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**Prospects of Household Borrowing
in Greece and their
Importance for Growth**

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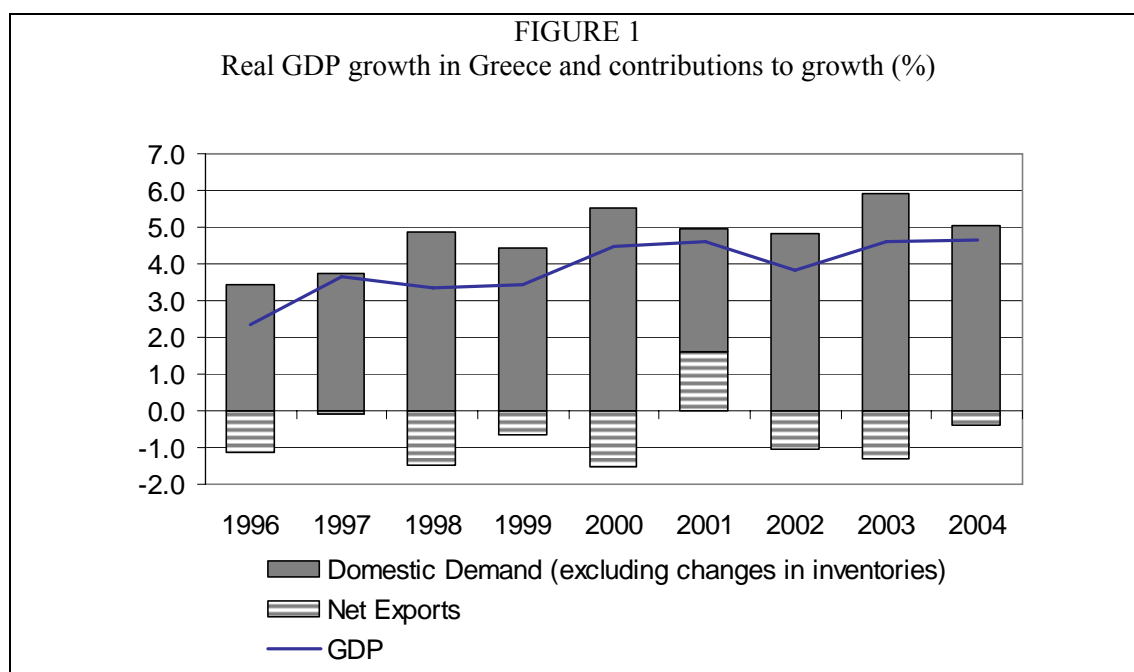
The Centre is in a continuous contact with foreign scientific institutions of a similar nature by exchanging publications, views and information on current economic topics and methods of economic research, thus furthering the advancement of economics in the country.

ABSTRACT

The present paper analyses the evolution of household borrowing in Greece, in an attempt to shed some light upon its future prospects and their importance for growth. The discussion presented suggests that the margins for further credit expansion to Greek households, at the pace observed in the last few years, are narrowing down. In future years, the need to maintain household debt at sustainable levels will eventually induce a drop in the rate of growth of household debt to substantially lower levels. As implied by a simple model developed in the paper, this drop will cause a considerable weakening of the injection that the increase in household debt contributes to the internal demand for consumption and housing. Taking into account the restrictions Greece is faced with in the area of public spending, the possibility of such a weakening is argued to justify concerns with regards to the prospects for domestic demand growth in the foreseeable future. Notably, the main conclusions of the paper appear to be supported by the experience of certain European countries that preceded Greece with respect to the liberalisation of their financial systems (Finland, Norway, Sweden and the UK).

1. Introduction

During the period 1996-2004, the satisfactory rates of growth of the Greek economy stemmed almost exclusively from the rapid expansion of the country's domestic demand. With the exception of year 2001, the effect of net exports on GDP growth in Greece has been negative (see Figure 1).



Given the degree of dependence of economic expansion in Greece upon the evolution of domestic demand, an important question arising is whether this demand component will continue to grow at high rates in the near future. Certain interesting indications regarding the future prospects of Greek domestic demand arise through the examination of its main drivers in the recent past.

One of the main sources of domestic demand growth over the last few years, has been the expansion of public sector expenditure, not only for investment purposes, but also for consumption. During the period 2000-2004, public consumption increased at an average rate of 4.6% at constant prices, while public fixed investment increased at an average rate of 7.7% at constant prices. The expansion of public expenditure was financed partly through the enlargement of the public debt, at rates which more recently rendered necessary the adoption of additional budgetary measures (e.g. the increase of the VAT rate from 18% to 19% in April 2005). According to Greece's Stability and Growth Program, the rates of change of public consumption will drop drastically in the next few years (see Table 1).

TABLE 1
Percentage growth rate of public consumption at constant prices

Year	Growth rate
2004	3.9%
2005	2.5%
2006	1.2%
2007	1.1%
2008	0.7%
<i>Source:</i> Ministry of Economics and Finance (2005).	

