses, as we would expect spending on recreation and culture shows by far the greatest decline (almost 40%): the percentage of consumers spending money on these items, which was already quite low in 2005, reduced from 9% to 6.3%, and the individual average spending also decreased by approximately 10 euro. The same applies to spending on meals out - this decreased by 10% (corresponding to 12 euro every month). Conversely, the costs related to sports activities, which were really very low compared to other European countries, increased by 5% (from 9 euro to 9.5 euro), even if there was a small decrease in the percentage of households spending money in this area (from 10% to 9.6%). Unexpectedly, during the economic crisis the percentage of travellers increased just a little (by +0.3%), but their average expenditure on trips and holidays was considerably reduced (by over 120 euro).

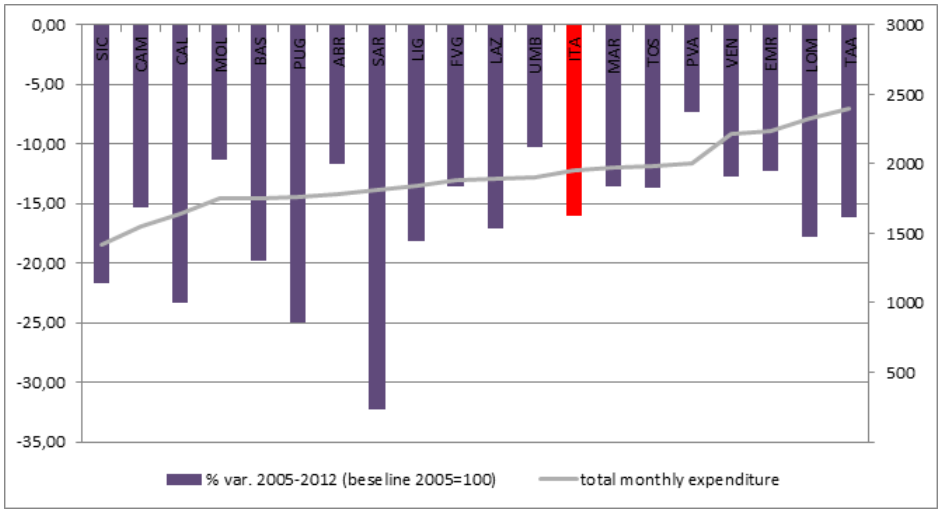


Figure 1: Monthly expenditure in 2005 and percentage variations (baseline 2005=100 at constant prices) by regions

2.2 Differences between households

It is worth noting that the economic recession had no budgetary repercussions on older families, who were 'forced' to reduce their expenses by barely 3 euro, while younger families, specifically those with reference person (RP) aged below 35, as well as couples

Table 3: Differences between 2012 and 2005 according to average monthly expenditure by selected items and age of the reference person. Childless families.

Expenditure items	Monthly expenditure 2012			2005			Differences 2012-2005 (%)		
	<35	35-64	65+	<35	35-64	65+	<35	35-64	65+
Monthly consumption expenditure	1726	1806	1385	2214	2136	1388	-22.04	-15.43	-0.21
Not or semi-discretionary goods and services									
Electr., gas and other fuels	78.67	97.62	108.91	106.99	121.99	121.07	-26.47	-19.90	-10.05
Med./dental visits, physioth.	21.76	27.33	29.70	23.84	42.96	32.87	-8.73	-36.39	-9.65
Clinic. tests, eco-radiog., medic.	24.13	34.47	55.23	30.29	46.60	58.16	-20.34	-26.03	-5.05
Discretionary goods and services									
Sport activities	8.58	7.52	1.92	12.15	6.61	1.56	-29.32	+17.34	+22.73
Recreation and culture	10.08	15.41	13.35	21.75	27.30	17.05	-50.33	-43.54	-21.68
Travels	61.20	60.01	33.06	73.16	64.84	26.96	-16.36	-7.46	+22.61
Out-of-home food consumption	117.42	95.62	36.09	136.60	107.80	27.86	-14.04	-11.30	+29.54

