BANCA D'ITALIA

EUROSISTEMA

Temi di Discussione

(Working Papers)

Asking income and consumption questions in the same survey: what are the risks?

by Giulia Cifaldi and Andrea Neri

April 2013

Number 908

BANCA D'ITALIA
EUROSISTEMA

Temi di discussione

(Working papers)

Asking income and consumption questions in the same survey: what are the risks?

by Giulia Cifaldi and Andrea Neri

Number 908 - April 2013

The purpose of the Temi di discussione *series is to promote the circulation of working papers prepared within the Bank of Italy or presented in Bank seminars by outside economists with the aim of stimulating comments and suggestions.*

The views expressed in the articles are those of the authors and do not involve the responsibility of the Bank.

ISSN 1594-7939 (print)
ISSN 2281-3950 (online)

Printed by the Printing and Publishing Division of the Bank of Italy

ASKING INCOME AND CONSUMPTION QUESTIONS IN THE SAME SURVEY: WHAT ARE THE RISKS?

by Giulia Cifaldi[a] and Andrea Neri[b]

Abstract

Sample surveys providing high-quality information on both total household expenditure (consumption) and income are not commonly available. Nevertheless, surveys focusing on income usually do collect some information on expenditure. One major drawback of this practice is that it could lead some researchers to think that both sets of information are similarly accurate, as they are derived from the same survey. This paper conducts an empirical investigation of the consequences of such an assumption. We draw on the Survey of Household Income and Wealth (SHIW) as a case study, since it collects information on both income and consumption. We combine this Survey with the information drawn from other surveys that are assumed to be more reliable for specific items. On average, we find that the underestimation of household income is lower than the one relating to consumption. As a consequence, saving rates in the SHIW are likely to be overestimated. We also find evidence that measurement error in income data is proportionally higher for high incomes. This does not appear to be the case for consumption data. Household saving is likely to be overestimated, especially for households in the low-income classes. Finally, we find evidence that measurement error may bias the relationship between household savings and its determinants.

JEL Classification: C25, C42, D31.
Keywords: measurement error, income, consumption, imputation.

Contents

1. Introduction 5
2. Data 7
3. Methodology 8
   3.1 Imputation of secondary sources of income 10
   3.2 Imputation of non-durable expenditure 12
4. Results 14
5. Discussion and conclusions 16
References 18
   5.1 Tables and figures 20

[a] Bank of Italy, Economic and Financial Statistics Department; giulia.cifaldi@bancaditalia.it.
[b] Bank of Italy, Economic and Financial Statistics Department; andrea.neri@bancaditalia.it.

1 Introduction[1]

Sample surveys providing high-quality information on both total household expenditure (consumption) and income are not commonly available. One of the main reasons is that collecting high-quality data on both topics requires a very large number of questions that would result in an excessive respondent burden. Both the concepts of income and consumption consist of a high number of components and, in order to collect accurate data, it would be necessary to include a specific question for each single item rather than asking few questions at a more aggregate level [Krosnick and Presser, 2010, Fowler, 1995, Crossley and Winter, 2012]. Quality expenditure data usually call for the use of diaries in which the household records all purchases made within a short period of time (at least for small and frequently purchased items). The diary method minimizes the reliance on respondents' memories at a higher cost in terms of respondent burden. Moreover, collecting high-quality information on income is a burdensome task. First, it requires asking each member of the household whether or not he/she has received a particular type of income. This must be done for all possible sources of income (self-employment, employment, pensions, return on assets, etc.). Moreover, it is good practice to collect additional data such as the type of work the respondent is engaged in, the type of pension received, the characteristics of a rented dwelling, and so on.

Since asking detailed questions on income and consumption in the same survey can be problematic, surveys tend to specialize in one of the two topics. Surveys whose main focus is income usually include few recall questions on consumption as well. This is done for at least two reasons. First, it enables the study of household savings decisions, where saving is defined as income minus consumption. This topic is usually of great interest to policy makers and, when available, surveys are widely used since they allow economists to analyze relevant subgroups of the population. Second, asking consumption questions may help improve the quality of income responses. This could be achieved during the interview by probing the respondents when answers do not appear to be fully coherent, or at a later stage during the editing process (via callbacks).

This practice risks having one major drawback. External users may be tempted to use both variables in the same study without giving due consideration to measurement issues. They may implicitly assume that responses about consumption have the same accuracy as those on income, since they are both collected in the same survey (using the same procedures and standards for quality checks). This then risks jumping to erroneous conclusions, especially when investigating household saving decisions.

There are at least two reasons why the 'equal accuracy assumption' may not be valid. The first is that questions on income are usually considered sensitive and tend to produce comparatively higher nonresponse rates or larger measurement error in responses than questions on other topics [Tourangeau and Yan, 2007]. For instance, some respondents

[1]We wish to thank L. Cannari, G. D'Alessio, C. Rondinelli and two anonymous referees for their useful comments. The Bank of Italy bears no responsibility for the analyses and conclusions, which are solely those of the authors. Emails: giulia.cifaldi@bancaditalia.it, andrea.neri@bancaditalia.it.

may feel that such questions are overly intrusive and that they are none of the researcher's business. Others may fear consequences in providing truthful answers in case of possible disclosure to a third party (such as fiscal authorities). A second reason is that if the questions on consumption are not part of the focus of the survey, diaries are not used to collect expenditure information. Even if in the literature there are studies showing that diaries are not perfect [Crossley and Winter, 2012], there appears to be a prevailing view that the diary approach provides more accurate measures than recall questions as far as nondurable expenditure is concerned [Battistin, 2003a].

In this paper we use an empirical application to answer the following research question: what are the consequences of being unaware that income and consumption data might have a different level of accuracy? To the best of our knowledge, this is the first application on this topic.

A paper by Browning et al. [2003] studies the quality of responses to questions on expenditure in multipurpose surveys. After reviewing the way consumption questions are framed, the authors assess the quality of the responses by comparing them with external sources of information. They argue that, even if there is evidence of bias, valid information can be collected by adding specific recall questions to general purpose surveys. They also provide recommendations on how to do so. However, the paper only focuses on total expenditure; it does not consider income or other variables.

In a similar vein, other research studies the effects of measurement error in the two variables separately. For a review of studies on the measurement issue in income variables see Moore et al. [2000] and Pedace and Bates [2000]. On consumption, see, for example, Attanasio et al. [2004], Attanasio and Weber [2010], Battistin [2003b], Crossley and Winter [2012], Kan and Pudney [2008] and Pudney [2008]. Rather surprisingly, there are no studies dealing with both consumption and income at the same time.

One last point is worth mentioning. A discussion of the best definition of household savings is beyond the scope of this work. Some economists argue that the saving definition should only include part of the expenditure on consumer durables. Moreover, income should be adjusted for the loss of purchasing power due to inflation, and saving should probably be considered net of the depreciation of capital stock [Rossi and Visco, 1994]. Nevertheless, in this paper we prefer to stick to the national accounts definition, mainly because this enables us to have a term of comparison for evaluating our imputation process.

For this, we draw on data from the Survey of Household Income and Wealth, a national representative probabilistic sample of the Italian population. The main focus of the SHIW is to collect detailed information on household income and wealth, but the questionnaire also includes some questions that attempt to reconstruct total household expenditure.

2 Data

The SHIW is conducted every two years by the Bank of Italy to study the economic situation of Italian households. The sample consists of about 8,000 households selected from population registers. The survey has been run since 1962. In this analysis we use data from the 2008 wave. The survey also collects some information on total household expenditure. This feature makes it suitable for an empirical investigation of our research question. Similar surveys usually include questions only relating to some of the components of total expenditure. For instance, the US Panel Study on Income Dynamics (PSID) asks questions about food, rent, transport, education, health and child care expenses. The British Household Panel Survey (BHPS) collects information on durable items and on food expenses. The European survey on Income and Living Conditions (EU-SILC) includes questions on main residence related expenses, while the Household Income and Labour Dynamics in Australia (HILDA) survey asks respondents about groceries, food, and meals outside the home.

Previous research using the SHIW has shown that both data on income and on consumption are affected by non-sampling errors. According to Neri and Zizza [2010] the main problems affecting the measurement of income in the SHIW are: 1) the difficulty respondents have recalling secondary sources of income; 2) the underreporting of income from self-employment; 3) the misreporting of income from financial assets; 4) the underreporting of income from properties other than the main residence.

As to consumption, Battistin [2003b] compares the SHIW with the expenditure survey run by the national statistical office (ISTAT). The author finds that while food expenditure data are of comparable quality across the two surveys once heaping and rounding are accounted for, the same does not hold for other non-durable expenditure.

Table 1 in the appendix compares the survey data and national accounts. Since in national accounts direct taxes are not broken down by type of income, an arbitrary criterion of division must be adopted. In this paper after-tax incomes are derived from national accounts by assigning a proportional share of direct taxes to each type of income. According to aggregate data the Italian household saving rate is some 14 percent of total disposable income. The survey-based estimate is 26 percent. National accounts can hardly be considered error-free and therefore a benchmark. Yet, the comparisons suggest that there are problems on the survey side.

In order to study the accuracy of SHIW data on income and consumption we use some external sources of information. A first dataset is the European Standard on Income and Living Condition survey (EU-SILC). This aims to provide comparable statistics on income, poverty, and living conditions of households in the European Union. In Italy it is carried out annually by ISTAT. In 2008 the sample included 20,928 households for a total of 52,433 individuals distributed in about 800 municipalities. Survey data are linked with administrative and tax records. If a respondent omits a source of income, this will be recovered from administrative records. As a consequence, we can assume that the number of income recipients is correctly estimated in EU-SILC. We therefore use this information

to adjust that available in the SHIW.

A second external dataset is a survey carried out in 2003 by a primary Italian bank group among its customers. The survey design and implementation were planned to be as similar as possible to those of the SHIW. The sample consists of 1,834 households. The outstanding feature of this sample is that data are coupled with the bank administrative databases using an exact matching procedure. For each respondent it is therefore possible to compare the amounts he/she reported in the survey with the true values contained in the administrative records. Financial data were available for six aggregate financial assets (deposits and repos, government bonds, private bonds, quoted shares, mutual funds and managed savings) and for financial liabilities. We use this external information to deal with the issue of misreporting in financial income in the SHIW.

