BANCA D'ITALIA

Temi di discussione

del Servizio Studi

Does wealth affect consumption? Evidence for Italy

by Monica Paiella

Number 510 - July 2004

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.

DOES WEALTH AFFECT CONSUMPTION? EVIDENCE FOR ITALY

by Monica Paiella*

Abstract

This paper analyses the dynamics of Italian household wealth over the 1990s and assesses the strength of the wealth effects on consumption, using as a benchmark the United States. In a period of sharply rising asset prices, Italian household net worth rose significantly, but on the whole individuals were net buyers of assets and they appear to have realized, directly or indirectly, only a small portion of the capital gains accrued on their wealth. This is consistent with the lack of evidence of important direct wealth effects on consumption. Financial wealth effects turn out to be small because Italian households are not large scale owners of financial assets, even though their marginal propensity to consume out of financial wealth lies within the range commonly reported for the US and other industrialized countries. By contrast, housing market effects are small, even smaller than financial market effects, despite widespread homeownership, because the marginal propensity to consume out of real assets is very low. The propensity to consume out of financial wealth has tended to diminish as pension reforms have reduced household pension wealth. On the other hand, the propensity to consume out of real wealth has increased as financial deregulation and the intensification of competition among financial institution have eased credit constraints for households.

JEL classification: D12, E21, E44.

Keywords: household saving behavior, housing wealth, financial wealth, capital gains, marginal propensity to consume out of wealth.

Contents

* Bank of Italy, Economic Research Department.

1. Introduction[1]

The second half of the 1990s saw an unprecedented increase in household net worth in almost all industrialized countries. As a matter of simple accounting, household wealth accumulation reflects two factors: savings from current income and changes in asset valuation. In the short and medium run, changes in total wealth owe little to changes in savings (or spending) and the second factor completely dominates the first. The case of the United States clearly illustrates this point: between the end of 1995 and the end of 1999, the rising value of stock holdings accounted for more than nine tenths of the 40 percent increase of households' net worth.[2] However, since the dramatic rise of stock market indexes of the second half of the 1990s, equity values have fluctuated widely. These swings in wealth have raised a host of questions about their implications for consumer spending.

Traditional macroeconomic estimates suggest that, all else equal, a unit increase in wealth raises expenditure by several cents: between 2 and 6 cents on the dollar in the United States, between 1 and 3 percent in the euro area. These estimates can be viewed as describing some trend relationship between consumption and wealth. Yet, they convey no information about the household behavior underlying these findings and, consequently, about the timing and nature of the "wealth effects" that changes in asset prices might have on consumption. In fact, if the response in terms of consumption to a wealth shock emerges relatively quickly, then stock market fluctuations may translate into sharp changes in consumer spending, via the "direct channel" that operates directly through the budget constraint. However, if the link is not immediate and the effect takes years to develop, then pronounced changes in asset values may have limited impact on aggregate spending. The positive relationships between consumption and wealth can also reflect the ability of asset

---

[1] This paper is dedicated to the memory of Cristina Ortenzi. Thanks are due to Paolo Angelini, Luigi Cannari, Dario Focarelli, Andrea Generale, Luigi Guiso, Fabio Panetta and Andrea Tiseno for helpful discussion. I have also benefited from comments by participants in seminars at the Bank of Italy and in the European Economic Association 2003 conference. Irene Longhi and Cristina Ortenzi provided excellent assistance with the data. The views expressed are those of the author and do not necessarily reflect those of the Bank of Italy. E-mail: monica.paiella@bancaditalia.it.

[2] Figures drawn from Poterba (2000) and from Davis and Palumbo (2001).

prices, and especially equity prices, to predict economic activity. Thus, changes in some unidentified economic factor may produce changes in both prices and consumption, so that while the stock market acts as a leading indicator of consumer spending, changes in the former may not, per se, cause changes in the latter. Distinguishing between "direct" and "indirect" wealth effects is crucial for several reasons, beyond the basic goal of better understanding household behavior. First of all, if wealth is not causal to consumption, then a decline in the stock market would be interpreted as a symptom of future slowdown in consumer spending, rather than a cause. Further, the implications of a sharp correction in stock prices might differ depending on whether a price change causes revisions in the expectations of future economic conditions. Finally, if the effects of rising stock market wealth on consumer spending are mainly direct, the highly skewed distribution of stock ownership necessarily implies that such direct wealth effects will be small for most households.

Even if the stock market wealth effect on consumption is direct, recent research on consumer behavior has suggested many reasons why consumers might increase their spending by less than simple calculations of the marginal propensity to consume over the life cycle suggest. First of all, equity is held by relatively few, high-income households, which may have lowered the aggregate marginal propensity to consume with respect to the past. Analytic results by Carroll and Kimball (1996) and numerical simulations by Zeldes (1989) show that the consumption function becomes concave when uncertainty is introduced in the life cycle model. Thus, the marginal propensity to consume out of wealth is lower for households with more resources. Empirical support for such concavity is found by Parker (1999), who estimates the relationship between consumption and liquid assets, and also by Dynan, Skinner and Zeldes (2000), who show that the *average* propensity to consume declines with permanent income. Secondly, in the 1990s the importance of equity investments held in retirement accounts grew. If households develop "mental accounts" (see Thaler (1990) for details on this view) that make them more likely to consume wealth held in some way rather than others, the marginal propensity to consume out of wealth gains accrued to retirement accounts is likely to be smaller than the marginal propensity to consume out of directly held assets, since the former are often thought of as "long-term assets". Finally, the impact of capital gains on spending may well be a function of whether or not the gain is realized. In principle, unrealized gains can be borrowed against, through home

mortgage refinancing, for example, or could induce households to finance additional expenditure by selling other assets or by reducing their marginal propensity to save out of current income. However, until the gain is locked in, it remains exposed to price uncertainty, which suggests that the propensity to spend out of unrealized gains is likely to be smaller than the propensity to spend out of realized ones.

These features of household behavior may help explain a related matter that has been receiving considerable attention in the literature and policy debates, which concerns the possibility that the tendency to consume out of stock market wealth may differ from the tendency to consume out of other forms of wealth. In principle, consumers should distribute anticipated changes in wealth over time and the marginal propensity to consume out of all wealth, whatever its form, should be the same small number, just over the real interest rate. In practice though, if assets are not fungible and households develop "mental accounts" that dictate that certain assets are more appropriate to use for current expenditure and others for long-term saving, or if they view the accumulation of some kinds of wealth as an end in itself or rather bequeath their wealth in a specific form for tax or other reasons, the extent and nature of wealth effects may turn out to be asset-type specific.

This paper seeks to provide a framework of evidence based on the Bank of Italy's financial accounts and Surveys of Household Income and Wealth to assess the relevance of these issues for Italian households *vis à vis* the evidence available for the US, where the debate on wealth effects has been most lively. To preview the results, I find that wealth increased significantly in Italy during the second half of the 1990s. The increase was only partly due to rising asset prices; it also reflected the high rates of savings of Italian households. Overall, the increases in asset prices, of equity in particular, had a small effect on consumption. Saving rates fell over the decade, but remained relatively high; those of stockowners, who are more directly affected by stock market fluctuations, held basically unchanged. Hence, wealth effects in Italy appear to be small and unlikely to be direct. The evidence regarding the (small) stock market effect can be explained in at least two ways. First, Italian households own relatively little financial wealth and their holdings of shares are small. Hence, the vast majority enjoyed modest capital gains despite the stock market boom. A fairly large proportion of the shares that Italian households do own are unlisted, and are harder for households to value than listed stocks. This is the consequence of a financial system that is essentially bank-based, limiting the size of the stock market, the degree of

stock market participation and the use of stock options as a compensation, all of which reduces the potential impact on consumption of stock price changes. Secondly, households' marginal propensity to consume out of financial wealth is low, although comparable to that found for the US and other industrialized countries. This, together with concavity of the consumption function and the high concentration of equity ownership at the top of the wealth distribution, helps explain why the overall stock market effect on consumer spending is tiny. Another interesting finding concerns the importance of housing market effects on consumption. The rapid increases in real estate prices starting from the end of the last decade has boosted the net worth of a large group of households, since property is by far the largest and most widespread component of household wealth. However, the marginal propensity to consume out of real assets turns out to be very low, substantially lower than the marginal propensity to consume out of financial assets. Hence, the housing market effects on consumption also turn out to be small, smaller even than the financial market effects.

Overall, taking the US as a benchmark, I find that the impact of changes in wealth on household consumption is smaller in Italy than in the United States. In Italy, financial wealth effects are limited because households hold a smaller proportion of financial assets, even though their marginal propensity to consume out these assets is close to that of US households, while real wealth effects are small because households' marginal propensity to consume out of tangible assets is substantially lower than in the United States. The lower tendency to consume out of real wealth in Italy can be explained on at least two grounds. First of all, real assets are largely illiquid as credit constraints in the form of high costs of mortgage refinancing and the lack of reverse annuity mortgage markets reduce the opportunity for Italian households to realize the capital gains on their houses and smooth their consumption. Secondly, the bequest motive operates strongly in Italy. The relative illiquidity of housing and a preference for housing consumption (with housing generating a flow of both economic and non-economic benefits) make it more likely for households to run down their holdings of other types of more liquid assets and to accumulate their wealth in the form of tangibles to pass on to their children.

The rest of the paper is organized as follows. In Section 2 I review briefly the economic theory linking consumption and wealth, using as a benchmark the life cycle model of Ando and Modigliani (1963). I then present the traditional econometric techniques used to characterize the link between wealth and consumption. Sections 3 and 4 provide descriptive

evidence on the empirical facts that have fuelled the recent debate on wealth effects on consumption. Section 3 focuses on the US, which provides a benchmark to appraise the evidence on Italy. Section 4 looks at Italy and verifies whether the Italian data indicate the same type of "stylized facts" and trends that have characterized US household portfolios and consumption behavior. Section 5 provides estimates of Italian households' marginal propensity to consume out of financial and real wealth of based on the Survey of Household Income and Wealth. Section 6 concludes.