with children and specifically those with one or two children, were compelled to reduce their expenses by between 400 euro and 500 euro (Tables 3 and 4). In other words, among childless families the recession reduced by almost by half the gap in consumption between elderly households and others. It can be seen that, in both absolute values and percentages, the recession forced young (those with RP aged under 35 years) and adult (RP aged 35-64 years) households to save more in energy costs than households with RP aged over 65, whose monthly expenditure exceeded 30 euro. Looking at health expenditure, the greatest decline concerns adults both for medical visits and physiotherapy (-36%) and for diagnostic investigations and medicine (-26%): the gap between adults and elderly people, which in 2005 was only 2euro (89 vs 91 euro), reached 23 euro in 2012 (62 vs 85 euro). Furthermore, it should be noted that during the recession elderly people were the only ones to spend more money on sports activities, trips and holidays and eating out than they did before the economic crisis: their spending increased by about 20-30%, even if in absolute terms this is only a few Euros. By contrast, families with reference persons under 35 years experienced an overall reduction, mainly on sports expenditure. Among couples, no substantial differences emerge in the decline in expenditure between discretionary and partly or wholly non-discretionary goods and services, or between households with different numbers of children; the main differences relate to the age of children and health services. The largest reduction is noted for medical/dental

visits and physiotherapy, then there is a smaller reduction for energy consumption, and the reduction for diagnostic investigations and medicines is smaller again. There are some disparities for discretionary expenses: unlike large families, families with only one or two children, especially if at least one was over 15 years old, spent even more on sports activities during the recession than they did before the crisis. Broadly speaking, the recession emphasized the already-existing expenditure gap between small and large families.

Table 4: Differences between 2012 and 2005 according to average monthly expenditure by selected items and household composition. Couples with children and single parents.

	Monthly expenditure													
	2012							2005						
	Coup. with 1-2 child.			Coup. with 3+ chil./SP				Coup. with 1-2 child.			Coup. with 3+ child./SP			
Expenditure items	all	<15 years	15+ years	all	<15 years	15+ years	Oth. Hous.	all	<15 years	15+ years	all	<15 years	15+ years	Oth. Hous.
Monthly consumption expenditure	2401	2362	2441	2107	2377	1939	2150	2947	2928	2966	2523	2621	2466	2545
Not or semi-discretionary goods and services														
Electricity, gas and other fuels	142.8	136.1	149.8	132.0	133.4	131.2	139.5	172.5	165.8	179.5	159.4	166.6	154.9	173.7
Med./dental visits, physioth.	36.9	33.4	40.6	29.6	35.1	26.2	24.5	50.7	51.6	49.8	40.6	36.8	43.0	35.0
Clinic. tests, eco-radiog., medic.	52.1	47.6	56.9	46.8	44.0	48.5	52.8	59.9	55.9	64.0	52.4	52.8	52.1	62.4
Discretionary goods and services														
Sport activities	16.1	19.7	12.2	12.5	23.8	5.5	10.9	14.6	18.1	10.9	12.5	17.1	9.7	6.0
Recreation and culture	18.3	18.3	18.4	17.8	19.9	16.5	13.8	31.9	31.7	32.1	28.2	31.3	26.3	26.4
Travels	73.1	75.7	70.4	49.7	71.0	30.5	31.8	87.4	95.6	78.9	57.0	76.1	45.2	41.1
Out-of-home food consumption	97.0	101.7	92.1	72.7	76.1	70.6	73.0	109.5	112.0	106.8	86.0	83.2	87.8	85.1

	Differences 2012-2005 (%)				
	Coup. with 1-2 child.		Coup. with 3+ chil./SP		
Monthly consumption expenditure	-18.52	-19.3	-17.7	-16.50	-9.32	-21.4	-15.5
Not or semi-discretionary goods and services							
Electricity, gas and other fuels	-17.2	-17.9	-16.6	-17.2	-20.0	-15.3	-19.7
Med./dental visits, physioth.	-27.2	-35.3	-18.5	-27.1	-4.6	-39.2	-30.1
Clinic. tests, eco-radiog., medic.	-12.9	-15.0	-11.0	-10.7	-16.6	-7.0	-15.4
Discretionary goods and services							
Sport activities	+9.8	+8.92	+11.6	-0.2	+39.1	-43.6	+80.5
Recreation and culture	-42.5	-42.3	-42.8	-36.8	-36.3	-37.2	-47.7
Travels	-16.4	-20.8	-10.8	-12.7	-6.8	-19.2	-22.5
Out-of-home food consumption	-11.4	-9.21	-13.8	-15.5	-8.6	-19.6	-14.2