The third dataset we use is the Household Budget Survey conducted yearly by ISTAT. This provides information on levels and patterns of monthly household expenditure on consumption. Data collection is mainly based on a daily diary in which the respondents record their expenditure. This is followed by a face-to-face interview to register socio-demographic information, characteristics of dwellings and ownership of durable goods (the latter is based on recall questions). In 2008 the sample included 23,392 households randomly drawn from 470 municipalities. We use this survey to assess the accuracy of expenditure items in the SHIW.

3 Methodology

In ideal conditions, we would have information from administrative records about each respondent's income and consumption. Unfortunately, this is not the case in the present study. Accordingly, we try to explore the information from external surveys that for some specific items may be assumed to produce accurate measurements. The method consists in adjusting SHIW data as follows:

1. adjustment of secondary sources of income;
2. adjustment of income for the self-employed;
3. adjustment of property income;
4. adjustment of income from financial assets;
5. adjustment of non-durable expenditure.

The final result is the production of a synthetic dataset in which measurement error should be accounted for. This file can be used to gain an insight into the consequences of the 'equal accuracy assumption'. However, it is worth stressing that none of the adjustments described in the paper are currently part of the production process of SHIW data. To the best of our knowledge the same applies for most of the existing similar surveys. Corrections for measurement error in public use data files are seldom, if ever made.

In the following sections we describe the method used to adjust for underreporting in secondary sources of income and non-durable expenditure. This is the original contribution of the work, while for the other steps we replicate existing methods.

For self-employment income, we replicate the method described in Neri and Zizza [2010]. This is a modified version of the approach by Pissarides and Weber [1989]. It consists in imputing income on the basis of the value of the main residence (while controlling for other socio-demographic variables). This value is assumed to be reported accurately even by the self-employed. The first step is to estimate the relation between income from work and the value of the main residence in a subsample of reliable SHIW respondents while controlling for a set of observed characteristics. The estimated coefficients are then projected on to the self-employed to obtain their predicted income.

The procedure for adjusting rental income is borrowed from Cannari and D'Alessio [1993] and is limited to dwellings other than the main residence. The Census provides an estimate of the total number of secondary dwellings. We can therefore calculate the number of missing dwellings as the difference between the Census figure and the one from the survey. We then assign these missing dwellings to SHIW respondents. In order to do so, we first estimate for each respondent the probability of holding one or more dwellings as a function of a set of household characteristics. On the basis these probabilities, we impute the ownership of the missing dwellings using a random experiment.

As regards financial income, we replicate the procedure by D'Aurizio et al. [2006], which is based on a sample survey of customers of a leading Bank coupled with administrative data on the assets actually owned. For each respondent we then have information on both the true amount of financial wealth survey and the one reported in the survey. We use this information to estimate the misreporting behavior in the external data and we then project it on to SHIW respondents. This is done for six different categories of financial asset (deposits, government bonds, private bonds, shares, managed savings, mutual funds) and for financial liabilities. The adjustment consists of the following steps. First, we adjust for misreporting in the ownership. Using the external data, we estimate the probability of holding a financial asset (or liability) as a function of the ownership declared in the survey and other household characteristics. We then project these probabilities on to SHIW respondents and impute ownership with a random experiment. Second, we adjust misreporting in the amounts following a similar procedure. In the external data we compute the ratio between the true and the declared amount for each asset (and for liabilities) and we estimate its relation with a set of socio-demographic variables. Eventually we use this information to impute the true amount of financial wealth held by SHIW respondents.

The adjustment process for both income and consumption items results in a final dataset with imputed values. We then compare imputed and initial values both in a univariate and in a multivariate context. For the latter, we pool the adjusted and the original data and we fit the following ordinal regression model:

$$y^{\star} = \beta X + \gamma \mathrm{Adj} + \mathrm{interactions} + \varepsilon, \tag{1}$$

where $y^\star$ is the unobserved household propensity to save, while y is the observed household saving class grouped into 5 categories (1=negative savings, 2=saving rate between 0 and 25% of income, 3= saving rate between 25 and 50% 4=saving rate between 50 and 75%, 5=saving rate over 75%). The regressors in the X matrix are the household income class (quintiles), age, educational attainment, activity status, number of household components, size of the municipality, and geographical area. The term Adj is a dummy variable indicating where the sample is from imputed data (adj=1) or not. We also included some interactions between Adj and other regressors. In case there are no significant differences between imputed and original values, both the Adj variable and the interaction terms should not be significantly different from zero.

3.1 Imputation of secondary sources of income

Table 2 reports the number of workers and jobs estimated by National Accounts, the SHIW and the EU-SILC. According to the SHIW, payroll income is the main source of income for some 18.7 million workers, while self-employment is the first source for 4.4 million. These data are largerly in line with the National Accounts. Yet, when it comes to the total number of jobs, the difference between the two sources increases. This implies that in the SHIW the number of income earners from secondary activity is underestimated. The same does not hold (at least to the same extent) for the EU-SILC, mainly because this survey uses administrative records.

We then perform a statistical matching between the SHIW and the EU-SILC by relating the secondary sources of income. Asides from the standard assumption of conditional independence, there are three preliminary conditions underlying of this exercise. First, the surveys should be seem as random samples drawn from the same population. Second, the distribution of the variables used in the matching should be similar in the two samples. Third, there should be no measurement error in the variables used as covariates.

Since in both surveys the sampling is performed so that it is representative of the Italian population, the first condition is satisfied. However, the second assumption does not hold: although the SHIW and the EU-SILC share some socio-demographic characteristics, their distributions are not fully comparable. Table 3 presents the results from a logit regression of a binary indicator T taking 1 for the observation in the EU-SILC sample (and 0 for the SHIW sample) over a set of social-demographic variables. Only the composition of individuals by sex and geographical area appears to be consistent in the two surveys. Significant differences concern the distribution of units by educational qualification, activity and marital status, type of household and tenure status. These differences may stem from operative aspects (such as the replacement protocol used to select substitutes) or from the external information used to compute the weights.

To ensure that condition 2 is met, the individuals in the EU-SILC sample are re-weighted on the basis of the SHIW sample through the propensity score weighting [Rosenbaum and Rubin, 1983]. Before re-weighting the EU-SILC sample, the distribution by age, educational qualification and activity status in the SHIW sample is aligned with data from

the Registry and Labour Force Survey. The propensity score λ is defined as the conditional probability of belonging to the EU-SILC sample ($T = 1$) given the set of socio-demographic variables X. In the case of a logistic regression:

$$\lambda_i = \Pr(T = 1|X = x_i) = f(x_i^{'}\beta) = f(x_i^{'}\widehat{\beta}) = \frac{1}{1 + e^{-x_i^{'}\widehat{\beta}}}. \tag{2}$$

The score is then used to define the new weight ω_{1i} of each unit as follows:

$$\omega_{1i} = \frac{\omega_{0i}}{\widehat{\lambda_i}}, \tag{3}$$

where ω_{0i} is the original weight in the SHIW sample. The results are shown in table 3. This re-weighting procedure allows us to reduce (increase) the weight of those EU-SILC units exhibiting over-represented (under-represented) characteristics in the SHIW.

The re-weighting of the EU-SILC sample is followed by the imputation of income earners from secondary activity in the SHIW sample. The imputation of income earners from secondary activities (employment, self-employment, retirement and transfers) is based on a random regression model:

1. in the EU-SILC sample the probability of being income earners ($I = 1$) is estimated as a function of the set of socio-demographic characteristics using a weighted probit regression. We run 4 different regressions, one for each source of income. For the sake of simplicity the coefficients are not reported;

2. in the SHIW sample the predicted probability of being income earners is defined as:

$$\widehat{\mathrm{PR}}(\mathrm{I{=}1}) = \Phi(x_i^{'}\widehat{\beta} + u_i) \tag{4}$$

   where $\widehat{\beta}$'s are the estimated coefficients of the probit regression and $u_i \sim \mathrm{N}(0, \sigma_u^2)$ with σ_u^2 equal to the variance of the residuals in the regression ($\Sigma e_i^2/n$);

3. in the SHIW sample the new income earners are defined using a random experiment: if $\Phi(x_i^{'}\widehat{\beta} + u_i) > \nu_i \Rightarrow$ the i-th individual is an income earner, where ν_i is drawn from $U(0, 1)$. The total number of income recipients is constrained so as not to be higher then the figure from national accounts.

Finally, the amount of perceived income is attributed to each imputed earner by means of the propensity score matching. Propensity score matching associates to each unit of the recipient file (the income earner previously imputed in the SHIW) the record (income) of the most similar observation in the donor file (EU-SILC) in order to minimize a distance function defined in terms of propensity score. In this case, the propensity score is the conditional probability of belonging to the SHIW sample (T = 1) given the set of socio-demographic variables. As before, a logit model is used to estimate the propensity

score. Having defined and estimated the propensity score, the unit from the EU-SILC sample is chosen as a matching partner for SHIW individuals through the nearest neighbor (NN) matching with replacement that, as opposed to the NN matching without replacing, increases the quality of matching and reduces the bias.

The last assumption relates the absence of measurement error in the covariates. Even if we recognize that this could be a relevant issue, in this paper we do not address it and we leave it for future research. The main reason is that to the best of our knowledge statistical matching methods for dealing with this problem scarcely exist in the literature. This calls for a paper focusing specifically on this theme.

3.2 Imputation of non-durable expenditure

The SHIW is not focused on consumption. Nonetheless, there a number of questions aimed at constructing a measure of total expenditure. First, there is a question on food that reads as follows:

"What is the average monthly expenditure on food alone? This includes spending on food in supermarkets and the like and spending on meals eaten regularly outside the home."

There is also a question on total non-durable consumption:

"How much did the household spend on average per month in 2008 in cash, by credit card, cheque or debit card, on all items? Include all spending, for both food and non-food, and exclude only the following items: - purchases of valuables, cars, et., maintenance, allowances, gifts (as above) - extraordinary maintenance of dwelling; - rental of dwelling; - mortgage installments; - life insurance premiums; - contributions to supplementary pension schemes." Some items such as mortgage installments are not included since they are not counted as expenditure, others are excluded in order to avoid double counting (they are included in other sections of the questionnaire). Finally there are questions on durable expenditure that ask about the purchase and sale of valuables, means of transport, furniture, appliances, sundry equipment, and so on.