2. Wealth Effects: Theory and Evidence

The basic theoretical links between consumption and wealth can be described using the life cycle model of saving behavior, which posits that households accumulate and deplete their wealth to keep their planned consumption roughly steady. When there are no sources of uncertainty in the economy, the relationship between consumption and wealth is predicted to be linear in levels and the marginal propensity to consume out of wealth is several cents on the dollar. In the absence of wealth "surprises", wealth may vary substantially over time, but consumption spending will be relatively stable. However, faced with unexpected, permanent changes in their wealth, households will formulate a new consumption plan involving a permanently different level of outlays.

Traditionally, most empirical research regarding the size and significance of the impact of changes in wealth on consumption has relied on aggregate data, which indicate a positive correlation between consumption and wealth in the long run. As mentioned earlier, the estimates of the marginal propensity to consume out of wealth do not tell us about the nature of short-run deviations from the trend relationship or about the impact of short-run fluctuations in the rate of growth of wealth on consumption growth. Most existing studies of consumption behavior in response to changes in wealth over the short run are based on models of short-run dynamics that impose a long-term trend (error-correction models). However, the evidence that they present tends to be inconclusive and very sensitive to the exact model specification, to the time period and to the trend relationship itself, whose estimates turn out to be quite unstable. Recent examples of this approach, and of its shortcomings, are in Ludvigson and Steindel (1999) and Davis and Palumbo (2001).

Alternative and more structural explanations of the aggregate relationship can be found by investigating household behavior on the basis of survey data. Microeconomic data provide direct evidence on the household-level underpinnings of wealth effects and make it possible to investigate the relative importance of the direct and indirect channels in the linkage from changes in wealth accumulation to changes in saving and spending. Distinguishing between the causative and the leading indicator views of the aggregate relationship between share prices and consumption is difficult, as it requires identifying autonomous movements in share prices that are not attributable to changing expectations of future dividends or interest rates. However, if the leading indicator view is correct, the pattern of consumption changes following share price fluctuations should be independent of the distribution of share ownership and there is no reason to expect consumption responses from households to differ depending on whether they do or do not own shares.

The existing micro-data literature has provided fairly mixed evidence on the relative roles of the direct and indirect wealth channels. Based on the US Survey of Consumer Finances, Poterba and Samwick (1995) highlight the case for an indirect channel (if any) by finding very limited correlation between stock prices and expenditure on luxury good, which are consumed disproportionally by higher-income, stockholding households and whose share in total consumption should therefore increase in the wake of rising stock prices. Stockholders' spending again appears to be little affected by changes in wealth according to the qualitative evidence from the University of Michigan's SRC Survey of Consumers reviewed by Starr-McCluer's (2000). By contrast, empirical assessments applying the Consumption-based Capital Asset Pricing Model (Mankiw and Zeldes, 1991; Attanasio, Banks and Tanner, 2002; Paiella, 2004; Vissing-Jørgensen, 2002) to household-level data for the US and the UK find that stockholders' expenditure is more highly correlated with stock market returns than non-stockholders', which supports the hypothesis of a direct effect.

Regarding the differential impacts of various forms of wealth on consumption, the evidence available is limited and the statistical results are variable and depend on the econometric specification. Nevertheless, real asset markets generally appear to have important effects on consumption and, according to Case, Quigley and Shiller (2001) and Bertaut (2002), in the US their impact is larger than that of the stock market.

3. Household Wealth and Saving Behavior: The US Benchmark

Between the end of 1989 and 1999, while income continued a moderate upward trend, US households' real net worth increased by nearly $15 trillion, or more than 50 percent. Per capita net worth at the end of 1999 was slightly more than $150,000. More than two thirds of the wealth expansion occurred between 1995 and 1999, driven mainly by the exceptional performance of equity prices. The 1990s were indeed remarkably good years for US stockholders: stock returns for the decade averaged 16.1 percent per year, almost twice the historical average of 8.7 percent. The decade began modestly enough, with equities yielding 5.9 percent annually from 1990 to 1995, but it finished exceptionally strong, with returns averaging an astonishing 26.3 percent from 1996 to 1999 (Tracy and Schneider, 2001). The household sector's stockholding grew from $3.7 trillion at the end of 1989 to $6.7 trillion in 1995 to $13.3 trillion at the end of 1999.[3] Very favorable stock market returns turned many households with modest portfolios at the beginning of the 1990s into substantial wealth-holders. According to the Survey of Consumer Finances, there were approximately 3 million households with net worth of at least $1 million in 1995 but nearly 4.5 million in 1998. The post-1998 rise in stock prices is likely to have increased the number of millionaires in 2000 to more than 5 million.[4]

One way to look at the possible influence of wealth accumulation on consumption is to relate the ratio of wealth to disposable income to the personal saving rate. As reported in Table 1, taken from Maki and Palumbo (2001), in the US the wealth-to-income ratio rose from just below 5 in 1992 to over 6 at the end of the decade. Over the same span of time, the aggregate saving rate dropped from 6 to 1 percent. The argument for a strong wealth effect is that this increase in the ratio of wealth to disposable income, primarily due to the rise in the stock market, boosted consumer spending and reduced saving relative to income. Maki and Palumbo show that virtually all of the observed decline in the aggregate saving rate can be attributed to a change in the propensity to save among households in the top income quintile.

---

[3] Over the same period the real value of tangible assets held by the household sector rose by only 14 percent, while that of financial assets other than equity increased by 39 percent.

[4] These figures are based on the Board of Governors of the Federal Reserve's Flow of Funds and are in 1999 dollars. They are taken from Poterba (2000).

In the course of the 1990s, their net worth-to-income ratio rose from above 6 to almost 9 while their saving rate declined from 8.5 to -2 percent. For the rest of the population, the net worth-to-income ratio rose from 3 to 4 and the saving rate, if anything, edged upwards.

This evidence is consistent with the view that share prices affect consumption and that the effect is direct. The households that reduced their savings most strongly were precisely those that benefited the most from the surge in the stock market, which did not boost household net worth uniformly across the income distribution because of the high concentration of equity in the top income quintile. According to the empirical evidence from the Survey of Consumer Finances, reported in Table 2, although share ownership through holdings of pension funds became somewhat more evenly distributed over the 1990s, at the end of the decade the top income quintile held more than 80 percent of total directly-held public equity and more than two-thirds of mutual and pension funds. Consistently with this, Dynan and Maki (2001) estimate stockholders' marginal propensity to consume out of stock market wealth to be highly statistically significant, whereas for non-stockholders the point estimates are smaller and not significant.

As to the *exact* size of the impact of changes in wealth on consumption in the US, it appears to be very sensitive to the econometric specification and to the wealth measures that are included in the regression. Generally speaking, the estimates of the marginal propensities to consume out of wealth based on household-level data tend to be larger than those based on aggregate data. [5] Overall, the empirical work suggests that values between 0.03 and 0.07 probably represent something close to the consensus on how financial market gains affect consumer spending. Among the few studies that look at the differential impact of various forms of wealth on consumption, Bertaut (2002) estimates the long-run marginal propensity to consume out of total, financial and non-financial wealth to be 0.05, 0.06 and 0.1, respectively.[6] Boone and Girouard (2002) find that the long-run marginal propensity to

[5] One explanation is that most household samples are not representative of the population as a whole and that the wealthy, whose marginal propensity to consume is believed to be lower, are under-represented. Alternatively, if the changes in wealth are systematically understated (e.g., due to measurement error in self-reported wealth), the marginal propensity to consume would be overstated.

[6] Bertaut (2002)'s results are based on a time-series estimate of the long-run (cointegrating) relationship between log-levels of consumption, income and wealth, on data covering the period 1960 – 2000. She estimates the elasticity of consumption to total, financial and non-financial wealth and derives the marginal propensities to consume by dividing such elasticities by the corresponding 1995-99 average of the wealth-to-consumption

consume out of housing wealth is broadly similar to the marginal propensity to consume out financial wealth: the former is estimated at 0.03, the latter is 0.04.[7,8]

4. Household Wealth and Saving Behavior: The Evidence in Italy

How does Italy score on these issues? What do Italian household portfolios look like? How have they changed over the last decade? What about household saving rates? To answer these questions I use two data sources. The first is the set of estimates by Brandolini et al. (2003) who reconstruct the balance sheet of Italian households by "merging" the financial accounts with the national accounts. The second is the Bank of Italy's Survey of Household Income and Wealth, which allows us to identify the households most likely to have benefited from rising asset prices and whose consumption behavior is most likely to have been affected.

The financial accounts provide rather accurate aggregate information on financial savings and wealth and do not suffer from the representativity problems generally affecting surveys. Their main drawback is the lack of information on household net worth. This is a rather severe limit since real assets are the largest component of household wealth in Italy both for the "representative" household, holding total household sector assets, and for the "typical" household, at the midpoint of the wealth distribution. Brandolini et al. (2003) provide estimates of tangible asset holdings by the household sector based on the national accounts that are consistent with the financial accounts. Another weakness of the financial accounts arises from the fact that the balance sheet for the household sector is determined residually by deducting the holdings of all other institutional sectors from the total. This issue appears to be particularly severe for stock holdings, which are likely to be over-estimated especially in periods of increasing diffusion.

---

ratios.

[7] Boone and Girouard (2002)'s marginal propensities to consume are based on an error-correction model of the relationship between the variables in levels, on OECD data going from 1970 to 1999.