2.3 Geographical differences

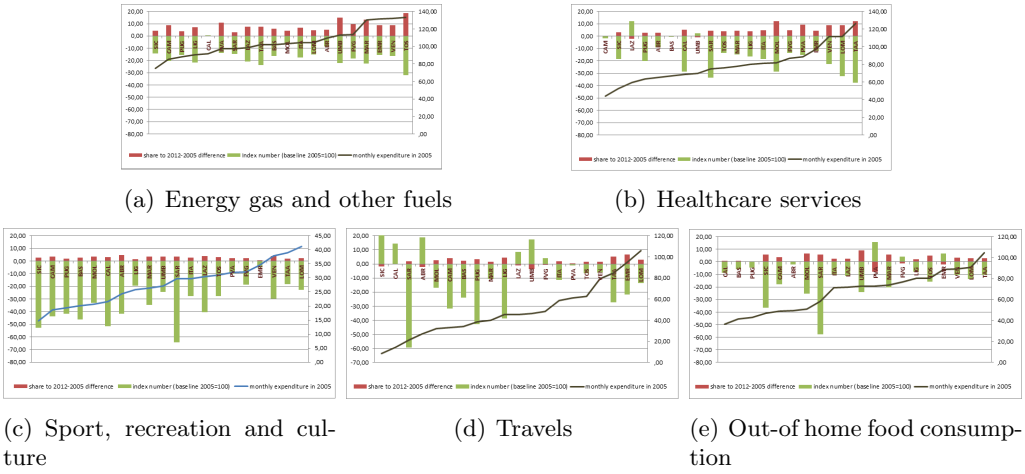
The recession primarily penalized southern families (their monthly expenditure decreased by 21%): although their monthly expenditure was already much lower (1502 euro compared to 1930 euro in central Italy and 2207 in the north), these households showed a greater decline in absolute value (about 400 euro) (Figure 1, Table 5).

Table 5: Differences between 2012 and 2005 according to average monthly expenditure by selected items and geographical areas.

	Monthly expenditure in 2012			Absolute differences 2005-2012			Percentages differences 2005-2012		
Expenditure items	North	Center	South	North	Center	South	North	Center	South
Monthly consumption expenditure	2207	1930	1502	-362	-342	-397	-14.07	-15.05	-20.89
Not or semi-discretionary goods and services									
Electricity, gas and other fuels	130.9	119.7	104.9	-24.71	-41.07	-17.15	-15.88	-25.56	-14.06
Med./dental visits, physioth.	39.93	29.20	18.02	-17.51	-1.50	-5.57	-30.49	-4.88	-23.63
Clinic. tests, eco-radiog., medic.	52.78	49.91	38.51	-10.97	-0.02	-6.10	-17.21	-0.04	-13.68
Discretionary goods and services									
Sport activities	13.27	10.14	3.24	+1.08	+0.35	-0.45	+8.85	+3.53	-12.22
Recreation and culture	21.63	12.95	8.64	-9.10	-12.51	-10.63	-29.61	-49.14	-55.17
Travels	76.47	53.04	20.33	-11.25	+0.53	-5.51	-12.83	+1.01	-21.33
Out-of-home food consumption	98.83	76.37	43.26	-4.29	-13.39	-12.49	-4.16	-14.91	-22.40

As concerns partly or wholly non-discretionary goods and services, different patterns emerge for energy consumption and health spending: in the north and the south, energy expenditure decreases less than in the central region where, in addition, healthcare costs remained unchanged (Table 5).

As concerns 'electricity, gas and other fuels' (Figure 2a), it must be pointed out that there is a slight relationship between the reduction in regional expenditure and the corresponding 2005 level (the Pearson correlation is equal to -0.34), but the contribution to the overall reduction is higher in most of the central area. We can certainly assert that the lower reduction in some northern areas (such as Veneto, Lombardy and Emilia Romagna), where energy costs were already high, may be partly the effect of harsh climate conditions; conversely, the recession may have 'forced' families in regions where the climate is milder and the expenditure in 2005 was high (notably Tuscany, Umbria and Marche) or very modest (as is the case of Liguria and Campania) to compress those costs considerably. In most of these areas, indeed, the contribution to the overall decline in expenditure is remarkable (between 10% and 20%). As concerns the variation in healthcare expenditure resulting from the economic crisis (Figure 2b), a modest inverse correlation (Pearson value equal to -0.58) with the expenditure levels in 2005 emerges: the higher the costs before the recession, the higher the reduction and the greater the share of the overall decline. The regional pattern highlights a greater