In our paper we deal with the first two items: food and other non-durable expenditure. The imputation of durable expenditure is not performed primarily because in both surveys this information comes from recall questions and then because there is no reason to assume that data from the Household Budget Survey (HBS) are better than SHIW data. Moreover, even though durable expenditure is a small portion of total consumption expenditure, it fluctuates more than non-durable spending. The high volatility of durable expenditure results in a poor statistical fit of the selected model to estimate the spending. Therefore, in the SHIW sample the imputed total consumption expenditure will be derived from the sum of the original durable spending and the imputed expenditure on food and non-durable goods.

In 2008 the SHIW registered an average consumption per household of €23,757, well below the €30,769 and €37,457 recorded by the HBS and National Accounts, respectively. Consequently, we use HBS data to improve consumption information in the SHIW.

As to food consumption, the SHIW and HBS distributions are fairly aligned (table

11). The main differences stem from higher order percentiles. SHIW data exhibits a lower variability than HBS. Indeed, asking information by using a single recall question causes respondents to round the reported values. The imputation process is therefore mainly used to deal with the issues of heaping and rounding.

In the first step we align the socio-demographic characteristics of the two samples by re-weighting HBS units through the propensity score weighting, where the propensity score is now defined as the conditional probability of belonging to the HBS sample given the set of socio-demographic variables (table 3).

The imputation of the expenditure on food is then based on a random regression imputation. In the HBS sample family food expenditure (F) is estimated using a weighted log-linear regression model:

$$\ln F = \beta X + \alpha FC + \gamma \ln(\text{newaffitto}) + \epsilon, \tag{5}$$

where X is the set of socio-demographic characteristics, FC is the food expenditure class[2] and ϵ is the error term distributed as a $N(0, \sigma^2)$. The variable *newaffitto* contains the current monthly rent paid by tenants and the monthly rent that owners could get by renting the main residence (subjective or figurative rent). We include this variable as a proxy for household current income (in the HBS there is no reliable information on income). Table 5 reports the main descriptive statistics for *newaffitto* in both samples. Except for the higher values of the variable, there are no significant interquartile differences between the two samples. Nevertheless, in the SHIW the distribution of *newaffitto* exhibits more variability. We therefore take the logarithm of the variable.

The predicted food spending in the SHIW is defined as follows:

$$\widehat{F} = \exp\{\widehat{\beta} X + \widehat{\alpha} FC + \widehat{\gamma} \ln(\text{newaffitto}) + 0,5\widehat{\sigma}^2\} + u, \tag{6}$$

where $\widehat{\sigma}^2$ is the estimated residual variance of the regression. A residual component u is then added to the predicted values. In order to avoid negative values of expenditure, u is drawn from a truncated normal distribution. Moreover, to preserve the association between the imputed and the original variable we assign the residuals through the following procedure. First we run the regression using the SHIW data. Second, we compute for each residual its rank from the empirical distribution of residuals in the SHIW and then select the residual at the same rank in the empirical distribution of residuals from the HBS. Since the two samples do not have the same number of observations, it is not possible to exactly match the SHIW and HBS residuals at a specific rank. We therefore discretized the distribution of residuals in intervals containing an equal (or close to equal) number of weighted observations. We then randomly select a residual from each interval and assign it to the unit in the SHIW in the same interval.

[2]Four levels of food expenditure are defined: less than €200, between €200 and €500, between €500 and €900, and greater than €900. The distributions of households according to their class of food spending are not significantly different in the two samples.

Table 6 reports the estimation results of (5). The statistical fit of the model is $R^2 = 0.87$. Spending on food increases with age class until 64 years. It decreases for the elderly. Spending on food decreases for single men/women and widowers. Moreover, the larger the family, the greater the consumption of food. Clearly, the proxies of income, educational qualification and *newaffitto*, have a significant positive effect on spending. Regarding activity status, the food expenditure of employees is higher than that of the unemployed and inactive people but lower than that of the self-employed.

After the imputation of food expenditure, we deal with non-durable expenditure.[3] Once again the imputation is based on a random regression imputation. To predict non-durable expenditure (ND) in the SHIW, the information on household characteristics, income and food expenditure, provided by the HBS sample, is exploited:

$$\ln(\text{ND}) = \beta X + \alpha \ln F + \gamma \ln(\text{newaffitto}) + \epsilon. \tag{7}$$

The results of the regression are displayed in table 7. The R^2 of the model is 0.51. Expenditure is higher in the north of Italy and for women. Relative to young people, the consumption of non-durable goods is greater for middle-aged people. Clearly, non-durable expenditure increases for respondents with higher incomes, better qualifications and larger households. Divorces and widowers tend to spend more for the purchase of non-durable goods than do married persons. As expected, homeowners have higher standard of living and consequently higher non-durable expenditure. The imputed values are computed by following the same steps previously described for the imputation of food expenditure.

4 Results

We estimate household income reported by respondents to be, on average, some 20% lower that the true (unobserved) income (table 8). Incomes from self-employment and from financial assets account for most of the difference between the imputed and reported income. Income from transfers shows the greatest adjustment, but it does not affect the overall average because of its low salience. The household average payroll income is not affected by the imputation.

The adjustment relating to the secondary sources of income increases the overall percentage of recipients by about 5 percentage points (table 9). Income from transfers shows the highest increase (+10 points), while in the other cases the increase ranges from 1.5 to 2.9 points. As to the amounts, the imputation changes the average annual individual income by about 3 percent (table 10). The main change relates to income from transfers.

The average household consumption increases by some 27 percent (table 12). Table 11 reports the distribution of SHIW expenditure on food and non-durable goods before and after the imputation. Overall, the initial distribution of expenditure on food does

[3]The definition of non-durable spending excludes mortgage and effective and figurative rent payment on main residence and other dwellings, spending life insurance and annuity, costs for maintenance works of dwelling

not seem to be very different from the imputed one. The monthly median is €500 in the initial data and €521 in the imputed ones (+4 per cent). The main differences seems to relate the highest and lowest percentiles. The imputation process has a greater effect on expenditure on non-durables other than food consumption. The estimated median value is €1,085 versus the initial figure of €650 (+65 percent). The changes seem to be larger for the lowest percentiles of the distribution.

Figure 1 shows the age profile for non-durable expenditure in the SHIW before and after the imputation. Basically, even though the predicted profile is decisively above the observed one, consumption trend remains unchanged with a peak at around 50 years. Nevertheless, the growth of the predicted expenditure for households aged between 30 and 40 is lower than the increase in observed spending and the exact peak shifts slightly to the right, to just over age 50.

Since the accuracy of income appears to be higher than that of consumption, the average saving rate is likely to be overestimated in the survey. Indeed, its estimate drops from 26 to 22 percent after taking into account measurement errors. The degree of overestimation varies across different subgroups of the population. A greater number of errors are found for households in which the highest income recipient is a woman, young person, that with a low level of education and households comprising one member.

Moreover, table 13 shows that the saving rate appears to be overestimated in particular for households in the lower classes. The same does not hold for well-off households (say households with an income higher than the 8th decile). Their estimated saving rate does not seem to be overestimated in the survey. This implies that respondents with a low income tend to underreport their consumption more than their income. These results should be interpreted with caution, however. They may depend on the models used in the adjustment process. As a robustness check we compute an alternative set of predicted values for consumption as follows. First, we assume that the variables income $I = ln(I_1)$ and consumption $C = ln(C_1)$ follows a bivariate lognormal distribution where I_1 and C_1 are bivariate normal. The mean and the standard deviation of I and C (μ_I , μ_C, σ_I , σ_C) are estimated using the SHIW and the HBS surveys. The correlation coefficient between the two variables ρ_{IC} is estimated using the SHIW. The predicted value of consumption ($\hat{C}_{1i}$) for household i on a log scale is computed as:

$$\hat{C}_{1i} = \hat{\mu}_{C1} + \hat{\rho}_{IC}\frac{\hat{\sigma}_{C1}}{\hat{\sigma}_{I1}}(\hat{I}_{1i} - \hat{\mu}_{I1}) \tag{8}$$

Then, we back transform by exponentiating $\hat{C}_{1i}$ to get the results into the original scale. We also rescale the values so that $E(\hat{C}_{1i}) = \hat{\mu}_C$. As a result, we get a new set of predicted values $\hat{C}_{1i}$ which have the desirable property of having the same correlation with the predicted values of income as the one estimated in the original data. This approach should therefore minimize the risk of assigning by chance high values of consumption to households with a low income. Finally, we use the new predicted values to estimate the share of households with negative savings. We get results that are fairly consistent with

those presented in table 13.

We also find evidence that measurement errors bias the relationship between household saving and demographic variables. The results in table 14 show that the variable Adj is significantly different from zero. This indicates that the (conditional) average of household saving is different across the two samples. The same holds for the relation between the saving rate and household income class. The main effect of income shows that the higher the income class the higher the saving rate. The interaction terms between Adj and the income class are positive. This means that the association between income and saving is stronger in the imputed data with respect to the original data. A similar consideration applies to the association between the saving rate and geographical area (see the interaction terms between Adj and geographical area).

5 Discussion and conclusions

In this paper we discuss the consequences of asking questions on income and expenditure in the same survey. In particular, we try to assess what consequences a researcher could face, by assuming that the measurements of these two variables have the same accuracy. We use the SHIW survey which collects detailed information on income and some recall questions on total household expenditure.

Our first finding is that the underreporting of household expenditure appears to be higher than that of household income. As a consequence, any survey-based estimate of saving rate is likely to be overestimated. This result goes in the expected direction, as the SHIW is maily focused on income.

As to the total household expenditure, the main problems don't stem from the measurement of food consumption. We find the distribution of food consumption expenditure to be in line with the one from a survey using the diary method. One main drawback of having a single recall question is that it leads to heaping and rounding. Respondents seem to be good at reporting their spending on food in a typical month, even though they are less likely to report exact amounts.