[8] Using a panel of quarterly data for US states from 1982 to 1999, Case et al. (2001) find that the elasticity of consumption to housing wealth is larger than the elasticity to stock market wealth: the former ranges from 0.05 to 0.09, the latter from 0.03 to 0.07.

As to the Bank of Italy's Survey of Household Income and Wealth (SHIW), I consider the last six surveys of data covering the period 1991-2002.[9] The chief advantage of individual-level data is that they allow us directly to identify the families whose wealth was most affected by the stock market boom and to determine whether their spending and saving patterns changed the most. Further, the database stretches over a time span sufficiently long to cover a rich set of movements in asset prices, which is critical for identifying potential wealth effects. A drawback is the rather limited frequency of the modules which are two or three years apart; hence, they provide limited evidence bearing on direct wealth effects at lower frequencies. Furthermore, like most other microeconomic sources, the Survey does not fully reflect the influence of the wealthiest households, who typically account for a disproportionate share of aggregate income, expenditure, saving and net worth. As a consequence, variables do not aggregate up to national accounts. In addition, and more importantly, if stock ownership is concentrated among the households at the top of the income and wealth distribution, which are supposedly under-represented, the analysis might shed light on only a portion of the household-level underpinnings of the effect of stock market movements on the macroeconomy. Nevertheless, the SHIW provides detailed information on household portfolios, a comprehensive measure of consumption, which is necessary to determine the quantitative importance of wealth effects, and plenty of socio-demographic data.

4.1 Stylized facts: aggregate and household-level evidence

Based on the figures reported by Brandolini et al. (2003), the net worth dynamics of the household sector in Italy is comparable to that of the US. Between the end of 1989 and the end of 1999, household sector net worth increased by almost 2 trillion euros (at constant prices), or by 50 percent. Based on the SHIW, although per-household net worth was lower than in the US, at the end of 2000 it was 32 percent higher than in 1991. The wealth expansion raised the share of households with net worth of over 1 million euros (2000 prices) from 0.6 percent in 1991 to over 1.5 percent in 2000. The share of households with

[9] The Survey is biannual with the exception of the 1998 wave which was run after 3 years with respect to the previous wave. For an exhaustive description of the data, of the sampling methods and issues, see D'Alessio (1993, 1995 and 1997) and D'Alessio and Faiella (2000).

more than 250,000 euros in financial assets rose fourfold, to over 1.3 percent. Furthermore, in 1991 less than 0.5 percent of all households had direct holdings of equity of more than 50,000 euros; in 2000 the share had doubled. If mutual funds are included, the share rises from 0.8 to over 2 percent.

Using the information available on household sector saving we can infer how much of the wealth increase was due to rising asset valuations. Table 4 distinguishes between net saving and holding gains and relates the latter to changes in net worth. Over the period 1989-1999, rising asset prices accounted for about 64 percent of the increase in wealth. Between 1995 and the end of 1999, the years of sharpest asset price increases, holding gains accounted for 50 percent of the increase in net worth and for almost 60 percent of the increase in financial assets, which are significantly smaller proportions than those recorded in the US over the same period.

As to household portfolio composition and its dynamics, according to the financial accounts and national accounts, while tangible assets rose over the decade in real terms by over 34 percent (twice as much as in the US), their share in total assets fell from 64 to around 58 percent. The corresponding figure for the US at the end of 1999 was 23 percent. Equity holdings more than doubled and rose from 7 to 10 percent of total assets (compared with 28 percent in the US). The picture based on the SHIW and reported in Table 5 is only slightly different, with real assets accounting for a somewhat larger share of total assets for the average household in the survey and equity accounting for a much smaller share, despite having doubled over the decade.

The difference in the rates of growth of aggregate wealth and of per-household wealth and in its composition can be explained by recalling that the wealthiest carry more weight in the aggregate growth rate and are under-represented in the Survey. Taken together these elements imply that the wealthiest are likely to have enjoyed a steeper growth than the 'typical' household. Further, the main difference in terms of portfolio composition is not so much in the split between real and financial assets as in the allocation of financial wealth: the wealthiest appear to exhibit a stronger preference for risky assets, such as equity.

Table 6 provides evidence on the extent of wealth concentration at the top of the income distribution. It turns out to be rather high, but lower than that recorded for the US, although the under-sampling of the rich and the under-reporting of assets in the SHIW might bias the picture somewhat. Households in the top income quintile account for disproportionally large

shares of assets and liabilities, even though the size of these shares varies considerably across instruments. For most assets, concentration has increased during the 1990s. In 2000 households in the top income quintile held 50 percent of total assets, 47 percent of real estate assets and 50 percent of financial assets, and over 70 percent of listed equity, 65 percent of mutual funds and 90 percent of unlisted equity. Overall, against the background of the well-known increase in financial market participation, these figures suggest that even though more households became owners of moderate amounts of equity and mutual funds, most of these assets remain concentrated at the top of the income distribution.

Table 7 mimics Table 1 and looks at the possible influence of wealth accumulation on consumption by relating the ratio of wealth to disposable income to the personal saving rate of the households in the SHIW. For the sample as a whole, net worth rose from 4.8 times income in 1991 to more than 6 times income in 2000. Over the same time period the saving rate fell 25 percent. The wealth-to-income ratio increased across the income distribution, most markedly for those at the bottom and those at the top of the income distribution (by 60 and 30 percent, respectively). For the former, most of the increase came from real assets, which rose from 3 to 5 times income; for the latter, financial wealth also contributed significantly. As for saving rates, households below the income median registered the sharpest drop, while the saving rates of high-income households fell slightly, but remained high.[10]

Overall, from the evidence presented so far, the picture that emerges for Italy is somewhat different from that for the United States. The data unequivocally suggest that Italian household wealth has increased substantially over the past ten years, but the increase is not due just to asset value increases, but also to high savings. The wealthiest segments of the population have enjoyed sharp rates of wealth expansion and can be expected to have enjoyed most of the capital gains on stocks since they started the decade with the largest stock holdings. However, instead of cashing in their capital gains, these households have continued to save a lot and have invested heavily in stocks. Most of the other households

[10] Notice that the saving rates based on the SHIW are significantly higher than those based on the national accounts, even though the dynamics are comparable. This is not unusual when dealing with household-level data sets where savings are computed residually. Surveys tend to underestimate consumption, especially at the top of the income distribution, because the wealthiest households grow less conscientious about completing the lengthy questionnaires as their opportunity cost mounts.

benefited just of the rising housing valuations. For them, the capital gains on financial assets are likely to have been negligible, given the low financial investments.

5. Households' Marginal Propensity to Consume out of Wealth: An Estimate

To quantify the effects of changes in wealth on saving behavior I estimate a simple consumption function based on the life-cycle model, where rational, utility-maximizing agents optimally allocate their resources to consumption over their entire life. In this instance, consumer decisions are conditional on human wealth (which may be assumed to be roughly proportional to labor income) and on non-human (real and financial) wealth. Under a set of somewhat restrictive assumptions, the equilibrium behavior of consumers can be described using the following relationship between consumption, income and wealth:[11]

$$(1) \qquad \frac{c_{h,t}}{y_{h,t}} = b_0 + b_1 \frac{w_{h,t}}{y_{h,t}},$$

where $c_{h,t}$ and $y_{h,t}$ are household h's non-durable consumption[12] and (non-asset) income in period t; $w_{h,t}$ is its (beginning-of-period) net wealth. b_1 is the marginal propensity to consume out of wealth, i.e. the amount expenditure would rise if wealth increased by 1 euro. Using (1) and a cross-section of data, I can estimate consistently the long-run marginal propensity to consume out of wealth, after controlling for unobservable household characteristics such as differences in risk aversion or discount rates that might vary systematically across the wealth distribution and contaminate the true relationship between wealth and spending.

The analysis is based on a sample of over 42,000 households, obtained by pooling the last six surveys of household income and wealth and dropping 1 household reporting non-positive non-durable expenditure, 212 households reporting non-positive current non-asset income and households whose head is under age 25 or over 75 (10 percent of the sample).

---

[11] The relationship in (1) is obtained by dividing the standard (linear) consumption function implied by theory by $y_{h,t}$. Since consumption, wealth and income are measured with error, if the errors are multiplicative and correlated across variables, the division addresses the issue.

[12] Standard theories of consumer behavior that imply a relationship between consumption, income and wealth apply to the *flow* of consumption. Service flow measures from durable goods are not available from the SHIW. However, durable goods expenditure should not be included in the consumption measure because it represents replacements and additions to the asset stock, rather than the service flow from the existing stock. Some additional response to wealth gains can be expected in terms of durable goods expenditure.

To compute beginning-of-period household wealth, I subtract household saving from end-of-period wealth, which is directly available in the data set. Household saving is measured as the difference between annual total income and total expenditure. I ignore the change in the valuation of assets occurred over the year because accounting for capital gains accurately is not easy owing to the paucity of data on household asset holdings and portfolio composition and the resulting impossibility of relating changes in asset prices to personal portfolios. For about 2,700 households, beginning-of-period net wealth is non-positive.

As controls, I include in the regression a second-order polynomial in the household head's age and household size to capture differences in expenditure and wealth related to the life cycle. Dummies for stockownership, education, self-employment and for a household head that has moved from his region of birth to another region are included to capture unobservable heterogeneity in preference parameters that may affect both expenditure and wealth. Dummies for the area of residence and time dummies are also included to capture the aggregate state. Hence, the only source of variation is cross-sectional. As a consequence, any findings of a significant and positive relationship between non-durable consumption and wealth have no implications for whether a direct wealth effect occurs in the short run. At most, they yield information only about the long run. Examining the relationship between changes in consumption and in wealth is problematic with the SHIW, because the surveys are two or three years apart and, thus, have limited implications for wealth effects at smaller frequencies which may impact on the macro relationship.