(a) Energy gas and other fuels

(b) Healthcare services

(c) Sport, recreation and culture

(d) Travels

(e) Out-of home food consumption

Figure 2: Monthly expenditure in 2005, percentage variations (baseline 2005=100 at constant prices), share to total differences between 2005 and 2012. Italian regions

decline in Lombardy and Trentino Alto Adige in the north, and in Molise, Calabria and Sardinia in the south (between 30% and 40% against the 2005 baseline); in contrast, in some regions of central Italy (Lazio and Umbria), health expenditure increased. The recession exacerbated the south-north gap (Figure 2c), especially if one looks at expenditure on recreation and culture and sports activities, with southern families 'forced' to compress their already very low expenditure even further (Pearson correlation between percentage variations and expenditure in 2005 equal to -0.61). Indeed, compared to a reduction of less than 20% in most of the northern areas, in almost all the southern regions the expenditure on sports and recreation fell, with reductions of between 42% and 46% in Abruzzo, Campania, Puglia and Basilicata, and between 52% and 65% in Calabria, Sicily and Sardinia. To give a better appreciation of the north-south gap, one should note that the difference in spending between the richest Emilia Romagna households and the poorest Sicilian households amounts to approximately 30 euro (38 euro vs 8 euro). As concerns expenditure on travel and eating out, the regional patterns are less clear (Figures 2d and 2e): in each of the areas there are regions where the costs increased, regions where they show a slight decline, and regions where there was a large reduction (the Pearson correlations between percentage variations and expenditure in 2005 are, respectively, 0.26 and -0.22). As we would expect, the contribution to the overall decline is extremely low. The north-south disparities remained virtually unchanged over time, highlighting, for example, that during the recession a family from Lombardy would spend about ten times more on trips and holidays than a Sardinian one, and that what a family spends on eating out in Trentino Alto Adige or Emilia Romagna is three or four times what a family spends in Sicily or Sardinia.

3 The model and the variables

In this section we investigate how expenditure on goods and services, the focus of our analysis, can be influenced by micro and macroeconomic factors. To this aim, we perform OLS estimations for the years 2005 and 2012. Indeed, the cross-section nature of data prevents from using dynamic estimation methods. In each model the dependent variable is, alternatively, the expenditure on: energy, health, leisure, travel and eating out. The explicative factors considered in the models are the features that have been introduced (see prospectus 1) in the previous section. In particular, we can consider as independent variables the age group of the RP, the education level and socio-professional status of the household, the presence and age of children, home ownership, number of earners, regional GDP and Institutional Quality Index (IQI). The last two are continuous variables that are measured at a regional level. Endogeneity concerns are attenuated by the household-level nature of data which tends to rule out the possibility of inverse causality.

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$$Z = XB + \varepsilon$$

where Z is the vector containing the values of the dependent variable, X is the matrix containing the values of the explicative variables, B is the vector of coefficients to be estimated and ε is the vector of residual terms. The model is as follows:

$$
\begin{aligned}
Z &= \beta_0 + \beta_1 Age_{35-65} + \beta_2 Age_{>65} + \beta_3 Edu_{medium} + \beta_4 Edu_{low} + \beta_5 SPstatus_{medium} \\
&+ \beta_6 SPstatus_{low} + \beta_7 SPstatus_{unempl} + \beta_8 SPstatus_{retired} + \beta_9 Children_{>15years} \\
&+ \beta_{10} Ch_{<15years} + \beta_{11} HO_1 + \beta_{12} HO_{>1} + \beta_{13} Earners_1 + \beta_{14} Earners_{>1} \\
&+ \beta_{15} IQI + \beta_{16} GDP + \varepsilon
\end{aligned}
$$

It is easy to see that, for each nominal variable, there are k-1 coefficients to be estimated, with k equal to the number of modalities of the variable involved. The categories that are not included in the model are the reference ones:

$Age_{<35}, Edu_{high}, SPstatus_{high}, Ch_{nochildren}, HO_0, Earners_0$

3.1 Empirical findings

In this section we show the results of the OLS econometric estimates. The different estimation results are presented in Tables 6 and 7.