On the contrary, problems stem from asking a single recall question relating to the bulk of other non-durable expenditure. Even if in the SHIW survey some important items are excluded from the bulk question because they are inquired into separately, the question still seems to be overly general to provide accurate data. Indeed, the concept of non-durable expenditure is too complex to be measured by a single item. It includes a number of components such as clothing and footwear, housing, water, electricity, gas and other fuels, health, transport, communication, recreation and culture, education, restaurants and hotels, and so on. Without any specific indication of the items to be included, some respondents do not include some categories in their estimates of totals. The ideal solution would be to include a few questions on the main categories of spending before asking for the total.They could be selected from those that are the most salient items according to the HBS survey. Besides helping respondents, this solution would also enable researchers to make a better matching between the SHIW and HBS surveys.

Another solution could be to list precisely all the main items the respondent should think about in the wording of the question. This solution would offer two main advantages. First, it could help ensure that every respondent answers the same question. Second, it would help the respondent since he/she is likely to think of all the main items and then sum them up before answering. He/she is unlikely to known their total expenditure offhand.

Of course, these speculations would call for some specific controlled experimental study on the effects of using different questions in the quality of expenditure items.

Another finding is that misreporting in income and in consumption seems to have a different association with the reported amounts. The higher the income declared by respondents, the higher the measurement error. For consumption we don't find similar evidence.

We think this may be for at least two reasons. First, consumption is probably a less sensitive topic than income. Wealthy households may be afraid of reporting all their true income, for instance because they think that fiscal authorities may request such information from the Bank of Italy and link it to tax records. For consumption it is less so, since this data is not generally used by fiscal authorities. Second, consumption may be more difficult to hide from an interviewer. The interview takes place in the household's main residence. So interviewers can usually get an idea of the level of total expenditure of the respondent from the items they see in the house. Moreover they are trained to probe in case they feel that replies are clearly not compatible with what they see. Respondents knows that and so it could be more difficult for them to underreport household expenditure substantially.

One important consequence of this finding is that household saving rates are likely to be overestimated, especially for low-income households. Since policy analysis usually focuses on poor households, the information from surveys should be interpreted with caution.

Finally, we find evidence that the different level of accuracy of income and consumption items is also likely to bias the relationship between household saving and its correlates. This result suggests that researchers interested in households' saving decisions should tackle measurement issues before jumping to any into economic interpretations.

References

O. Attanasio, E. Battistin, and H. Ichimura. What really happened to consumption inequality in the us? Working Paper 10338, National Bureau of Economic Research, March 2004. URL http://www.nber.org/papers/w10338.

O. P. Attanasio and G. Weber. Consumption and saving: Models of intertemporal allocation and their implications for public policy. *Journal of Economic Literature*, 48(3):693–751, September 2010. URL http://ideas.repec.org/a/aea/jeclit/v48y2010i3p693-751.html.

E. Battistin. Errors in survey reports of consumption expenditures. IFS Working Papers W03/07, Institute for Fiscal Studies, April 2003a. URL http://ideas.repec.org/p/ifs/ifsewp/03-07.html.

E. Battistin. Errors in survey reports of consumption expenditures. IFS Working Papers W03/07, Institute for Fiscal Studies, April 2003b. URL http://ideas.repec.org/p/ifs/ifsewp/03-07.html.

M. Browning, T. F. Crossley, and G. Weber. Asking consumption questions in general purpose surveys. *The Economic Journal*, 113(491):F540–F567, 2003. ISSN 1468-0297. URL http://dx.doi.org/10.1046/j.0013-0133.2003.00168.x.

L. Cannari and G. D'Alessio. Non-reporting and under-reporting behaviour in the bank of italy's survey of household income and wealth. *ISI, Bulletin of the International Statistics Institute*, 65:395–412, 1993.

T. F. Crossley and J.K. Winter. Asking households about expenditures: What have we learned? In *Improving the Measurement of Consumer Expenditures*, NBER Chapters. National Bureau of Economic Research, Inc, January 2012. URL http://ideas.repec.org/h/nbr/nberch/12666.html.

L. D'Aurizio, I. Faiella, S. Iezzi, and A. Neri. The under-reporting of financial wealth in the survey on household income and wealth. Temi di discussione (Economic working papers) 610, Bank of Italy, Economic Research Department, December 2006. URL http://ideas.repec.org/p/bdi/wptemi/td_610_06.html.

F.J. Jr. Fowler. *Improving Survey Questions: Design and Evaluation: Applied Social Research Methods*. SAGE Publications, Thousand Oaks, 1995.

M.Y. Kan and S. Pudney. Measurement error in stylized and diary data on time use. *Sociological Methodology*, 38, 2008.

J. A. Krosnick and S. Presser. Questionnaire design. In J. D. Wright and P.V Marsden, editors, *Handbook of Survey Research (Second Edition)*. CA: Elsevier, San Diego, 2010.

J.C. Moore, L.L. Stinson, and E.J. Welniak. Income measurement error in surveys: a review. *Journal of Official Statistics*, 16:331–361, 2000.

A. Neri and R. Zizza. Income reporting behaviour in sample surveys. Temi di discussione (Economic working papers) 777, Bank of Italy, Economic Research Department, October 2010. URL `http://ideas.repec.org/p/bdi/wptemi/td_777_10.html`.

R. Pedace and N. Bates. Using administrative records to assess earnings reporting error in the survey of income and program participation. *Journal of Economic and Social Measurement*, 26:173–192, 2000.

C. A. Pissarides and G. Weber. An expenditure-based estimate of britain's black economy. *Journal of Public Economics*, 39(1):17–32, June 1989. URL `http://ideas.repec.org/a/eee/pubeco/v39y1989i1p17-32.html`.

S. Pudney. Heaping and leaping: survey response behaviour and the dynamics of self-reported consumption expenditure. ISER Working Paper Series 2008-09, Institute for Social and Economic Research, March 2008. URL `http://ideas.repec.org/p/ese/iserwp/2008-09.html`.

P.R. Rosenbaum and D.R. Rubin. The central role of the propensity score in observational studies for causal effects. *Biometrika*, 40(1):41–55, 1983.

N. Rossi and I. Visco. Private saving and the government deficit in italy. *Saving and the accumulation of wealth, Essays on Italian Household and Government Saving Behaviour*, 70-106, 1994.

R. Tourangeau and T. Yan. Sensitive questions in surveys. *Psychological Bulletin*, 133(5): 859–883, 2007.

5.1 Tables and figures

Table 1: National Accounts and SHIW income and consumption statistics (2008)

Source of income	NA	SHIW	SHIW/NA
	Millions of euro		
Payroll income	350,303	311,642	89.0%
Imputed rents	71,422	151,322	211.9%
Income from self-employment in units with:			
- up to 5 employees and actual rents	162,942	86,845	53.3%
- more than 5 employees	50,172	5,634	11,2%
Entrepren. income, income from financ. assets	126,868	15,589	12.3%
Pensions and net transfers	257,481	193,486	75.1%
Total gross disposable income	1,077,518	767,526	71.2%
Food consumption	134,365	143,739	107.0%
Total consumption	922,979	567,232	61.46%
Saving rate	14.3%	26.1%	

NA statistics exclude non-profit institutions serving households and are net of tax and contributions.

Table 2: Number of workers and jobs: a comparison of micro and macro data (2008)

	Workers by main income source (thousands)				
Main source of income	NA	SHIW	EU-SILC	SHIW/NA	EU-SILC/NA
From employment	18,885	18,722	17,767	99%	94%
From self-employment	5,773	4,444	5,252	77%	91%
Total	24,658	23,166	23,019	94%	93%

	Jobs held (thousands)				
	NA	SHIW	EU-SILC	SHIW/NA	EU-SILC/NA
Employees	20,925	19,045	21,100	91%	101%
Self-employed	8,503	4,910	6,825	58%	80%
Total	29,428	23,955	27,925	81%	95%

Table 3: Logistic model of the probability of belonging to the EU-SILC sample

Variables	**Coeff.**	**Std. Err.**	**p-value**
Constant	0.58	0.05	0.000
Female	0.00	0.02	1.000
$35 \leq$Age<44	0.09	0.03	0.001
$45 \leq$Age<54	0.12	0.03	0.000
$55 \leq$Age<64	0.10	0.03	0.002
Age≥ 64	0.09	0.04	0.034
Elementary school	0.26	0.03	0.000
Middle school	-0.06	0.03	0.017
High school	-0.11	0.03	0.000
University degree	-0.12	0.03	0.000
Center	0.00	0.02	0.939
South and Islands	0.02	0.02	0.123
Wife of head of household	0.02	0.02	0.342
Parent of head of household	-0.54	0.07	0.000
Child of head of household	-0.06	0.04	0.101
Other	0.06	0.05	0.280
Self-employed	-0.08	0.03	0.005
Unemployed	-0.08	0.04	0.084
Inactive	-0.08	0.02	0.000
Unmarried	0.17	0.03	0.000
Separated/divorced	-0.05	0.04	0.241
Widowed	0.03	0.04	0.515
Couple. both < 65 years	-0.11	0.04	0.006
Couple. at least one > 65 years	-0.13	0.04	0.003
Other 2 adults	-0.03	0.04	0.490
Single parent with dependent children	0.15	0.05	0.006
Couple with 1 dependent child	0.04	0.04	0.303
Couple with 2 dependent children	0.00	0.04	0.953
Couple with 3 or more dependent children	-0.18	0.05	0.000
Other households with dependent children	-0.04	0.04	0.271
Other households	-0.01	0.04	0.751
Tenant/subtenant	-0.06	0.02	0.002
Other	0.10	0.02	0.000

Table 4: Logistic model of the probability of belonging to the HBS sample

Variables	**Coeff.**	**Std. Err.**	**p-value**
Constant	1.55	0.09	0.000
Female	-0.33	0.03	0.000
35≤Age<44	0.02	0.05	0.665
45≤Age<54	0.10	0.05	0.047
55≤Age<64	0.12	0.05	0.026
Age≥64	0.14	0.06	0.017
Elementary school	0.00	0.05	0.940
Middle school	-0.27	0.05	0.000
High school	-0.34	0.05	0.000
University degree	-0.37	0.06	0.000
Centre	-0.06	0.03	0.062
South and Islands	0.02	0.02	0.380
Self-employed	-0.16	0.04	0.000
Unemployed	-0.14	0.07	0.040
Inactive	-0.22	0.04	0.000
Unmarried	-0.13	0.05	0.004
Separated/divorced	-0.56	0.06	0.000
Widowed	-0.33	0.05	0.000
Couple	-0.67	0.04	0.000
Couple with 1 child	-0.46	0.05	0.000
Couple with 2 children	-0.49	0.05	0.000
Couple with 3 or more children	-0.60	0.07	0.000
Single parent with children	0.70	0.06	0.000
Other households	-0.44	0.05	0.000
Tenant/subtenant	-0.20	0.03	0.000
Other	-0.16	0.04	0.000