Table 8 reports the results of the estimation of the regression implied by (1). In the regression reported in the first column, total household net worth is included. In the second, real and financial wealth are considered separately. To compute beginning-of-period financial and real wealth, I split household saving based on the shares of financial and real saving in aggregate data. Based on the financial and national accounts, between 1991 and 1998, from three quarters to four fifths of household saving went into financial assets; afterwards, the share invested in financial assets rose to 90 percent. The results are robust to alternative ways of splitting savings. The marginal propensity to consume out of total wealth of Italian households is estimated at 4.2 percent. It is statistically significant at conventional levels and lies within the range reported by other studies for the US and for developed countries. The marginal propensity to consume out of financial wealth is 9.2 percent, compared with a marginal propensity to consume out of real wealth of 2.4 percent. The

hypothesis of equal propensities is rejected at the 5-percent level of significance. Allowing for the propensities to change over time by interacting the wealth measures by two pre- and post-1996 dummies (Table 9) suggests that over the years the propensity to consume out of net wealth increased, although the difference in the coefficients is not statistically significant. The sensitivity with respect to financial wealth fell from 16.5 to 8.3 percent, whereas the sensitivity with respect to real wealth rose from a negligible and marginally significant value to over 3 percent.

The estimates of the marginal propensity to consume out of financial wealth are considerably larger than the figures typically implied by simple models of consumption. A possible explanation is that the sample I use for the estimation is not representative of the population as a whole (I present evidence in support of this hypothesis in Table 10). Another striking feature of these estimates is the magnitude of the differences between the pre- and post-1996 estimates, although the differences are not statistically significant at the standard levels. The marked decline in the marginal propensity to consume out of financial wealth could reflect a reaction to unexpected and permanent capital losses on other assets, not included in the regression. In particular, over the 1990s the Italian social security system underwent important reforms. The process began at the end of 1992 with a reform that substantially changed the public sector outlook for pension expenditure and reduced the projected net pension liabilities by strengthening the link between contributions and benefits. A second major reform in 1995 introduced notional funding, with pensions to be determined on a defined-contribution basis. Further minor reforms were introduced in the following years and the whole process is not over yet. As consequence of these reforms Italian households experienced a significant drop in their pension wealth, which may explain a reduced propensity to consume other, to a large-extent fungible/substitutable assets, such as financial wealth. By contrast, the sharp increase in the marginal propensity to consume out of real wealth may reflect the lessening of liquidity constraints that has followed financial-sector deregulation and the intensification of competition among financial institutions in credit markets, and particularly in the mortgage markets. However, the marginal propensity to consume out of real wealth remains substantially lower than the propensity to consume financial wealth. The evidence available for the United States suggests that the US household propensity to consume real wealth is either as large or even larger than the propensity to consume financial wealth. The difference between the two countries could be

due to differences in preferences, which make Italian households less inclined to consume out of real wealth owing to, for example, mental accounts or a preference for bequest. Alternatively, it could be a symptom of imperfections still affecting the financial system, which limit Italian households' access to credit and thus their ability to increase their current spending by drawing down their housing equity.

In Table 10, I look at the differences in the propensity to consume out of wealth across income quartiles and interact the wealth measures with two dummies that take on a value of one depending on whether the household falls in the first or last income quartile, respectively. Out of every euro of net wealth, the households in the lowest quartile consume 5 cents, those in the top quartile less than a cent. The difference is statistically significant, which is consistent with the theoretical predictions that the consumption function is concave in the presence of uncertainty. An implication of this finding is that since the SHIW sample excludes the richest households, my estimates of the marginal propensity to consume are likely to be larger than the average for all households. For both the high- and the low-income households, the marginal propensity to consume out of financial wealth is higher than the marginal propensity to consume out of real wealth, but for those in the lowest quartile the estimates are statistically different at levels of significance greater than 5. The last two columns of the Table focus on the (small) sub-sample of stockowners, i.e. on those households holding some of their financial wealth in publicly-traded equity. Sixty percent of these households are in the top income quartile. Their propensities to consume out of financial and real wealth are 2.8 and 0.4 percent, respectively. Splitting financial wealth into equity and non-equity wealth,[13] I find that the propensity to consume out of the former is substantially higher than the propensity to consume out of the latter.

Starting from the estimated propensities, it is possible to derive the elasticity of consumer spending with respect to wealth, which measures the percentage-point change in expenditure from a given change in wealth, by multiplying the estimated marginal propensities by the wealth-to-consumption ratio. These figures, based on back-of-the-envelope calculations, should be treated with caution since they rely on the assumption that

[13] I assume that financial saving is split equally between equity and other financial wealth. I have tried different splits, and found that the marginal propensity to consume out of equity (non-equity wealth) increases (decreases) slightly with the share invested in wealth, but the differences are rather small. Going from investing 1/3 of ones' financial savings to 2/3 raises (lowers) the estimate by 2.5 (0.5) percentage points.

the consumption function is linear in wealth - and therefore the marginal propensity to consume is constant - and Table 10 reports quite powerful evidence against such assumption. However, they remain quite informative because it turns out that the elasticity is substantially more sensitive to changes in the wealth-to-consumption ratio than to changes in the marginal propensity to spend as long as the latter falls within the range of common estimates. Table 11 reports the results of the calibration of the consumption response to changes in wealth using the mean of the wealth-to-consumption ratio of the households of 2002 SHIW. As measure of the marginal propensity, I take both the estimates based on all six surveys (reported in Table 8) and the estimates based on the last three (reported in Table 9). According to these rough calculations, for a propensity to change consumption by 4.2 cents for every one-euro change in net worth, a 10 percent increase in total net worth would increase consumption by 3.4 percent. A 10 percent increase in financial wealth would increase consumption by 0.7-to-0.8 percent; the effect is likely to have diminished in the course of the 1990s owning to the pronounced drop in household propensity to consume out of financial wealth. A 10 percent increase in real wealth would have a larger effect on consumption and increase expenditure by 1.8-to-2.2 percent, owing to the fact that real assets account for a larger share of Italian household consumption than financial assets. Overall, with respect to the United States, Italian household expenditure appears to be similarly affected by changes in total wealth. The effect of changes in real asset prices is also similar, as the relatively larger consumption share accounted for by real assets more than offsets the differences in the marginal propensities to spend out of these assets. The financial wealth effects are much smaller, reflecting Italian households' less extensive ownership of financial asset.

6. Conclusions

This paper analyses the dynamics of Italian household wealth in the 1990s and assesses the strength of the wealth effects on consumption using the evidence available for the United States as a benchmark. The dynamics of Italian household net worth over the past decade is comparable to that of US households. However, in Italy most of the increase in household wealth is attributable to the high household saving rates, which diminished somewhat over the 1990s, but remained well above the rates recorded in the United States. The contribution

of rising stock prices was limited by the composition of portfolios, which consisted mainly of real assets, and by the high concentration of equity ownership. Despite an increase in the proportion of households owning equities, recent gains in financial wealth from rising equity values are likely to have accrued predominantly to households at the upper end of the income distribution. For the "typical" family, the appreciation of real assets, which was also very large, was more important. Interestingly, and in contrast with US households, the wealthiest segments of the population, which enjoyed the fastest growth in wealth and most of the capital gains on stock, continued to save at a high rate and invested heavily in stocks instead of realizing their capital gains. All things considered, therefore, wealth effects in Italy appear to be small and unlikely to be direct.

Estimates of the marginal propensity to consume out of wealth confirm that these differences between saving behavior of Italian and US households are generally not due to important differences in their propensities to spend out of wealth. In fact, out of every euro of total net worth and of financial assets, Italian households consume around 4 and 9 cents, respectively. These figures are comparable to the findings for the US and other industrialized countries. Hence, in Italy financial market effects on consumption are smaller only because Italian households hold relatively little financial wealth. Further, but this time as in the US, financial assets are concentrated among those households at the top of the income distribution, whose marginal propensity to consume is substantially lower than the average. Compared with US households, Italian households exhibit a much lower propensity to spend out of real wealth, which also explains why the housing market effect on consumption has been small despite the extent of homeownership.

The analysis suggest that there have been some changes over time in household's propensity to spend out of wealth that reflect reactions to policy changes. Over the past decade, the marginal propensity to consume out of financial assets appears to have fallen, most likely in response to the pension reforms of the nineties which have reduced significantly Italian households' pension wealth. On the other hand, although still very low, the marginal propensity to consume out of real assets seems to have increased, possibly owing to the easing of credit constraints in the wake of deregulation and the intensification of competition among financial institutions in credit markets.

Tables

Table 1

NET WORTH-INCOME RATIO AND SAVING RATES BY INCOME QUINTILES IN THE US

Income category	Net worth-income ratio		Saving rate	
	1992	2000	1992	2000
Total	4.7	6.1	5.9	1.3
81-100%	6.4	8.7	8.5	-2.1
61-80%	3.3	4.2	4.7	2.6
41-60%	3.3	3.6	2.7	2.9
21-40%	3.3	4.1	4.2	7.4
0-20%	4.1	5.1	3.8	7.1

NOTE: Maki and Palumbo (2001), Table 2, based on a data set that was obtained by allocating the Board of Governors of the Federal Reserve's Flow of Fund data to different cohorts of households based on their balance-sheet in the nearest Survey of Consumer Finances.

Table 2

SHARES OF ASSETS AND LIABILITIES HELD BY US HOUSEHOLDS IN THE UPPERMOST INCOME QUINTILE

	1992	1995	1998
Total assets	0.60	0.60	0.63
Owner-occupied real estate	0.48	0.46	0.47
Checkable deposits	0.48	0.49	0.51
Time and saving deposits	0.48	0.50	0.47
US Treasury and agency securities	0.81	0.80	0.76
Corporate bonds	0.81	0.80	0.71
Public equity	0.81	0.83	0.83
Equity in non-corporate businesses	0.70	0.70	0.74
Mutual funds shares	0.74	0.72	0.74
Money market mutual funds	0.79	0.77	0.76
Defined-contribution pension reserves	0.73	0.69	0.68
Total liabilities	0.56	0.53	0.53

NOTE: Maki and Palumbo (2001), Table 1, based on the US Survey of Consumer Finances.