Table 6: Linear regression model 1: coefficient estimation and significance level - Semi (or not) discretionary goods and services

	Energy				Health			
Independent variables	Estimate Year=2005	Sig. level	Estimate Year=2012	Sig. level	Estimate Year=2005	Sig. level	Estimate Year=2012	Sig. level
Intercept	4.13585	***	4.30334	***	2.33336	***	1.89895	***
Age: 35-65	0.14538	***	0.17549	***	0.18123	**	0.20156	*
Age: >65	0.09451	***	0.13192	***	0.17632	*	0.41896	***
Education: medium	-0.00758		-0.00119		-0.03696		-0.10120	*
Education: low	-0.01054		-0.02007		-0.15111	**	-0.23084	***
Socio-professional: medium	-0.13090	***	-0.09413	***	-0.06689		0.05634	
Socio-professional: low	-0.19592	***	-0.16320	***	-0.00399		-0.12378	
Socio-professional: unemployed.	-0.12887	***	-0.11736	***	-0.02920		0.02386	
Socio-professional: retired	-0.13573	***	-0.09413	***	0.20914	**	0.20995	**
Children: over 15 years	0.19395	***	0.17093	***	0.03475		0.08793	.
Children: under 15 years	0.22751	***	0.17652	***	0.10973	*	0.04899	
Homeownership = 1	0.17140	***	0.18572	***	0.16319	***	0.30895	***
Homeownership >1	0.14484	***	0.22716	***	0.49459	***	0.60727	***
IQI (standardized)	0.02504	*	0.03144	**	-0.12817	***	-0.05123	
GDP (standardized)	0.04903	***	0.02819	*	0.37967	***	0.13291	**
Earner =1	0.07136	.	0.03753		-0.02789		0.24793	*
Earner >1	0.13039	**	0.07211	*	0.15243		0.36532	**

Signif. codes: '***' <0.001 '**' <0.01 '*'<0.05 '.'<0.1 ' '

Table 7: Linear regression model 1: coefficient estimation and significance level - Discretionary goods and services
*Signif. codes: '***' <0.001 '**'<0.01 '*'<0.05 '.'<0.1 ' '*

	Leisure				Travels				Out of home			
Independent variables	Estimate Year=2005	Sig. level	Estimate Year=2012	Sig. level	Estimate Year=2005	Sig. level	Estimate Year=2012	Sig. level	Estimate Year=2005	Sig. level	Estimate Year=2012	Sig. level
Intercept	2.07949	***	1.46762	***	0.58950	***	0.73468	***	2.94016	***	3.02297	***
Age: 35-65	0.36448	***	0.50476	***	0.06977		-0.02456		-0.18903	**	-0.06431	
Age: >65	-0.12203	*	0.28809	***	-0.13555	*	-0.21700	**	-0.93610	***	-0.79328	***
Education: medium	-0.33945	***	-0.48483	***	-0.04134		-0.19173	***	-0.09648	*	-0.43284	***
Education: low	-0.82130	***	-0.85121	***	-0.22883	***	-0.38851	***	-0.49921	***	-0.89283	***
Socio-professional: medium	-0.30339	***	-0.23449	***	-0.18170	***	-0.19369	***	-0.49623	***	-0.43051	***
Socio-professional: low	-0.49787	***	-0.34456	**	-0.24975	**	-0.30086	**	-0.66340	***	-0.83352	***
Socio-professional: unemployed.	-0.39657	***	-0.36932	***	-0.22391	**	-0.22297	**	-0.63730	***	-0.75631	***
Socio-professional: retired	-0.29318	***	-0.23435	***	-0.23767	***	-0.20321	***	-1.00356	***	-0.89678	***
Children: over 15 years	0.33697	***	0.18456	***	0.06786	*	0.02251		0.34890	***	0.23427	***
Children: under 15 years	0.48470	***	0.44832	***	0.10871	**	-0.00504		0.18537	***	0.10050	*
Homeownership = 1	0.21135	***	0.31534	***	0.11307	***	0.14031	***	0.20998	***	0.33764	***
Homeownership >1	0.63644	***	0.71445	***	0.35176	***	0.20351	***	0.48754	***	0.50529	***
IQI (standardized)	-0.02039		-0.01032		0.00535		0.04713	.	0.07395	*	0.04084	
GDP (standardized)	0.31540	***	0.31722	***	0.16753	***	0.08787	**	0.21419	***	0.28510	***
Earner =1	0.24907	**	0.15685	.	-0.01131		0.01233		0.52396	***	0.43929	***
Earner >1	0.39613	***	0.29651	**	0.08940		0.17195	*	0.88462	***	0.79367	***