Table 5: Descriptive statistics for *newaffitto*,(€)

Descriptive statistic	**SHIW**		**HBS**	
	newaffitto	ln(*newaffitto*)	*newaffitto*	ln(*newaffitto*)
Mean	571	6.13	537	6.13
5%	150	5.01	150	5.01
25%	300	5.70	315	5.75
50%	500	6.21	500	6.21
75%	700	6.55	700	6.55
95%	1,300	7.17	1,000	6.91
Std. Dev.	420	0.68	288	0.60

Table 6: Log food expenditure estimates using HBS data

Variables	**Coeff.**	**Std. Err.**	**p-value**
Constant	4.77	0.02	0.000
35≤Age<44	0.01	0.01	0.417
45≤Age<54	0.01	0.01	0.137
55≤Age<64	0.02	0.01	0.006
Age≥64	0.00	0.01	0.894
Unmarried	-0.01	0.01	0.071
Separated/divorced	0.01	0.01	0.355
Widowed	-0.02	0.01	0.036
Elementary school	0.03	0.01	0.000
Middle school	0.04	0.01	0.000
High school	0.05	0.01	0.000
University degree	0.05	0.01	0.000
Self-employed	0.01	0.01	0.148
Unemployed	-0.05	0.01	0.000
Inactive	-0.01	0.01	0.167
Couple	0.06	0.01	0.000
Couple with 1 child	0.08	0.01	0.000
Couple with 2 children	0.09	0.01	0.000
Couple with 3 or more children	0.11	0.01	0.000
Single parent with children	0.06	0.01	0.000
Other households	0.08	0.01	0.000
200<FC≤500	0.90	0.01	0.000
500<FC≤900	1.52	0.01	0.000
FC>900	2.09	0.01	0.000
ln(newaffitto)	0.01	0.00	0.000
Sample size	22,379		
R^2	0.8716		
Adjusted R^2	0.8714		

Table 7: Log non-durable expenditure estimates using HBS data

Variables	**Coeff.**	**Std. Err.**	**p-value**
Constant	2.13	0.07	0.000
Centre	-0.17	0.01	0.000
South and Islands	-0.30	0.01	0.000
Male	-0.01	0.01	0.227
35≤Age<44	-0.02	0.02	0.172
45≤Age<54	0.01	0.02	0.492
55≤Age<64	0.05	0.02	0.011
Age≥64	-0.08	0.02	0.000
Elementary school	0.12	0.02	0.000
Middle school	0.23	0.02	0.000
High school	0.40	0.02	0.000
University degree	0.56	0.02	0.000
Self-employed	0.06	0.01	0.000
Unemployed	-0.12	0.03	0.000
Inactive	-0.07	0.01	0.000
Unmarried	-0.01	0.02	0.694
Separated/divorced	0.05	0.02	0.013
Widowed	0.01	0.02	0.615
Couple	0.26	0.02	0.000
Couple with 1 child	0.37	0.02	0.000
Couple with 2 children	0.38	0.02	0.000
Couple with 3 or more children	0.43	0.03	0.000
Single parent with children	0.29	0.02	0.000
Other households	0.29	0.02	0.000
Tenant/subtenant	-0.20	0.01	0.000
Other	-0.02	0.01	0.155
ln(F)	0.58	0.01	0.000
ln(newaffitto)	0.12	0.01	0.000
Sample size	22379		
R^2	0,5149		
Adjusted R^2	0,5144		

Table 8: Effects of the adjustment process on the average household income components (€, percentages)

Source of income	**SHIW before the imputation**	**SHIW after the imputation**	**Diff.**	**Contribution %**	**Var. %**
Payroll income	13,052	13,029	-24	-0.4	-0.2
Income from self-employment	4,187	7,173	2,985	45.7	71.3
Income from pension	7,985	8,777	792	12.1	9.9
Income from transfers	80	504	424	6.5	529.6
Income from financial assets	6,842	9,190	2,348	36.0	34.3
Total income	32,146	38,672	6,526	100.0	20.3

Table 9: Percentage of income earners in SHIW before and after the imputation

Source of income	**SHIW before the imputation**	**SHIW after the imputation**
Employment	31.87%	33.14%
Self-employment	8.22%	12.71%
Retirement	25.44%	26.83%
Transfers	5.26%	15.77%
Total income earners	65.54%	70.13%

Table 10: Per capita average annual income of earners in the SHIW before and after the imputation (€)

Source of income	**SHIW before the imputation**	**SHIW after the imputation**
Employment	16,373	15,520
Self-employment	20,373	18,477
Retirement	12,547	13,000
Transfers	608	1,283
Total income	15,434	15,947

Table 11: Descriptive statistics for monthly expenditure on food and non-durable goods (€)

Statistics	**HBS**		**SHIW before the imputation**		**SHIW after the imputation**	
	Food	Non-durable	Food	Non-durable	Food	Non-durable
Mean	578	1,156	512	757	578	1,156
5%	156	189	200	200	263	471
25%	325	504	300	400	382	793
50%	502	890	500	650	521	1,085
75%	747	1,496	600	1000	708	1,440
95%	1,248	3,019	1,000	1,700	1,205	2,109
Std. Dev.	359	977	268	521	258	503

Figure 1: Age profile for non-durable expenditure

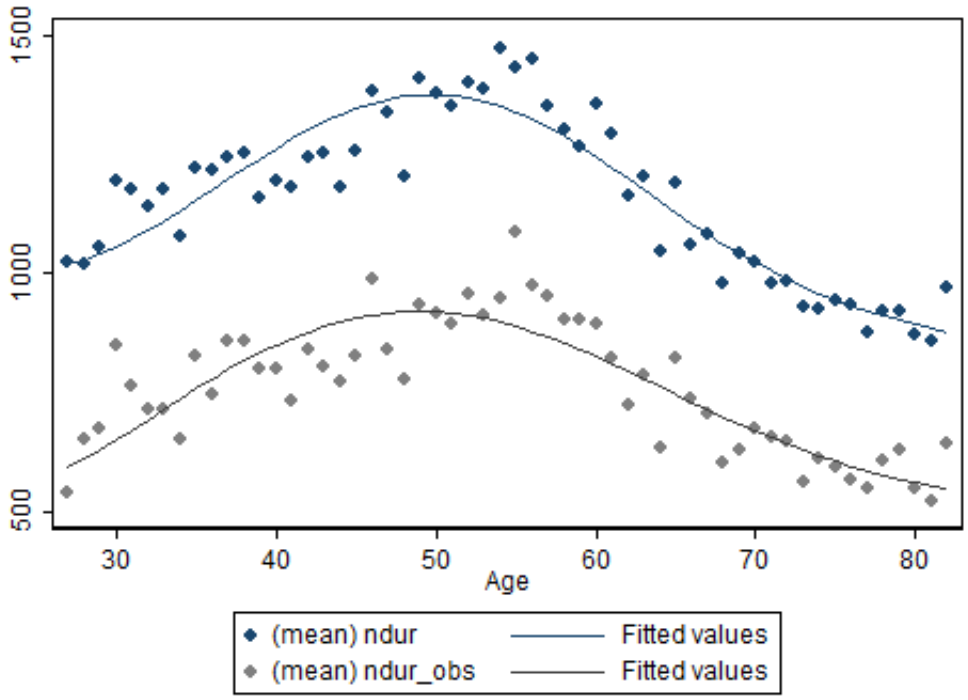

Table 12: Household income, consumption and saving rate, (€, percentages)

	SHIW before the imputation			SHIW after the imputation		
	Income	Cons.	Saving rate	Income	Cons.	Saving rate
Sex						
Male	35,132	25,483	27.5	42,423	32,034	24.5
Female	25,477	19,903	21.9	29,895	25,779	13.8
Age						
≥34	28,722	22,136	22.9	33,458	28,505	14.8
35-44	31,472	24,787	21.2	36,467	30,818	15.5
45-54	38,881	27,697	28.8	46,132	34,326	25.6
55-64	38,929	27,047	30.5	47,612	33,908	28.8
≥64	26,580	19,659	26,0	33,479	26,091	22.1
Educational qualification						
None	14,688	12,078	17.8	16,935	16,310	3.7
Elementary school	21,200	16,915	20.2	26,144	21,689	17.0
Middle school	29,393	22,585	23.2	34,064	27,730	18.6
High school	38,108	27,821	27.0	42,202	32,964	21.9
University degree	55,451	35,991	35.1	62,091	42,907	30.9
Activity status						
Employed	33,278	25,327	23.9	37,331	31,333	16.1
Self.employed	46,939	30,319	35.4	58,036	36,813	36.6
Unemployed	10,163	14,260	40.3	14,881	21,449	44.1
Inactive	26,789	20,085	25.0	33,015	26,430	19.9
Number of components						
1 component	19,528	16,410	16.0	22,865	21,996	3.8
2 components	32,013	23,083	27.9	38,689	29,422	24.0
3 components	39,747	27,839	30.0	46,716	34,647	25.8
4 components	40,662	29,488	27.5	48,365	35,843	25.9
5 or more components	37,212	28,379	23.7	49,752	36,450	26.7
Size of municipality						
Up to 20,000 inhabitants	30,942	22,619	26.9	37,196	29,077	21.8
from 20,000 to 40,000 inhabitants	30,600	22,852	25.3	36,529	28,956	20.7
from 40,000 to 500,000 inhabitants	31,651	23,611	25.4	38,338	29,642	22.7
Over 500,000 inhabitants	39,279	29,197	25.7	46,640	36,184	22.4
Geographical area						
North	36,321	25,940	28.6	42,150	32,942	21.8
Center	34,345	25,853	24.7	41,728	31,949	23.4
South and Islands	24,122	18,916	21.6	30,722	24,277	21.0
Total	**32,146**	**23,757**	**26.1**	**38,672**	**30,162**	**22,0**