Table 3

BALANCE SHEETS OF US HOUSEHOLDS
AS PERCENTAGES OF TOTAL ASSETS
(year-end amounts)

	1989	1995	1999
Total assets	1.00	1.00	1.00
Tangible assets	0.39	0.34	0.29
Real estate	0.31	0.27	0.23
Financial assets	0.61	0.66	0.71
Listed equities	0.07	0.13	0.19
Mutual and pension funds	0.16	0.27	0.25
Non-listed equities	0.13	0.11	0.09
Liabilities	0.15	0.16	0.14

NOTE: Flow of Funds Accounts of the United States, Table B100 and author's calculation. Corporate equities and mutual and pension funds are at market value.

Table 4

SAVING AND HOLDING GAINS OF ITALIAN HOUSEHOLDS

	1989-94	1995-99	1989-99
Change in net worth	1,850	1,040	3,090
Net saving	610	515	1,120
Net purchases of financial assets	440	890	1330
Net purchases of equities	180	500	630
Holding gains	1,240	525	1,970
Holding gains/total change in net worth	0.67	0.50	0.64

NOTE: Brandolini et al. (2003) and author's calculation. Nominal amounts in billions of euros.

Table 5

BALANCE SHEET OF THE AVERAGE ITALIAN HOUSEHOLD
(year-end amounts, 2000 thousand euro)

	1991	1993	1995	1998	2000
Net worth	129.5	151.0	150.0	163.0	172.0
Total assets	132.0	154.0	153.5	166.0	175.0
Tangible assets	116.0	135.0	134.5	141.0	147.0
Real estate	97.0	111.0	115.0	119.0	125.0
Financial assets	16.0	19.0	19.0	25.0	28.0
Mutual funds	0.7	1.8	1.6	5.8	6.0
Listed equity	0.4	0.7	0.6	1.7	2.5
Unlisted equity	0.8	1.4	0.6	0.6	0.5
Government bonds and bills	5.0	6.0	7.0	3.0	4.0
Liabilities	2.5	3.0	3.5	3.0	3.0
Memo: Net saving	8.0	7.0	6.0	8.0	7.0

NOTE: Bank of Italy Survey of Household Income and Wealth and author's calculation. Weighted averages. Tangible assets include real estate, valuables and businesses. Mutual funds include managed accounts. Non-listed equity includes shares in non-public companies, private limited partnerships and other partnerships. Net saving is computed by subtracting total consumption from total household income (inclusive of financial income).

Table 6

SHARES OF ASSETS AND LIABILITIES HELD BY HOUSEHOLDS IN THE TOP QUINTILE OF THE INCOME DISTRIBUTION

	1991	1993	1995	1998	2000
Total assets	0.45	0.49	0.47	0.48	0.50
Real assets	0.45	0.48	0.47	0.48	0.50
Real estate	0.44	0.47	0.47	0.46	0.47
Financial assets	0.46	0.49	0.50	0.52	0.50
Mutual funds	0.64	0.66	0.73	0.72	0.65
Listed equity	0.70	0.77	0.76	0.77	0.72
Non-listed equity	0.81	0.68	0.88	0.88	0.90
Foreign stock and bonds	-	-	0.79	0.82	0.83
Government bonds and bills	0.47	0.51	0.53	0.50	0.54
Total liabilities	0.47	0.48	0.46	0.49	0.57

NOTE: Bank of Italy Survey of Household Income and Wealth and author's calculation. Income does not include financial proceeds.

Table 7

NET WORTH-INCOME RATIO AND SAVING RATES BY INCOME QUARTILES: EVIDENCE FROM THE SURVEY OF HOUSEHOLD INCOME AND WEALTH

	Net Worth-Income Ratio					Saving Rate				
Income category	1991	1993	1995	1998	2000	1991	1993	1995	1998	2000
Total	4.8	5.6	5.5	6.2	6.2	0.22	0.16	0.12	0.16	0.16
75-100%	5.7	6.8	6.6	6.9	7.4	0.33	0.34	0.30	0.33	0.32
50-75%	4.8	5.7	5.8	6.1	5.8	0.25	0.23	0.18	0.23	0.22
25-50%	4.7	5.1	5.4	5.9	5.5	0.18	0.12	0.08	0.13	0.12
0-25%	3.7	4.8	4.3	5.8	5.9	0.12	-0.06	-0.07	-0.05	-0.02

NOTE: Bank of Italy Survey of Household Income and Wealth and author's calculation. The bottom and top 1% of the saving to income distribution has been dropped to reduce the impact of outliers.

Table 8

THE MARGINAL PROPENSITY TO CONSUME OUT OF WEALTH OF ITALIAN HOUSEHOLDS

	I	II
Net wealth/Income	0.042	-
	(0.016)	
Net financial wealth/Income	-	0.092
		(0.032)
Net real wealth/Income	-	0.024
		(0.008)
Age	-0.126	-0.106
	(0.039)	(0.030)
Age squared	0.004	0.004
	(0.003)	(0.003)
No. of household members	-0.025	-0.019
	(0.006)	(0.006)
Central Italy*	0.018	0.031
	(0.008)	(0.007)
Southern Italy*	0.159	0.163
	(0.012)	(0.012)
Stockholder*	-0.187	-0.204
	(0.051)	(0.045)
High school diploma*	-0.146	-0.135
	(0.024)	(0.017)
University degree*	-0.303	-0.287
	(0.042)	(0.028)
Self-employed*	-0.203	-0.113
	(0.095)	(0.047)
Mover*	0.074	0.062
	(0.018)	(0.012)
Year dummies	YES	YES
No. of observations	42,469	42,469
R-Squared	0.3027	0.3640
p-value for H_0	-	0.0198

NOTE: The dependent variable is the ratio of non-durable consumption to non-asset income. * denotes dummy variables. Stockholder is a dummy equal to one if the household holds a positive amount of publicly-traded equity. The dummy "mover" has a value of one if the household head has moved from his region of birth to a different region. The benchmark for the area dummies is Northern Italy. Robust standard errors in parentheses. H_0 refers to a test of the hp. that the coefficient on net financial wealth is equal to that of net real wealth.

Table 9

THE MARGINAL PROPENSITY TO CONSUME OUT OF WEALTH OF ITALIAN HOUSEHOLDS: 1991-1995 AND 1998-2002

	I	II
(Net wealth/Income)*D91-95	0.028	-
	(0.005)	
(Net wealth/Income)*D98-02	0.046	-
	(0.019)	
(Net financial wealth/Income)*D91-95	-	0.165
		(0.078)
(Net financial wealth/Income)*D98-02	-	0.083
		(0.032)
(Net real wealth/Income)*D91-95	-	0.012
		(0.006)
(Net real wealth/Income)*D98-02	-	0.030
		(0.012)
Age	-0.107	-0.096
	(0.026)	(0.025)
Age squared	0.008	0.003
	(0.002)	(0.002)
No. of household members	-0.025	-0.017
	(0.005)	(0.006)
Central Italy*	0.018	0.038
	(0.008)	(0.012)
Southern Italy*	0.156	0.175
	(0.011)	(0.018)
Stockholder*	-0.180	-0.220
	(0.040)	(0.042)
High school diploma*	-0.138	-0.136
	(0.017)	(0.015)
University degree*	-0.287	-0.289
	(0.027)	(0.025)
Self-employed*	-0.164	-0.102
	(0.052)	(0.033)
Mover*	0.070	0.065
	(0.014)	(0.011)
Year dummies	YES	YES
No. of observations	42,469	42,469
R-Squared	0.3136	0.3777
p-value for H_0 (1991-1995)	-	0.0624
p-value for H_0 (1998-2002)	-	0.0667
p-value for H_1	0.3139	-
p-value for H_2	-	0.3291
p-value for H_3	-	0.1697

NOTE: see Note to Table 8. D91-95 (D98-02) is a dummy that is equal to 1 if the observation comes from the 1991-1995 (1998-2002) surveys. H_0 refers to a test of the hp. that the coefficient on net financial wealth is equal to that of net real wealth, within the same period considered. H_1 refers to a test of the hp. that the coefficient on net wealth is the same across the two periods considered. H_2 refers to a test of the hp. that the coefficient on net financial wealth is the same across the two periods considered. H_3 refers to a test of the hp. that the coefficient on net real wealth is the same across the two periods considered.