We start the analysis by focusing on the role of each microeconomic variable in determining the household consumption choices, and then we move on to an analysis of the changes generated by the economic crisis, by comparing the sensitivity of the five items of expenditure before (2005) and during (2012) the crisis. Our analysis shows that household consumption expenses are positively affected by income, number of earners, wealth (for which home ownership is a proxy), professional position, educational level and the presence of children older than 15 years. These variables have a positive sign for all five consumption items, both before and during the crisis. Income, number of earners and wealth are decisive variables in the consumption choices of all households, showing estimated coefficients that are always positive and significantly different from zero both in 2005 and in 2012. This means that - as has been generally found in the previous literature - high income and wealth increase expenditure on all items. In our results, a rise of one standard deviation of income increases the consumption by between 4.9% (for energy) and 37.9% (for health) in 2005, and by between 2.8% (for energy) and 31.7% (for culture and recreational activities) in 2012, with both these effects being weakened by the crisis; a rise of one standard deviation in the variable '2 or more earners' increases consumption by between 8.9% (for travel) and 88.4% (for eating out) in 2005 and by between 7.2% (for energy) and 79.3% (for eating out) in 2012. In line with the prevailing literature, our results confirm that during the recession, the heterogeneity in home ownership had a key role in emphasizing the expenditure gap between households but that, by contrast, the effect of the number of wage-earners tended to drop. In 2012 wealth held in property appears to have had the greatest effect on discretionary expenditure: the owners of two or more homes increased their spending on leisure by 71.4%, that on travel by 20.3%, and that on meals out by 50.5%, and these figures grew in the presence of the crisis. Differences in changed spending between renters and homeowners could be consistent with their different perceptions of future uncertainty in relation to employment and income (Petev and Pistaferri, 2012; Christelis, Georgarakos and Jappelli, 2015), and may also derive from psychological effects (Nistorescu and Puiu, 2009; Lindstrom and Giordano, 2016) and a sense of vulnerability (Anderloni and Vandone, 2014). Meanwhile, it should be noted that the direct effect of income strongly depends on the type of discretionary goods and services: the coefficient increases for expenditure on eating out, decreases for spending on travel, and remains more or less the same for spending on leisure, indicating that consumers reallocate their available resources and may redefine what they consider to be 'necessities' (e.g. in the case of travel) or 'luxuries' (Mansoor and Jalal, 2011; Bronner and De Hoog, 2012; Kaytaz and Gul, 2014). Differences arising from family composition and, above all, the age of the head of the family tend instead to become smaller, because elderly people during the recession spent more on leisure, travel and eating out than they did in the previous period. According to other research (Crossley, Low and O'Dea, 2013; Eugenio-Martin and Campos-Soria, 2014; Campos-Soria, Inchausti-Sintes and Eugenio-Martin, 2015), economic distress forces young people cut back on their expenditure more than older people (who are typically retirees with a monthly guaranteed pension); this is probably also a result of their unstable employment status. During the financial crisis, indeed, retirees' consumption behaviour became more similar to the behaviour of those having a medium