Table 13: Household saving rate by income percentile, (€, percentages)

	SHIW before the imputation			SHIW after the imputation		
	Income	Cons.	Saving rate	Income	Cons.	Saving rate
Percentile of income						
<10	8,187	10,536	-28.7	9,181	16,730	-82.2
10-19.9	13,435	13,750	-2.3	15,119	19,471	-28.8
20-29.9	17,176	16,719	2.7	19,622	22,032	-12.3
30-39.9	20,595	17,967	12.8	24,217	24,680	-1.9
40-49.9	24,296	20,493	15.7	28,631	27,544	3.8
50-59.9	28,366	23,461	17.3	34,055	29,285	14.0
60-69.9	33,698	25,268	25.0	40,021	32,501	18.8
70-79.9	40,499	29,137	28.1	47,781	35,847	25.0
80-89.9	50,436	34,077	32.4	60,515	41,455	31.5
90-100	84,887	46,213	45.6	107,651	52,107	51.6

Table 14: Ordinal logit model for the household saving class

Variables		**Coeff.**	**Std.Err.**	**p-value**
Quintiles of household income:	2nd quintile	1,25	0,070	0,000
Base 1st quintile	3rd quintile	2,08	0,075	0,000
	4th quintile	3,14	0,083	0,000
	5th quintile	4,34	0,093	0,000
Age: Base < 34	35-44	-0,22	0,057	0,000
	45-54	-0,16	0,059	0,006
	55-64	-0,17	0,068	0,013
	Over 64	0,03	0,082	0,733
Educational qualification:	Elementary school	-0,28	0,105	0,008
Base none	Middle school	-0,63	0,110	0,000
	High school	-0,85	0,112	0,000
	University degree	-0,85	0,127	0,000
Activity status:	Self-employed	0,22	0,049	0,000
Base employed	Unemployed	-0,28	0,169	0,096
	Inactive	-0,08	0,065	0,217
Number of components:	2 components	-0,39	0,047	0,000
Base 1 component	3 components	-0,65	0,056	0,000
	4 components	-0,92	0,061	0,000
	5 or more components	-1,05	0,080	0,000
	Female	0,07	0,038	0,053
Size of municipality:	20,000-40,0000	-0,04	0,047	0,362
Base up to 20,000	40,000-50,0000	-0,13	0,038	0,001
	Over 50,0000 inhabitants	-0,60	0,052	0,000
Geographical area:	Center	-0,19	0,055	0,000
Base north	South and Islands	0,40	0,052	0,000
Adj		-1,87	0,171	0,000
Interaction Adj-income class	Int12	0,19	0,111	0,093
	Int13	0,73	0,113	0,000
	Int14	1,09	0,116	0,000
	Int15	1,81	0,122	0,000
Interaction Adj-geographical area	Int12	0,39	0,080	0,000
	Int13	0,61	0,075	0,000
Sample size	15954			
Pseudo R^2	0,196			

RECENTLY PUBLISHED "TEMI" (*)

N. 883 – *Learning, incomplete contracts and export dynamics: theory and evidence from French firms*, by Romain Aeberhardt, Ines Buono and Harald Fadinger (October 2012).

N. 884 – *Collaboration between firms and universities in Italy: the role of a firm's proximity to top-rated departments*, by Davide Fantino, Alessandra Mori and Diego Scalise (October 2012).

N. 885 – *Parties, institutions and political budget cycles at the municipal level*, by Marika Cioffi, Giovanna Messina and Pietro Tommasino (October 2012).

N. 886 – *Immigration, jobs and employment protection: evidence from Europe before and during the Great Recession*, by Francesco D'Amuri and Giovanni Peri (October 2012).

N. 887 – *A structural model for the housing and credit markets in Italy*, by Andrea Nobili and Francesco Zollino (October 2012).

N. 888 – *Monetary policy in a model with misspecified, heterogeneous and ever-changing expectations*, by Alberto Locarno (October 2012).

N. 889 – *Does corporate taxation affect cross-country firm leverage?*, by Antonio De Socio and Valentina Nigro (November 2012).

N. 890 – *Start-up banks' default and the role of capital*, by Massimo Libertucci and Francesco Piersante (November 2012).

N. 891 – *The predictive power of Google searches in forecasting unemployment*, by Francesco D'Amuri and Juri Marcucci (November 2012).

N. 892 – *A dynamic default dependence model*, by Sara Cecchetti and Giovanna Nappo (November 2012).

N. 893 – *Externalities in interbank network: results from a dynamic simulation model*, by Michele Manna and Alessandro Schiavone (November 2012).

N. 894 – *Incentives through the cycle: microfounded macroprudential regulation*, by Giovanni di Iasio and Mario Quagliariello (January 2013).

N. 895 – *What is a prime bank? A Euribor – OIS spread perspective*, by Marco Taboga (January 2013).

N. 896 – *Short-term GDP forecasting with a mixed frequency dynamic factor model with stochastic volatility*, by Massimiliano Marcellino, Mario Porqueddu and Fabrizio Venditti (January 2013).

N. 897 – *Collective action clauses: how do they weigh on sovereigns?*, by Alfredo Bardozzetti and Davide Dottori (January 2013).

N. 898 – *Firm size and judicial efficiency: evidence from the neighbour's Court*, by Silvia Giacomelli and Carlo Menon (January 2013).

N. 899 – *A spatial competitive analysis: the carbon leakage effect on the cement industry under the European Emissions Trading Scheme*, by Elisabetta Allevi, Giorgia Oggioni, Rossana Riccardi and Marco Rocco (January 2013).

N. 900 – *The causal effect of credit guarantees for SMEs: evidence from Italy*, by Alessio D'Ignazio and Carlo Menon (February 2013).

N. 901 – *Banking consolidation and bank-firm credit relationships: the role of geographical features and relationship characteristics*, by Enrico Beretta and Silvia Del Prete (February 2013).

N. 902 – *Evaluating the efficacy of European regional funds for R&D*, by Davide Fantino and Giusy Cannone (February 2013).

N. 903 – *Limited credit records and market outcomes*, by Margherita Bottero and Giancarlo Spagnolo (February 2013).

(*) Requests for copies should be sent to:
Banca d'Italia – Servizio Studi di struttura economica e finanziaria – Divisione Biblioteca e Archivio storico – Via Nazionale, 91 – 00184 Rome – (fax 0039 06 47922059). They are available on the Internet www.bancaditalia.it.

2009

F. PANETTA, F. SCHIVARDI and M. SHUM, *Do mergers improve information? Evidence from the loan market*, Journal of Money, Credit, and Banking, v. 41, 4, pp. 673-709, **TD No. 521 (October 2004).**

M. BUGAMELLI and F. PATERNÒ, *Do workers' remittances reduce the probability of current account reversals?*, World Development, v. 37, 12, pp. 1821-1838, **TD No. 573 (January 2006).**

P. PAGANO and M. PISANI, *Risk-adjusted forecasts of oil prices*, The B.E. Journal of Macroeconomics, v. 9, 1, Article 24, **TD No. 585 (March 2006).**

M. PERICOLI and M. SBRACIA, *The CAPM and the risk appetite index: theoretical differences, empirical similarities, and implementation problems*, International Finance, v. 12, 2, pp. 123-150, **TD No. 586 (March 2006).**

R. BRONZINI and P. PISELLI, *Determinants of long-run regional productivity with geographical spillovers: the role of R&D, human capital and public infrastructure*, Regional Science and Urban Economics, v. 39, 2, pp.187-199, **TD No. 597 (September 2006).**

U. ALBERTAZZI and L. GAMBACORTA, *Bank profitability and the business cycle*, Journal of Financial Stability, v. 5, 4, pp. 393-409, **TD No. 601 (September 2006).**

F. BALASSONE, D. FRANCO and S. ZOTTERI, *The reliability of EMU fiscal indicators: risks and safeguards*, in M. Larch and J. Nogueira Martins (eds.), Fiscal Policy Making in the European Union: an Assessment of Current Practice and Challenges, London, Routledge, **TD No. 633 (June 2007).**

A. CIARLONE, P. PISELLI and G. TREBESCHI, *Emerging Markets' Spreads and Global Financial Conditions*, Journal of International Financial Markets, Institutions & Money, v. 19, 2, pp. 222-239, **TD No. 637 (June 2007).**

S. MAGRI, *The financing of small innovative firms: the Italian case*, Economics of Innovation and New Technology, v. 18, 2, pp. 181-204, **TD No. 640 (September 2007).**

V. DI GIACINTO and G. MICUCCI, *The producer service sector in Italy: long-term growth and its local determinants*, Spatial Economic Analysis, Vol. 4, No. 4, pp. 391-425, **TD No. 643 (September 2007).**

F. LORENZO, L. MONTEFORTE and L. SESSA, *The general equilibrium effects of fiscal policy: estimates for the euro area*, Journal of Public Economics, v. 93, 3-4, pp. 559-585, **TD No. 652 (November 2007).**

Y. ALTUNBAS, L. GAMBACORTA and D. MARQUÉS, *Securitisation and the bank lending channel*, European Economic Review, v. 53, 8, pp. 996-1009, **TD No. 653 (November 2007).**

R. GOLINELLI and S. MOMIGLIANO, *The Cyclical Reaction of Fiscal Policies in the Euro Area. A Critical Survey of Empirical Research*, Fiscal Studies, v. 30, 1, pp. 39-72, **TD No. 654 (January 2008).**

P. DEL GIOVANE, S. FABIANI and R. SABBATINI, *What's behind "Inflation Perceptions"? A survey-based analysis of Italian consumers*, Giornale degli Economisti e Annali di Economia, v. 68, 1, pp. 25-52, **TD No. 655 (January 2008).**

F. MACCHERONI, M. MARINACCI, A. RUSTICHINI and M. TABOGA, *Portfolio selection with monotone mean-variance preferences*, Mathematical Finance, v. 19, 3, pp. 487-521, **TD No. 664 (April 2008).**

M. AFFINITO and M. PIAZZA, *What are borders made of? An analysis of barriers to European banking integration*, in P. Alessandrini, M. Fratianni and A. Zazzaro (eds.): The Changing Geography of Banking and Finance, Dordrecht Heidelberg London New York, Springer, **TD No. 666 (April 2008).**