Table 10

THE MARGINAL PROPENSITY TO CONSUME OUT OF WEALTH: THE LOW-INCOME, THE HIGH-INCOME AND THE STOCKHOLDERS

	I	II	III Stockholder	IV Stockholder
(Net wealth/Income)*Y_low	0.052	-	-	-
	(0.017)			
(Net wealth/Income)*Y_high	0.008	-	-	-
	(0.002)			
(Net financial wealth/Income)*Y_low	-	0.096	0.028	-
		(0.031)	(0.006)	
(Net financial wealth/Income)*Y_high	-	0.019	0.028	-
		(0.003)	(0.006)	
Net equity wealth/Income	-	-	-	0.068
				(0.019)
Net non-equity wealth/Income	-	-	-	0.018
				(0.006)
(Net real wealth/Income)*Y_low	-	0.032	0.004	0.004
		(0.012)	(0.001)	(0.001)
(Net real wealth/Income)*Y_high	-	0.006	0.004	0.004
		(0.001)	(0.001)	(0.001)
Age	0.025	0.035	0.043	0.029
	(0.062)	(0.055)	(0.039)	(0.039)
Age squared	-0.009	-0.009	-0.006	-0.004
	(0.006)	(0.005)	(0.004)	(0.004)
No. of hh. members	0.041	0.046	-0.013	-0.009
	(0.007)	(0.007)	(0.007)	(0.006)
Central Italy*	-0.010	-0.002	0.067	0.066
	(0.015)	(0.012)	(0.018)	(0.018)
Southern Italy*	0.039	0.041	0.028	0.016
	(0.019)	(0.018)	(0.028)	(0.027)
Stockholder*	-0.022	-0.025	-	-
	(0.023)	(0.017)		
High school diploma*	-0.011	-0.006	-0.048	-0.051
	(0.029)	(0.025)	(0.022)	(0.022)
University degree*	-0.038	-0.024	-0.123	-0.122
	(0.040)	(0.031)	(0.027)	(0.027)
Self-employed*	-0.163	-0.086	0.006	0.004
	(0.074)	(0.047)	(0.031)	(0.030)
Mover*	0.062	0.052	0.034	0.031
	(0.020)	(0.017)	(0.017)	(0.017)
Y_low*	0.370	0.428	0.034	0.031
	(0.111)	(0.076)	(0.017)	(0.017)
Year dummies	YES	YES	YES	YES
No. of observations	21,252	21,252	2,469	2,469
R-Squared	0.4096	0.4517	0.1625	0.1871
p-value for H_0 (low income)	-	0.0528	0.0002	-
p-value for H_0 (high income)	-	0.0002	-	-

Table 10 [Continued]

p-value for H_1	0.0062	-	-	-
p-value for H_2	-	0.0125	-	-
p-value for H_3	-	0.0039	-	-
p-value for H_4	-	-	-	0.0140
p-value for H_5	-	-	-	0.0282

NOTE: see Note to Table 8. Y_low (Y_high) is a dummy that is equal to 1 if the household is in the first income quartile. To compute beginning-of-period equity and non-equity wealth, I assume that households invest half of their financial saving in equity. The 1st and 4th quartile refer to non-asset income. H_0 refers to a test of the hp. that the coefficient on net financial wealth is equal to that of net real wealth, within the same income quartile. H_1 refers to a test of the hp. that the coefficient on net wealth is the same across the two groups considered. H_2 refers to a test of the hp. that the coefficient on net financial wealth is the same across the two groups considered. H_3 refers to a test of the hp. that the coefficient on net real wealth is the same across the two groups considered. H_4 refers to a test of the hp. that the coefficient on net equity wealth is equal to that of net non-equity wealth. H_5 refers to a test of the hp. that the coefficients on net non-equity wealth is equal to that on real wealth.

Table 11

CALIBRATION OF THE WEALTH EFFECTS ON CONSUMPTION

	Estimated marginal propensity (1)	Consumption-wealth ratio (mean) (2)	Elasticity of consumption (1)x(2)
Total wealth:	0,042	8,141	0,342
Total wealth (1998-2002):	0,046	8,141	0,374
Financial wealth:	0,092	0,859	0,079
Financial wealth (1998-2002):	0,083	0,859	0,071
Real wealth:	0,024	7,282	0,175
Real wealth (1998-2002):	0,030	7,282	0,218

NOTE: The mean of the wealth-to-consumption ratio has been computed as average of the individual ratios of the households interviewed in the 2002 survey.

References

Ando, Albert and Franco Modigliani (1963), The 'Life Cycle' Hypothesis of Saving: Aggregate Implications and Tests, American Economic Review, 53, 55–84.

Attanasio, Orazio, Banks, James and Sarah Tanner (2002), Asset Holding and Consumption Volatility, Journal of Political Economy, 110, 771–792.

Bertaut, Carol (2002), Equity Prices, Household Wealth, and Consumption Growth in Foreign Industrial Countries: Wealth Effects in the 1990s, Board of Governors of the Federal Reserve System, International Finance Discussion Papers, No. 724.

Boone, Laurence and Nathalie Girouard (2002), The Stock Market, The Housing Market and Consumer Behavior, OECD Economic Studies, 35, 175–200.

Brandolini, Andrea, Cannari, Luigi, D'Alessio, Giovanni and Ivan Faiella (2003), Household Wealth Distribution in Italy, Temi di Discussione, Bank of Italy (forthcoming).

Carroll, Christopher and Miles Kimball (1996), On the Concavity of the Consumption Function, Econometrica, 64, 981–992.

Case, Karl, Quigley, John and Robert Shiller (2001), Comparing Wealth Effects: The Stock Market Versus The Housing Market, NBER Working Paper, No. 8606.

D'Alessio, Giovanni (1993), I Bilanci delle Famiglie Italiane nell'Anno 1991, Supplementi al Bollettino Statistico (nuova serie), Banca d'Italia, 1993, No. 44, July.

———————- (1995), I Bilanci delle Famiglie Italiane nell'Anno 1993, Supplementi al Bollettino Statistico (nuova serie), Banca d'Italia, 1995, No. 9, February.

———————- (1997), I Bilanci delle Famiglie Italiane nell'Anno 1995, Supplementi al Bollettino Statistico (nuova serie), Banca d'Italia, 1997, No. 14, March.

D'Alessio, Giovanni and Ivan Faiella (2000), I Bilanci delle Famiglie Italiane nell'Anno 1998, Supplementi al Bollettino Statistico (nuova serie), Banca d'Italia, 2000, No. 22, April.

Davis, Morris and Michael Palumbo (2001), A Primer on the Economics and Time Series Econometrics of Wealth Effects, Finance and Economics Discussion Series, Federal Reserve Board of Governors, No. 9.

Dynan, Karen and Dean Maki (2001), Does Stock Market Wealth Matter for Consumption?, Federal Reserve Board of Governors, mimeo.

Dynan, Karen, Jonathan Skinner and Stephen Zeldes (2000), Do the Rich Save More?, NBER Working Paper, No. 7906.

Ludvigson, Sydney and Charles Steindel (1999), How important Is the Stock Market Effect on Consumption?, Federal Reserve Bank of New York Economic Policy Review, 5, 29–52.

Maki, Dean and Michael Palumbo (2001), Disentangling the Wealth Effect: A Cohort Analysis of Household Savings in the 1990s, Finance and Economics Discussion Series, Federal Reserve Board of Governors, No. 21.

Mankiw, Gregory and Stephen Zeldes (1991), The Consumption of Stockholders and Non-Stockholders, Journal of Financial Economics, 17, 211–19.

Paiella, Monica (2004), Revisiting the Implications of Heterogeneity in Financial Market Participation for the C-CAPM, Review of Finance, 8, 1-36 (forthcoming).

Parker, Jonathan (1999), Spendthrift in America? On Two Decades of Decline in the US Saving Rate, in Bernanke, B. and J. Rotemberg (eds), NBER Macroeconomics Annual 1999. MIT Press, Cambridge.

Poterba, James (2000), Stock Market Wealth and Consumption, Journal of Economic Perspectives, 14, 99–118.

Poterba, James and Andrew Samwick (1995), Stock Ownership Patterns, Stock Market Fluctuations and Consumption, Brookings Papers on Economic Activity 1995, 295–371.

Starr-McCluer, Martha (1998), Stock Market Wealth and Consumer Spending, mimeo, Federal Reserve Board of Governors, mimeo.

Thaler, Richard (1990), Anolmalies: Saving, Fungibility and Mental Accounts, Journal of Economic Perspectives, 4, 193–206.

Tracy, Joseph and Henry Schneider (2001), Stocks in the Household Portfolio: A Look Back at the 1990s. Current Issues in Economics and Finance, Federal Reserve Bank of New York, No. 4.

Vissing-Jørgensen, Annette (2002), Limited Asset Market Participation and the Elasticity of Intertemporal Substitution. Journal of Political Economy, 110, 825-853.

Zeldes, Stephen (1989), Optimal Consumption with Stochastic Income: Deviations from Certainty Equivalence, Quarterly Journal of Economics, 104, 275–298.

RECENTLY PUBLISHED "TEMI" (*)

N. 484 – *What is this thing called confidence? A comparative analysis of consumer indices in eight major countries*, by R. Golinelli and G. Parigi (September 2003).

N. 485 – *L'utilizzo degli indicatori compositi nell'analisi congiunturale territoriale: un'applicazione all'economia del Veneto*, by P. Chiades, M. Gallo and A. Venturini (September 2003).

N. 486 – *Bank capital and lending behaviour: empirical evidence for Italy*, by L. Gambacorta and P. E. Mistrulli (September 2003).

N. 487 – *A polarization of polarization? The distribution of inequality 1970-1996*, by C. Biancotti (March 2004).

N. 488 – *Pitfalls of monetary policy under incomplete information: imprecise indicators and real indeterminacy*, by E. Gaiotti (March 2004).

N. 489 – *Information technology and productivity changes in the banking industry*, by L. Casolaro and G. Gobbi (March 2004).

N. 490 – *La bilancia dei pagamenti di parte corrente Nord-Sud (1998-2000)*, by L. Cannari and S. Chiri (March 2004).

N. 491 – *Investire in Italia? Risultati di una recente indagine empirica,* by M. Committeri (March 2004).

N. 492 – *Centralization of wage bargaining and the unemployment rate: revisiting the hump-shape hypothesis,* by L. Forni (June 2004).

N. 493 – *Endogenous monetary policy with unobserved potential output,* by A. Cukierman and F. Lippi (June 2004).

N. 494 – *Il credito commerciale: problemi e teorie,* by M. Omiccioli (June 2004).

N. 495 – *Condizioni di credito commerciale e differenziazione della clientela,*byL. Cannari, S. Chiri and M. Omiccioli (June 2004).