professional status than to that of the lower paid and unemployed. This analysis is consistent with the assumption that older people do not constitute the most vulnerable consumer group as concerns their purchasing capabilities. As in other research (Berg, 2015), we cannot rule out the possibility that many of today's older people are modest in their lifestyles and have saved money during their lives, despite their level of income. ISTAT indicators (2015b) for the poverty ratio suggest, for instance, smaller increase of poverty for old people, confirming, as is the case in other countries, that young people and adults aged below 65 have been more affected by the economic crisis than older people (Danzigher, Chavez and Cumberworth, 2012). If the head of the household belongs to the 'executive' or 'merchant, trades or self-employed' socio-professional categories, then the household's consumption is generally higher, so the coefficient is always negative and significant; the one exception is for medical expenses, which did not seem to be affected in any way by membership of any professional category (the coefficient is never significant). Conversely, consumption decreases gradually as professional position becomes lower. This variable mostly affects discretionary spending on such items as leisure, travel and eating out. For these, there is a strong sensitivity to the head of household's professional position, and the sensitivity increased in 2012 (compared to 2005) for each professional category, meaning that during the crisis households that were in less favourable professional positions, or contained unemployed or retired people, recorded greater reductions in expenditure than households with more highly qualified professionals. As we would expect, education also exacerbates all the differences in expenditure on healthcare and all three discretionary items of expenditure: according to the literature (see, for example, Cutler, Huang and Lleras-Munev (2014)), even when controlling for financial resources, better educated people remain much more sensitive about preserving their health during a period of hardship. Although energy expenditure does not seem to be affected in either year of observation by the level of skills in the household, all other items of expenditure show a negative and very significant sign at both times, sharply decreasing from highly skilled households to the lowest. Unskilled families have significantly lower expenses than skilled households at both times: 40% less for travel, 23% and 85% less, respectively, for health and for leisure, a reduction of 90% for eating out. This latter is probably the expenditure category most affected by the economic crisis: unskilled households spent 50% less on eating out than skilled households in 2005 and 90% less in 2012, showing the stronger effect of the crisis on these households' budgets. Moving to the analysis of the most significant changes in each spending item as the result of the crisis, we now try to answer the following questions: Which, among energy, leisure, health, travel and eating out, turned out to be the most sensitive (or most resilient) to the crisis? And what are the micro and macroeconomic variables accounting for this higher sensitivity? Looking at the effects of micro characteristics on households, our findings highlight first that, as concerns expenditure on energy and healthcare, financial distress mainly exacerbates the differences between young and elderly families. Even controlling by family size and composition, household consumption rose more consistently with the age of the reference person (RP) during the recession than in the previous period: before the crisis, indeed, the expenditure gap between young, adult and old families was less pronounced. The latest data from

the 2013 ISTAT Survey on Health Condition and Healthcare Services underline, on the other hand, that the recession forced elderly people to cancel some healthcare services less than adults and young persons (Barbi et al., 2015). The main result of this was a reduction of 'unnecessary' healthcare costs such as specialist visits - typically dentistry services (see ISTAT, 2015a) - and/or diagnostic examinations and/or pharmaceutical products for adults, young people and their children. Moreover, elderly people (most of them pensioners) spend the majority of their time at home, especially during the cold months, making heavy use of heating and electricity (ISTAT, 2014). The result for eating out is worth mentioning. In line with most of the literature, our results confirm that income and wealth effects, both strengthened by the crisis, are positively associated with an increase in expenditure on meals out. As households grow richer, they substitute food at home by food eaten outside the home. Specifically, our econometric estimation shows that a rise of one standard deviation of income increases the spending on eating out by 21.4% in 2005 and 28.5% in 2012; being the owner of one or more houses increases this spending by 20.9% and 48.7%, respectively. Not surprisingly, the presence of a second earner (typically the wife) greatly boosts this item of expenses, increasing it by 88.5% with respect to the households without any earner in 2005, and by 79.3% in 2012, a figure that is slightly reduced by the crisis. Moreover, our results confirm that certain types of household composition (households where the head of household is younger than 35 years, is employed in high professional position and is more skilled) had a positive influence on this kind of expenditure: the value of the time of the food manager in the household is positively correlated to total expenditure. As has been found in other studies, households in a better economic and socio-professional condition, with high time values, will eat out rather than at home to save time. An analysis of expenditure on leisure activities and travel shares many results with those just reported for eating out. In particular, the positive sign, the significance and the robustness of the income, wealth, second earner, age of household head and the composition as regards the age of the children variables, show strong similarities with the results for eating out. Worthy of attention is the strong sensitivity of these two items of expenses to the household's professional and educational condition: they increased in 2012 (compared to 2005) for each professional and educational category. The crisis caused households of unskilled people and those with worse paid jobs to reduce their expenditure on leisure and travel more strongly. The poorly educated have significantly less expenditure than the more skilled in both years, recording spending in 2005 of 22.8% less for travel (which became much worse at 38.8% less in 2012), and 82.1% less for leisure (which became 85.1% less because of the crisis). For leisure and travel the values before and during the crisis rose even more with respect to the households with no earner: in the case of a second earner our analysis shows increases of 39.6% and of 8.9%, respectively, in 2005, significantly mitigated by the crisis to 29.6% for spending on leisure and 17.2% for spending on travel in 2012. Even the presence of a child positively affects households' expenditure on leisure during the crisis, reducing this positive impact most noticeably in the case of families with a child aged over 15, where the impact goes from 33.7% in 2005 to a more modest 18.4% in 2012, pinpointing the difficulties encountered during the crisis by families with older children. As regards the local institutional quality, for