A. BRANDOLINI, *On applying synthetic indices of multidimensional well-being: health and income inequalities in France, Germany, Italy, and the United Kingdom*, in R. Gotoh and P. Dumouchel (eds.), Against Injustice. The New Economics of Amartya Sen, Cambridge, Cambridge University Press, **TD No. 668 (April 2008).**

G. FERRERO and A. NOBILI, *Futures contract rates as monetary policy forecasts*, International Journal of Central Banking, v. 5, 2, pp. 109-145, **TD No. 681 (June 2008).**

P. CASADIO, M. LO CONTE and A. NERI, *Balancing work and family in Italy: the new mothers' employment decisions around childbearing*, in T. Addabbo and G. Solinas (eds.), Non-Standard Employment and Qualità of Work, Physica-Verlag. A Sprinter Company, **TD No. 684 (August 2008).**

L. ARCIERO, C. BIANCOTTI, L. D'AURIZIO and C. IMPENNA, *Exploring agent-based methods for the analysis of payment systems: A crisis model for StarLogo TNG*, Journal of Artificial Societies and Social Simulation, v. 12, 1, **TD No. 686 (August 2008).**

A. CALZA and A. ZAGHINI, *Nonlinearities in the dynamics of the euro area demand for M1*, Macroeconomic Dynamics, v. 13, 1, pp. 1-19, **TD No. 690 (September 2008).**

L. FRANCESCO and A. SECCHI, *Technological change and the households' demand for currency*, Journal of Monetary Economics, v. 56, 2, pp. 222-230, **TD No. 697 (December 2008).**

G. ASCARI and T. ROPELE, *Trend inflation, taylor principle, and indeterminacy*, Journal of Money, Credit and Banking, v. 41, 8, pp. 1557-1584, **TD No. 708 (May 2007).**

S. COLAROSSI and A. ZAGHINI, *Gradualism, transparency and the improved operational framework: a look at overnight volatility transmission*, International Finance, v. 12, 2, pp. 151-170, **TD No. 710 (May 2009).**

M. BUGAMELLI, F. SCHIVARDI and R. ZIZZA, *The euro and firm restructuring*, in A. Alesina e F. Giavazzi (eds): Europe and the Euro, Chicago, University of Chicago Press, **TD No. 716 (June 2009).**

B. HALL, F. LOTTI and J. MAIRESSE, *Innovation and productivity in SMEs: empirical evidence for Italy*, Small Business Economics, v. 33, 1, pp. 13-33, **TD No. 718 (June 2009).**

2010

A. PRATI and M. SBRACIA, *Uncertainty and currency crises: evidence from survey data*, Journal of Monetary Economics, v, 57, 6, pp. 668-681, **TD No. 446 (July 2002).**

L. MONTEFORTE and S. SIVIERO, *The Economic Consequences of Euro Area Modelling Shortcuts*, Applied Economics, v. 42, 19-21, pp. 2399-2415, **TD No. 458 (December 2002).**

S. MAGRI, *Debt maturity choice of nonpublic Italian firms* , Journal of Money, Credit, and Banking, v.42, 2-3, pp. 443-463, **TD No. 574 (January 2006).**

G. DE BLASIO and G. NUZZO, *Historical traditions of civicness and local economic development*, Journal of Regional Science, v. 50, 4, pp. 833-857, **TD No. 591 (May 2006).**

E. IOSSA and G. PALUMBO, *Over-optimism and lender liability in the consumer credit market*, Oxford Economic Papers, v. 62, 2, pp. 374-394, **TD No. 598 (September 2006).**

S. NERI and A. NOBILI, *The transmission of US monetary policy to the euro area*, International Finance, v. 13, 1, pp. 55-78, **TD No. 606 (December 2006).**

F. ALTISSIMO, R. CRISTADORO, M. FORNI, M. LIPPI and G. VERONESE, *New Eurocoin: Tracking Economic Growth in Real Time*, Review of Economics and Statistics, v. 92, 4, pp. 1024-1034, **TD No. 631 (June 2007).**

U. ALBERTAZZI and L. GAMBACORTA, *Bank profitability and taxation*, Journal of Banking and Finance, v. 34, 11, pp. 2801-2810, **TD No. 649 (November 2007).**

M. IACOVIELLO and S. NERI, *Housing market spillovers: evidence from an estimated DSGE model*, American Economic Journal: Macroeconomics, v. 2, 2, pp. 125-164, **TD No. 659 (January 2008).**

F. BALASSONE, F. MAURA and S. ZOTTERI, *Cyclical asymmetry in fiscal variables in the EU*, Empirica, **TD No. 671**, v. 37, 4, pp. 381-402 **(June 2008).**

F. D'AMURI, O. GIANMARCO I.P. and P. GIOVANNI, *The labor market impact of immigration on the western german labor market in the 1990s*, European Economic Review, v. 54, 4, pp. 550-570, **TD No. 687 (August 2008).**

A. ACCETTURO, *Agglomeration and growth: the effects of commuting costs*, Papers in Regional Science, v. 89, 1, pp. 173-190, **TD No. 688 (September 2008).**

S. NOBILI and G. PALAZZO, *Explaining and forecasting bond risk premiums*, Financial Analysts Journal, v. 66, 4, pp. 67-82, **TD No. 689 (September 2008).**

A. B. ATKINSON and A. BRANDOLINI, *On analysing the world distribution of income*, World Bank Economic Review , v. 24, 1 , pp. 1-37, **TD No. 701 (January 2009).**

R. CAPPARIELLO and R. ZIZZA, *Dropping the Books and Working Off the Books*, Labour, v. 24, 2, pp. 139-162 ,**TD No. 702 (January 2009).**

C. NICOLETTI and C. RONDINELLI, *The (mis)specification of discrete duration models with unobserved heterogeneity: a Monte Carlo study*, Journal of Econometrics, v. 159, 1, pp. 1-13, **TD No. 705 (March 2009).**

L. FORNI, A. GERALI and M. PISANI, *Macroeconomic effects of greater competition in the service sector: the case of Italy*, Macroeconomic Dynamics, v. 14, 5, pp. 677-708, **TD No. 706 (March 2009).**

V. DI GIACINTO, G. MICUCCI and P. MONTANARO, *Dynamic macroeconomic effects of public capital: evidence from regional Italian data*, Giornale degli economisti e annali di economia, v. 69, 1, pp. 29-66, **TD No. 733 (November 2009).**

F. COLUMBA, L. GAMBACORTA and P. E. MISTRULLI, *Mutual Guarantee institutions and small business finance*, Journal of Financial Stability, v. 6, 1, pp. 45-54, **TD No. 735 (November 2009).**

A. GERALI, S. NERI, L. SESSA and F. M. SIGNORETTI, *Credit and banking in a DSGE model of the Euro Area*, Journal of Money, Credit and Banking, v. 42, 6, pp. 107-141, **TD No. 740 (January 2010).**

M. AFFINITO and E. TAGLIAFERRI, *Why do (or did?) banks securitize their loans? Evidence from Italy*, Journal

of Financial Stability, v. 6, 4, pp. 189-202, **TD No. 741 (January 2010).**

S. FEDERICO, *Outsourcing versus integration at home or abroad and firm heterogeneity*, Empirica, v. 37, 1, pp. 47-63, **TD No. 742 (February 2010).**

V. DI GIACINTO, *On vector autoregressive modeling in space and time*, Journal of Geographical Systems, v. 12, 2, pp. 125-154, **TD No. 746 (February 2010).**

L. FORNI, A. GERALI and M. PISANI, *The macroeconomics of fiscal consolidations in euro area countries*, Journal of Economic Dynamics and Control, v. 34, 9, pp. 1791-1812, **TD No. 747 (March 2010).**

S. MOCETTI and C. PORELLO, *How does immigration affect native internal mobility? new evidence from Italy*, Regional Science and Urban Economics, v. 40, 6, pp. 427-439, **TD No. 748 (March 2010).**

A. DI CESARE and G. GUAZZAROTTI, *An analysis of the determinants of credit default swap spread changes before and during the subprime financial turmoil*, Journal of Current Issues in Finance, Business and Economics, v. 3, 4, pp., **TD No. 749 (March 2010).**

P. CIPOLLONE, P. MONTANARO and P. SESTITO, *Value-added measures in Italian high schools: problems and findings*, Giornale degli economisti e annali di economia, v. 69, 2, pp. 81-114, **TD No. 754 (March 2010).**

A. BRANDOLINI, S. MAGRI and T. M SMEEDING, *Asset-based measurement of poverty*, Journal of Policy Analysis and Management, v. 29, 2 , pp. 267-284, **TD No. 755 (March 2010).**

G. CAPPELLETTI, *A Note on rationalizability and restrictions on beliefs*, The B.E. Journal of Theoretical Economics, v. 10, 1, pp. 1-11,**TD No. 757 (April 2010).**

S. DI ADDARIO and D. VURI, *Entrepreneurship and market size. the case of young college graduates in Italy*, Labour Economics, v. 17, 5, pp. 848-858, **TD No. 775 (September 2010).**

A. CALZA and A. ZAGHINI, *Sectoral money demand and the great disinflation in the US*, Journal of Money, Credit, and Banking, v. 42, 8, pp. 1663-1678, **TD No. 785 (January 2011).**

2011

S. DI ADDARIO, *Job search in thick markets*, Journal of Urban Economics, v. 69, 3, pp. 303-318, **TD No. 605 (December 2006).**

F. SCHIVARDI and E. VIVIANO, *Entry barriers in retail trade*, Economic Journal, v. 121, 551, pp. 145-170, **TD No. 616 (February 2007).**

G. FERRERO, A. NOBILI and P. PASSIGLIA, *Assessing excess liquidity in the Euro Area: the role of sectoral distribution of money*, Applied Economics, v. 43, 23, pp. 3213-3230, **TD No. 627 (April 2007).**

P. E. MISTRULLI, *Assessing financial contagion in the interbank market: maximun entropy versus observed interbank lending patterns*, Journal of Banking & Finance, v. 35, 5, pp. 1114-1127, **TD No. 641 (September 2007).**

E. CIAPANNA, *Directed matching with endogenous markov probability: clients or competitors?*, The RAND Journal of Economics, v. 42, 1, pp. 92-120, **TD No. 665 (April 2008).**