N. 496 – *Il debito commerciale in Italia: quanto contano le motivazioni finanziarie?,* by P. Finaldi Russo and L. Leva (June 2004).

N. 497 – *Funzionamento della giustizia civile e struttura finanziaria delle imprese: il ruolo del credito commerciale,* by A. Carmignani (June 2004).

N. 498 – *Does trade credit substitute for bank credit?,* by G. de Blasio (June 2004).

N. 499 – *Monetary policy and the transition to rational expectations,* by G. Ferrero (June 2004).

N. 500 – *Turning-point indicators from business surveys: real-time detection for the euro area and its major member countries,* by A. Baffigi and A. Bassanetti (June 2004).

N. 501 – *La ricchezza delle famiglie italiane e americane,* by I. Faiella and A. Neri (June 2004).

N. 502 – *Optimal duplication of effort in advocacy systems,* by G. Palumbo (June 2004).

N. 503 – *Il pilastro privato del sistema previdenziale. Il caso del Regno Unito,* by F. Spadafora (June 2004).

N. 504 – *Firm size distribution and employment protection legislation in Italy,* by F. Schivardi and R. Torrini (June 2004).

N. 505 – *Social mobility and endogenous cycles in redistribution,* by F. Zollino (July 2004).

N. 506 – *Estimating expectations of shocks using option prices,* by A. Di Cesare (July 2004).

N. 507 – *Estimating state price densities by Hermite polynomials: theory and application to the Italian derivatives market,* by P. Guasoni (July 2004).

N. 508 – *The interaction between face-to-face and electronic delivery: the case of the Italian banking industry,* by E. Bonaccorsi di Patti, G. Gobbi and P. E. Mistrulli (July 2004).

N. 509 – *Bad loans and entry into local credit markets,* by M. Bofondi and G. Gobbi (July 2004).

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

"TEMI" LATER PUBLISHED ELSEWHERE

1999

L. GUISO and G. PARIGI, *Investment and demand uncertainty*, Quarterly Journal of Economics, Vol. 114 (1), pp. 185-228, **TD No. 289 (November 1996)**.

A. F. POZZOLO, *Gli effetti della liberalizzazione valutaria sulle transazioni finanziarie dell'Italia con l'estero*, Rivista di Politica Economica, Vol. 89 (3), pp. 45-76, **TD No. 296 (February 1997)**.

A. CUKIERMAN and F. LIPPI, *Central bank independence, centralization of wage bargaining, inflation and unemployment: theory and evidence*, European Economic Review, Vol. 43 (7), pp. 1395-1434, **TD No. 332 (April 1998)**.

P. CASELLI and R. RINALDI, *La politica fiscale nei paesi dell'Unione europea negli anni novanta,* Studi e note di economia, (1), pp. 71-109, **TD No. 334 (July 1998)**.

A. BRANDOLINI, *The distribution of personal income in post-war Italy: Source description, data quality, and the time pattern of income inequality*, Giornale degli economisti e Annali di economia, Vol. 58 (2), pp. 183-239, **TD No. 350 (April 1999)**.

L. GUISO, A. K. KASHYAP, F. PANETTA and D. TERLIZZESE, *Will a common European monetary policy have asymmetric effects?*, Economic Perspectives, Federal Reserve Bank of Chicago, Vol. 23 (4), pp. 56-75, **TD No. 384 (October 2000)**.

2000

P. ANGELINI, *Are banks risk-averse? Timing of the operations in the interbank market*, Journal of Money, Credit and Banking, Vol. 32 (1), pp. 54-73, **TD No. 266 (April 1996).**

F. DRUDI and R: GIORDANO, *Default Risk and optimal debt management,* Journal of Banking and Finance, Vol. 24 (6), pp. 861-892, **TD No. 278 (September 1996)**.

F. DRUDI and R. GIORDANO, *Wage indexation, employment and inflation,* Scandinavian Journal of Economics, Vol. 102 (4), pp. 645-668, **TD No. 292 (December 1996)**.

F. DRUDI and A. PRATI, *Signaling fiscal regime sustainability,* European Economic Review, Vol. 44 (10), pp. 1897-1930, **TD No. 335 (September 1998)**.

F. FORNARI and R. VIOLI, *The probability density function of interest rates implied in the price of options,* in: R. Violi, (ed.) , Mercati dei derivati, controllo monetario e stabilità finanziaria, Il Mulino, Bologna, **TD No. 339 (October 1998)**.

D. J. MARCHETTI and G. PARIGI, *Energy consumption, survey data and the prediction of industrial production in Italy,* Journal of Forecasting, Vol. 19 (5), pp. 419-440, **TD No. 342 (December 1998)**.

A. BAFFIGI, M. PAGNINI and F. QUINTILIANI, *Localismo bancario e distretti industriali: assetto dei mercati del credito e finanziamento degli investimenti,* in: L.F. Signorini (ed.), Lo sviluppo locale: un'indagine della Banca d'Italia sui distretti industriali, Donzelli, **TD No. 347** (**March 1999)**.

A. SCALIA and V. VACCA, *Does market transparency matter? A case study*, in: Market Liquidity: Research Findings and Selected Policy Implications*,* Basel, Bank for International Settlements, **TD No. 359 (October 1999)**.

F. SCHIVARDI, *Rigidità nel mercato del lavoro, disoccupazione e crescita*, Giornale degli economisti e Annali di economia, Vol. 59 (1), pp. 117-143, **TD No. 364 (December 1999)**.

G. BODO, R. GOLINELLI and G. PARIGI, *Forecasting industrial production in the euro area,* Empirical Economics, Vol. 25 (4), pp. 541-561, **TD No. 370 (March 2000)**.

F. ALTISSIMO, D. J. MARCHETTI and G. P. ONETO, *The Italian business cycle: Coincident and leading indicators and some stylized facts,* Giornale degli economisti e Annali di economia, Vol. 60 (2), pp. 147-220, **TD No. 377 (October 2000)**.

C. MICHELACCI and P. ZAFFARONI, *(Fractional) Beta convergence*, Journal of Monetary Economics, Vol. 45, pp. 129-153, **TD No. 383 (October 2000)**.

R. DE BONIS and A. FERRANDO, *The Italian banking structure in the nineties: testing the multimarket contact hypothesis*, Economic Notes, Vol. 29 (2), pp. 215-241, **TD No. 387 (October 2000)**.

2001

M. CARUSO, *Stock prices and money velocity: A multi-country analysis,* Empirical Economics, Vol. 26 (4), pp. 651-72, **TD No. 264 (February 1996)**.

P. CIPOLLONE and D. J. MARCHETTI, *Bottlenecks and limits to growth: A multisectoral analysis of Italian industry*, Journal of Policy Modeling, Vol. 23 (6), pp. 601-620, **TD No. 314 (August 1997)**.

P. CASELLI, *Fiscal consolidations under fixed exchange rates,* European Economic Review, Vol. 45 (3), pp. 425-450, **TD No. 336 (October 1998)**.

F. ALTISSIMO and G. L. VIOLANTE, *Nonlinear VAR: Some theory and an application to US GNP and unemployment,* Journal of Applied Econometrics, Vol. 16 (4), pp. 461-486, **TD No. 338 (October 1998)**.

F. NUCCI and A. F. POZZOLO, *Investment and the exchange rate*, European Economic Review, Vol. 45 (2), pp. 259-283, **TD No. 344 (December 1998)**.

L. GAMBACORTA, *On the institutional design of the European monetary union: Conservatism, stability pact and economic shocks,* Economic Notes, Vol. 30 (1), pp. 109-143, **TD No. 356 (June 1999)**.

P. FINALDI RUSSO and P. ROSSI, *Credit costraints in italian industrial districts,* Applied Economics, Vol. 33 (11), pp. 1469-1477, **TD No. 360 (December 1999)**.

A. CUKIERMAN and F. LIPPI, *Labor markets and monetary union: A strategic analysis,* Economic Journal, Vol. 111 (473), pp. 541-565, **TD No. 365 (February 2000)**.

G. PARIGI and S. SIVIERO, *An investment-function-based measure of capacity utilisation, potential output and utilised capacity in the Bank of Italy's quarterly model*, Economic Modelling, Vol. 18 (4), pp. 525-550, **TD No. 367 (February 2000)**.

F. BALASSONE and D. MONACELLI, *Emu fiscal rules: Is there a gap?,* in: M. Bordignon and D. Da Empoli (eds.), Politica fiscale, flessibilità dei mercati e crescita*,* Milano*,* Franco Angeli, **TD No. 375 (July 2000)**.

A. B. ATKINSON and A. BRANDOLINI, *Promise and pitfalls in the use of "secondary" data-sets: Income inequality in OECD countries*, Journal of Economic Literature, Vol. 39 (3), pp. 771-799, **TD No. 379 (October 2000)**.

D. FOCARELLI and A. F. POZZOLO, *The determinants of cross-border bank shareholdings: An analysis with bank-level data from OECD countries*, Journal of Banking and Finance, Vol. 25 (12), pp. 2305-2337, **TD No. 381 (October 2000)**.

M. SBRACIA and A. ZAGHINI, *Expectations and information in second generation currency crises models*, Economic Modelling, Vol. 18 (2), pp. 203-222, **TD No. 391 (December 2000)**.

F. FORNARI and A. MELE, *Recovering the probability density function of asset prices using GARCH as diffusion approximations,* Journal of Empirical Finance, Vol. 8 (1), pp. 83-110**, TD No. 396 (February 2001)**.

P. CIPOLLONE, *La convergenza dei salari manifatturieri in Europa,* Politica economica, Vol. 17 (1), pp. 97-125, **TD No. 398 (February 2001)**.