which the IQI index was a proxy, our findings show that institutional quality is never significant for household expenditure on private goods and services, either in 2005 or in 2012. By contrast, it has a negative and strongly significant effect on healthcare expenditure, the only item of consumption in our analysis provided by both the public and the private sectors. This is coherent with the idea that if institutional quality is higher, private spending on healthcare will be lower, because most households will use the medical/dental care, diagnostic tests and medicines supplied by the public sector. During the crisis, households spent less, delaying (even) medical care to 'better times'. Outside a time of crisis, institutional quality does matter: households choose between public and private healthcare services, and certainly take into account the overall quality of the public service. The significance of IQI, our index of Italian institutional quality at a provincial level, collapses during the crisis, probably because the recession resets the impact of institutional quality on spending for health, and increases the correlation with income and household wealth (the number of earners in the household becomes significant).

4 Conclusions

The empirical analysis reported in this paper allows us to obtain at least two major results. The first is that, consistent with other studies, we find evidence for wide differences in household consumption behaviour and reaction to the crisis according to the type of goods and services and to demographic and socio-economic characteristics of households such as age, educational level, regional GDP, whether there is a second earner, wealth and professional position. In our analysis, spending on household consumption is positively and significantly affected by income, number of earners, wealth (for which home ownership is a proxy), professional position, educational level and the presence of children aged over 15 years. These variables have a positive sign for all five consumption items, both before and during the crisis. One important result is that the recession exacerbated the differences between households' expenditure on discretionary goods and services, particularly when the professional status and educational level of the head of the household are taken into account. According to other findings, this suggests, on the one hand, that if there is economic hardship, some basic components of a middle-class lifestyle could become luxuries and, on the other hand, that poor households significantly cut their spending because of their higher marginal propensity to consume (Zurawicki and Braidot, 2005; Ampudia et al., 2016). However, we cannot exclude the possibility that when a household's monthly budget decreases, cultural consumption choices become more important, as is the case for recreational activities in a broad sense, and that over the last years of the economic crisis, the travel market has increased cultural destinations for 'elite' tourism, to the detriment of mass-tourism destinations (Cellini et al., 2015). The second result is that institutional quality plays a key role in determining household expenditure on public services when there is no crisis: where the local endowment of institutional quality is higher, the private spending on healthcare significantly decreases. In other words, in line with most of the literature and

confirming our expectations, the results, even controlling by income, provide evidence for a strong inverse correlation between institutional quality and expenditure on private healthcare. When there is no crisis, institutional quality matters: a household chooses between public and private healthcare services, and the overall quality of public service has a strong influence. More recent findings show more in detail that before the recession IQI emerges as crucial in determining household healthcare expenses for clinical tests and pharmaceutical products: the higher the quality of institutional quality, and then of public health services, the lower the private expenditure (Lucadamo, Mancini and Nifo, 2017). Conversely, in times of recession, institutional quality loses its significance and spending decisions are reviewed strictly on the basis of economic variables (income, wealth, and the presence of a second earner). Institutional quality does not seem to affect, indeed, healthcare expenditure for dental visits, both before and during the economic recession, which instead largely depend on income, because they are above all private expenditure. This finding, highlighting the role that institutions may have on the environment, the quality of services and the overall efficiency and quality of life of an area, shows that where institutional quality is lower, even the public health service will be of low quality, forcing households to a greater use of private services, with the resulting increase for this expenditure item. This result raises a further research question about the impact of institutional quality on private spending on services (such as kindergartens, schools, universities, transport, etc.) provided by the private sector in competition with the public sector, to ascertain the specific magnitude and role of institutional quality in determining households' choices about private consumption.

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