M. BUGAMELLI and F. PATERNÒ, *Output growth volatility and remittances*, Economica, v. 78, 311, pp. 480-500, **TD No. 673 (June 2008).**

V. DI GIACINTO e M. PAGNINI, *Local and global agglomeration patterns: two econometrics-based indicators*, Regional Science and Urban Economics, v. 41, 3, pp. 266-280, **TD No. 674 (June 2008).**

G. BARONE and F. CINGANO, *Service regulation and growth: evidence from OECD countries*, Economic Journal, v. 121, 555, pp. 931-957, **TD No. 675 (June 2008).**

R. GIORDANO and P. TOMMASINO, *What determines debt intolerance? The role of political and monetary institutions*, European Journal of Political Economy, v. 27, 3, pp. 471-484, **TD No. 700 (January 2009).**

P. ANGELINI, A. NOBILI e C. PICILLO, *The interbank market after August 2007: What has changed, and why?*, Journal of Money, Credit and Banking, v. 43, 5, pp. 923-958, **TD No. 731 (October 2009).**

L. FORNI, A. GERALI and M. PISANI, *The Macroeconomics of Fiscal Consolidation in a Monetary Union: the Case of Italy*, in Luigi Paganetto (ed.), Recovery after the crisis. Perspectives and policies, VDM Verlag Dr. Muller, **TD No. 747 (March 2010).**

A. DI CESARE and G. GUAZZAROTTI, *An analysis of the determinants of credit default swap changes before and during the subprime financial turmoil*, in Barbara L. Campos and Janet P. Wilkins (eds.), The Financial Crisis: Issues in Business, Finance and Global Economics, New York, Nova Science Publishers, Inc., **TD No. 749 (March 2010).**

A. LEVY and A. ZAGHINI, *The pricing of government guaranteed bank bonds*, Banks and Bank Systems, v. 6, 3, pp. 16-24, **TD No. 753 (March 2010).**

G. GRANDE and I. VISCO, *A public guarantee of a minimum return to defined contribution pension scheme members*, The Journal of Risk, v. 13, 3, pp. 3-43, **TD No. 762 (June 2010).**

P. DEL GIOVANE, G. ERAMO and A. NOBILI, *Disentangling demand and supply in credit developments: a survey-based analysis for Italy*, Journal of Banking and Finance, v. 35, 10, pp. 2719-2732, **TD No. 764 (June 2010).**

G. BARONE and S. MOCETTI, *With a little help from abroad: the effect of low-skilled immigration on the female labour supply*, Labour Economics, v. 18, 5, pp. 664-675, **TD No. 766 (July 2010).**

A. FELETTIGH and S. FEDERICO, *Measuring the price elasticity of import demand in the destination markets of italian exports*, Economia e Politica Industriale, v. 38, 1, pp. 127-162, **TD No. 776 (October 2010).**

S. MAGRI and R. PICO, *The rise of risk-based pricing of mortgage interest rates in Italy*, Journal of Banking and Finance, v. 35, 5, pp. 1277-1290, **TD No. 778 (October 2010).**

M. TABOGA, *Under/over-valuation of the stock market and cyclically adjusted earnings*, International Finance, v. 14, 1, pp. 135-164, **TD No. 780 (December 2010).**

S. NERI, *Housing, consumption and monetary policy: how different are the U.S. and the Euro area?*, Journal of Banking and Finance, v.35, 11, pp. 3019-3041, **TD No. 807 (April 2011).**

V. CUCINIELLO, *The welfare effect of foreign monetary conservatism with non-atomistic wage setters*, Journal of Money, Credit and Banking, v. 43, 8, pp. 1719-1734, **TD No. 810 (June 2011).**

A. CALZA and A. ZAGHINI, *welfare costs of inflation and the circulation of US currency abroad*, The B.E. Journal of Macroeconomics, v. 11, 1, Art. 12, **TD No. 812 (June 2011).**

I. FAIELLA, *La spesa energetica delle famiglie italiane*, Energia, v. 32, 4, pp. 40-46, **TD No. 822 (September 2011).**

R. DE BONIS and A. SILVESTRINI, *The effects of financial and real wealth on consumption: new evidence from OECD countries*, Applied Financial Economics, v. 21, 5, pp. 409–425, **TD No. 837 (November 2011).**

2012

F. CINGANO and A. ROSOLIA, *People I know: job search and social networks*, Journal of Labor Economics, v. 30, 2, pp. 291-332, **TD No. 600 (September 2006).**

G. GOBBI and R. ZIZZA, *Does the underground economy hold back financial deepening? Evidence from the italian credit market*, Economia Marche, Review of Regional Studies, v. 31, 1, pp. 1-29, **TD No. 646 (November 2006).**

S. MOCETTI, *Educational choices and the selection process before and after compulsory school*, Education Economics, v. 20, 2, pp. 189-209, **TD No. 691 (September 2008).**

F. LIPPI and A. NOBILI, *Oil and the macroeconomy: a quantitative structural analysis*, Journal of European Economic Association, v. 10, 5, pp. 1059-1083, **TD No. 704 (March 2009).**

S. FEDERICO, *Headquarter intensity and the choice between outsourcing versus integration at home or abroad*, Industrial and Corporate Chang, v. 21, 6, pp. 1337-1358, **TD No. 742 (February 2010).**

S. GOMES, P. JACQUINOT and M. PISANI, *The EAGLE. A model for policy analysis of macroeconomic interdependence in the euro area*, Economic Modelling, v. 29, 5, pp. 1686-1714, **TD No. 770 (July 2010).**

A. ACCETTURO and G. DE BLASIO, *Policies for local development: an evaluation of Italy's "Patti Territoriali"*, Regional Science and Urban Economics, v. 42, 1-2, pp. 15-26, **TD No. 789 (January 2006).**

F. BUSETTI and S. DI SANZO, *Bootstrap LR tests of stationarity, common trends and cointegration*, Journal of Statistical Computation and Simulation, v. 82, 9, pp. 1343-1355, **TD No. 799 (March 2006).**

S. NERI and T. ROPELE, *Imperfect information, real-time data and monetary policy in the Euro area*, The Economic Journal, v. 122, 561, pp. 651-674, **TD No. 802 (March 2011).**

G. CAPPELLETTI, G. GUAZZAROTTI and P. TOMMASINO, *What determines annuity demand at retirement?*, The Geneva Papers on Risk and Insurance – Issues and Practice, pp. 1-26, **TD No. 808 (April 2011).**

A. ANZUINI and F. FORNARI, *Macroeconomic determinants of carry trade activity*, Review of International Economics, v. 20, 3, pp. 468-488, **TD No. 817 (September 2011).**

M. AFFINITO, *Do interbank customer relationships exist? And how did they function in the crisis? Learning from Italy*, Journal of Banking and Finance, v. 36, 12, pp. 3163-3184, **TD No. 826 (October 2011).**

R. CRISTADORO and D. MARCONI, *Household savings in China*, Journal of Chinese Economic and Business Studies, v. 10, 3, pp. 275-299, **TD No. 838 (November 2011).**

V. DI GIACINTO, G. MICUCCI and P. MONTANARO, *Network effects of public transposrt infrastructure: evidence on Italian regions*, Papers in Regional Science, v. 91, 3, pp. 515-541, **TD No. 869 (July 2012).**

A. FILIPPIN and M. PACCAGNELLA, *Family background, self-confidence and economic outcomes*, Economics of Education Review, v. 31, 5, pp. 824-834, **TD No. 875 (July 2012).**

2013

F. BUSETTI and J. MARCUCCI, *Comparing forecast accuracy: a Monte Carlo investigation*, International Journal of Forecasting, v. 29, 1, pp. 13-27, **TD No. 723 (September 2009).**

FORTHCOMING

M. BUGAMELLI and A. ROSOLIA, *Produttività e concorrenza estera*, Rivista di politica economica, **TD No. 578 (February 2006).**

P. SESTITO and E. VIVIANO, *Reservation wages: explaining some puzzling regional patterns*, Labour, **TD No. 696 (December 2008).**

P. PINOTTI, M. BIANCHI and P. BUONANNO, *Do immigrants cause crime?*, Journal of the European Economic Association, **TD No. 698 (December 2008).**

F. CINGANO and P. PINOTTI, *Politicians at work. The private returns and social costs of political connections*, Journal of the European Economic Association, **TD No. 709 (May 2009).**

Y. ALTUNBAS, L. GAMBACORTA and D. MARQUÉS-IBÁÑEZ, *Bank risk and monetary policy*, Journal of Financial Stability, **TD No. 712 (May 2009).**

G. BARONE and S. MOCETTI, *Tax morale and public spending inefficiency*, International Tax and Public Finance, **TD No. 732 (November 2009).**

I. BUONO and G. LALANNE, *The effect of the Uruguay Round on the intensive and extensive margins of trade*, Journal of International Economics, **TD No. 743 (February 2010).**

G. BARONE, R. FELICI and M. PAGNINI, *Switching costs in local credit markets*, International Journal of Industrial Organization, **TD No. 760 (June 2010).**

E. COCOZZA and P. PISELLI, *Testing for east-west contagion in the European banking sector during the financial crisis*, in R. Matoušek; D. Stavárek (eds.), Financial Integration in the European Union, Taylor & Francis, **TD No. 790 (February 2011).**

E. GAIOTTI, *Credit availablility and investment: lessons from the "Great Recession"*, European Economic Review, **TD No. 793 (February 2011).**

A. DE SOCIO, *Squeezing liquidity in a "lemons market" or asking liquidity "on tap"*, Journal of Banking and Finance, **TD No. 819 (September 2011).**

O. BLANCHARD and M. RIGGI, Why are the 2000s so different from the 1970s? A structural interpretation of changes in the macroeconomic effects of oil prices, Journal of the European Economic Association, **TD No. 835 (November 2011).**

S. FEDERICO, *Industry dynamics and competition from low-wage countries: evidence on Italy*, Oxford Bulletin of Economics and Statistics, **TD No. 879 (September 2012).**

F. D'AMURI and G. PERI, *Immigration, jobs and employment protection: evidence from Europe before and during the Great Recession*, Journal of the European Economic Association, **TD No. 886 (October 2012).**