E. BONACCORSI DI PATTI and G. GOBBI, *The changing structure of local credit markets: Are small businesses special?*, Journal of Banking and Finance, Vol. 25 (12), pp. 2209-2237, **TD No. 404 (June 2001)**.

G. MESSINA, *Decentramento fiscale e perequazione regionale. Efficienza e redistribuzione nel nuovo sistema di finanziamento delle regioni a statuto ordinario*, Studi economici, Vol. 56 (73), pp. 131-148, **TD No. 416 (August 2001)**.

2002

R. CESARI and F. PANETTA, *Style, fees and performance of Italian equity funds*, Journal of Banking and Finance, Vol. 26 (1), **TD No. 325 (January 1998)**.

L. GAMBACORTA, *Asymmetric bank lending channels and ECB monetary policy*, Economic Modelling, Vol. 20 (1), pp. 25-46, **TD No. 340 (October 1998)**.

C. GIANNINI, *"Enemy of none but a common friend of all"? An international perspective on the lender-of-last-resort function*, Essay in International Finance, Vol. 214, Princeton, N. J., Princeton University Press, **TD No. 341 (December 1998)**.

A. ZAGHINI, *Fiscal adjustments and economic performing: A comparative study*, Applied Economics, Vol. 33 (5), pp. 613-624, **TD No. 355 (June 1999)**.

F. ALTISSIMO, S. SIVIERO and D. TERLIZZESE, *How deep are the deep parameters?,* Annales d'Economie et de Statistique,.(67/68), pp. 207-226, **TD No. 354 (June 1999)**.

F. FORNARI, C. MONTICELLI, M. PERICOLI and M. TIVEGNA, *The impact of news on the exchange rate of the lira and long-term interest rates,* Economic Modelling, Vol. 19 (4), pp. 611-639, **TD No. 358 (October 1999**).

D. FOCARELLI, F. PANETTA and C. SALLEO, *Why do banks merge?,* Journal of Money, Credit and Banking, Vol. 34 (4), pp. 1047-1066, **TD No. 361 (December 1999)**.

D. J. MARCHETTI, *Markup and the business cycle: Evidence from Italian manufacturing branches,* Open Economies Review, Vol. 13 (1), pp. 87-103, **TD No. 362 (December 1999**).

F. BUSETTI, *Testing for stochastic trends in series with structural breaks*, Journal of Forecasting, Vol. 21 (2), pp. 81-105, **TD No. 385 (October 2000)**.

F. LIPPI, *Revisiting the Case for a Populist Central Banker,* European Economic Review*,* Vol. 46 (3), pp. 601-612, **TD No. 386 (October 2000)**.

F. PANETTA, *The stability of the relation between the stock market and macroeconomic forces*, Economic Notes, Vol. 31 (3), **TD No. 393 (February 2001)**.

G. GRANDE and L. VENTURA, *Labor income and risky assets under market incompleteness: Evidence from Italian data,* Journal of Banking and Finance, Vol. 26 (2-3), pp. 597-620, **TD No. 399 (March 2001)**.

A. BRANDOLINI, P. CIPOLLONE and P. SESTITO, *Earnings dispersion, low pay and household poverty in Italy, 1977-1998,* in D. Cohen, T. Piketty and G. Saint-Paul (eds.), The Economics of Rising Inequalities, pp. 225-264, Oxford, Oxford University Press, **TD No. 427 (November 2001)**.

L. CANNARI and G. D'ALESSIO, *La distribuzione del reddito e della ricchezza nelle regioni italiane*, Rivista Economica del Mezzogiorno (Trimestrale della SVIMEZ), Vol. XVI(4), pp. 809-847, Il Mulino, **TD No. 482 (June 2003)**.

2003

F. SCHIVARDI, *Reallocation and learning over the business cycle,* European Economic Review, , Vol. 47 (1), pp. 95-111, **TD No. 345 (December 1998)**.

P. CASELLI, P. PAGANO and F. SCHIVARDI, *Uncertainty and slowdown of capital accumulation in Europe*, Applied Economics, Vol. 35 (1), pp. 79-89, **TD No. 372 (March 2000).**

P. PAGANO and G. FERRAGUTO, Endogenous growth with intertemporally dependent preferences, Contribution to Macroeconomics, Vol. 3 (1), pp. 1-38, **TD No. 382 (October 2000).**

P. PAGANO and F. SCHIVARDI, *Firm size distribution and growth,* Scandinavian Journal of Economics, Vol. 105(2), pp. 255-274, **TD No. 394 (February 2001)**.

M. PERICOLI and M. SBRACIA, *A Primer on Financial Contagion,* Journal of Economic Surveys, **TD No. 407 (June 2001)**.

M. SBRACIA and A. ZAGHINI, *The role of the banking system in the international transmission of shocks,* World Economy, **TD No. 409 (June 2001)**.

E. GAIOTTI and A. GENERALE, *Does monetary policy have asymmetric effects? A look at the investment decisions of Italian firms,* Giornale degli Economisti e Annali di Economia, Vol. 61 (1), pp. 29-59, **TD No**. **429 (December 2001)**.

L. GAMBACORTA, *The Italian banking system and monetary policy transmission: evidence from bank level data*, in: I. Angeloni, A. Kashyap and B. Mojon (eds.), Monetary Policy Transmission in the Euro Area, Cambridge, Cambridge University Press, **TD No. 430 (December 2001).**

M. EHRMANN, L. GAMBACORTA, J. MARTÍNEZ PAGÉS, P. SEVESTRE and A. WORMS, *Financial systems and the role of banks in monetary policy transmission in the euro area,* in: I. Angeloni, A. Kashyap and B. Mojon (eds.), Monetary Policy Transmission in the Euro Area, Cambridge, Cambridge University Press, **TD No. 432 (December 2001)**.

F. SPADAFORA, *Financial crises, moral hazard and the speciality of the international market: further evidence from the pricing of syndicated bank loans to emerging markets*, Emerging Markets Review, Vol. 4 (2), pp. 167-198, **TD No. 438 (March 2002)**.

D. FOCARELLI and F. PANETTA, *Are mergers beneficial to consumers? Evidence from the market for bank deposits*, American Economic Review, Vol. 93 (4), pp. 1152-1172, **TD No. 448 (July 2002)**.

E.VIVIANO, *Un'analisi critica delle definizioni di disoccupazione e partecipazione in Italia,* Politica Economica, Vol. 19 (1), pp. 161-190, **TD No. 450 (July 2002)**.

F. BUSETTI and A. M. ROBERT TAYLOR, *Testing against stochastic trend and seasonality in the presence of unattended breaks and unit roots*, Journal of Econometrics, Vol. 117 (1), pp. 21-53, **TD No. 470 (February 2003)**.

2004

P. CHIADES and L. GAMBACORTA, *The Bernanke and Blinder model in an open economy: The Italian case,* German Economic Review, Vol. 5 (1), pp. 1-34, **TD No. 388 (December 2000)**.

M. PAIELLA, *Heterogeneity in financial market participation: appraising its implications for the C-CAPM*, Review of Finance, Vol. 8, pp. 1-36, **TD No. 473 (June 2003)**.

E. BONACCORSI DI PATTI and G. DELL'ARICCIA, *Bank competition and firm creation*, Journal of Money Credit and Banking, Vol. 36 (2), pp. 225-251, **TD No. 481 (June 2003)**.

R. GOLINELLI and G. PARIGI, *Consumer sentiment and economic activity: a cross country comparison*, Journal of Business Cycle Measurement and Analysis, Vol. 1 (2), **TD No. 484 (September 2003)**.

FORTHCOMING

A. F. POZZOLO, *Research and development regional spillovers, and the localisation of economic activities*, The Manchester School, **TD No. 331 (March 1998)**.

F. LIPPI, *Strategic monetary policy with non-atomistic wage-setters,* Review of Economic Studies, **TD No. 374 (June 2000)**.

P. ANGELINI and N. CETORELLI, *Bank competition and regulatory reform: The case of the Italian banking industry,* Journal of Money, Credit and Banking, **TD No. 380 (October 2000)**.

L. DEDOLA AND F. LIPPI, *The Monetary Transmission Mechanism: Evidence from the industry Data of Five OECD Countries*, European Economic Review, **TD No. 389 (December 2000)**.

M. BUGAMELLI and P. PAGANO, *Barriers to Investment in ICT*, Applied Economics, **TD No. 420 (October 2001)**.

D. J. MARCHETTI and F. NUCCI, *Price Stickiness and the Contractionary Effects of Technology Shocks*, European Economic Review, **TD No. 392 (February 2001)**.

G. CORSETTI, M. PERICOLI and M. SBRACIA, *Correlation analysis of financial contagion: what one should know before running a test*, Journal of International Money and Finance, **TD No. 408 (June 2001)**.

D. FOCARELLI, *Bootstrap bias-correction procedure in estimating long-run relationships from dynamic*

panels, with an application to money demand in the euro area, Economic Modelling, **TD No. 440 (March 2002)**.

A. BAFFIGI, R. GOLINELLI and G. PARIGI, *Bridge models to forecast the euro area GDP*, International Journal of Forecasting, **TD No. 456 (December 2002)**.

F. CINGANO and F. SCHIVARDI, *Identifying the sources of local productivity growth,* Journal of the European Economic Association, **TD NO. 474 (June 2003)**.

E. BARUCCI, C. IMPENNA and R. RENÒ, *Monetary integration, markets and regulation*, Research in Banking and Finance, **TD NO. 475 (June 2003)**.

G. ARDIZZI, *Cost efficiency in the retail payment networks:first evidence from the Italian credit card system,* Rivista di Politica Economica, **TD NO. 480 (June 2003)**.

L. GAMBACORTA and P. E. Mistrulli, *Does bank capital affect lending behavior?*, Journal of Financial Intermediation, **TD NO. 486 (September 2003)**.