Apart from public expenditure, another important source of the expansion of domestic demand has been, in recent years, the increase of household spending for consumption and housing. Over the period 2002-2004, household consumer spending increased by an average annual rate of 3.5% at constant prices, while investment in housing increased by an annual rate of 5.4% at constant prices. These increases were funded partly through the fast expansion of household borrowing.

Returning to the question of whether domestic demand will continue to expand at high rates in the near future, it is clear that, given the expected restraint in public spending, the course of domestic demand will be determined to an increased extent by the evolution of household expenditure, which in turn will be affected considerably by the course of household borrowing for consumption and housing.

This article attempts to shed some light upon certain aspects of the phenomenon of household borrowing in Greece that justify concerns as to whether this category of borrowing will continue to develop and to boost domestic demand at the rates recently experienced.

2. Evolution and prospects of household borrowing in Greece.

As it can be seen in Table 2, from the time of liberalisation of housing and consumer credit until recently, household borrowing in Greece grew at very high rates. Over the period 2000-2004, the average annual rate of change of the outstanding balance of housing loans was equal to 31% at current prices, while the average annual rate of change of the outstanding balance of consumer and other loans was equal to 36.8% at current prices.

The intensity of the phenomenon of credit expansion towards Greek households becomes more visible through a comparison of developments in Greece to developments in the Euro Area. Over the period 2000-2004, Euro Area household debt at current prices grew

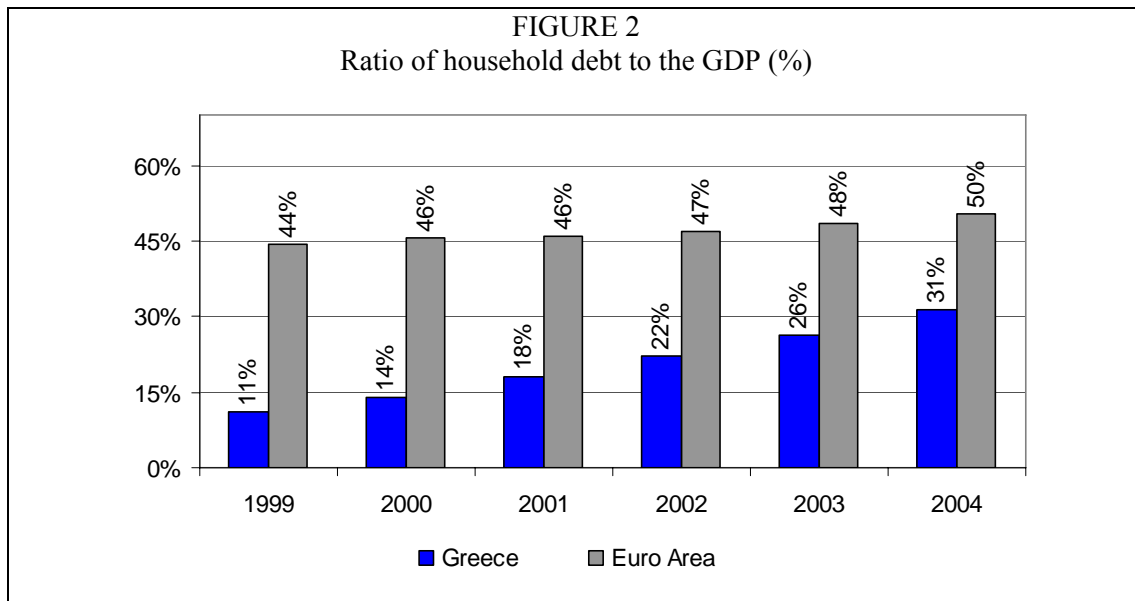
at an average annual rate of 8.7% in the case of housing uses and only 3.5% in the case of consumption and other uses.

TABLE 2
Analysis of domestic MFI loans to domestic households (current prices, end of year)

	Housing Loans			Consumer and Other Loans			Total		
	Balance (bil. €)	Change (bil. €)	Percentage Change	Balance (bil. €)	Change (bil. €)	Percentage Change	Balance (bil. €)	Change (bil. €)	Percentage Change
1995	3.58			1.24			4.82		
1996	4.56	0.98	27.4%	1.61	0.37	29.8%	6.17	1.35	28.0%
1997	5.65	1.09	23.9%	2.15	0.54	33.5%	7.80	1.63	26.4%
1998	6.84	1.19	21.1%	2.94	0.79	36.7%	9.78	1.98	25.4%
1999	8.59	1.75	25.6%	3.86	0.92	31.3%	12.45	2.67	27.3%
2000	11.27	2.68	31.2%	5.70	1.84	47.6%	16.97	4.52	36.3%
2001	15.65	4.38	38.9%	8.18	2.48	43.5%	23.83	6.86	40.4%
2002	21.22	5.57	35.6%	10.27	2.10	25.6%	31.50	7.67	32.2%
2003	26.53	5.31	25.0%	13.66	3.39	33.0%	40.20	8.70	27.6%
2004	33.13	6.59	24.8%	18.51	4.84	35.4%	51.63	11.44	28.4%
<i>Sources:</i> Bank of Greece, Alpha Bank (2003).									
‘MFI’ stands for ‘Monetary and Financial Institutions’.									

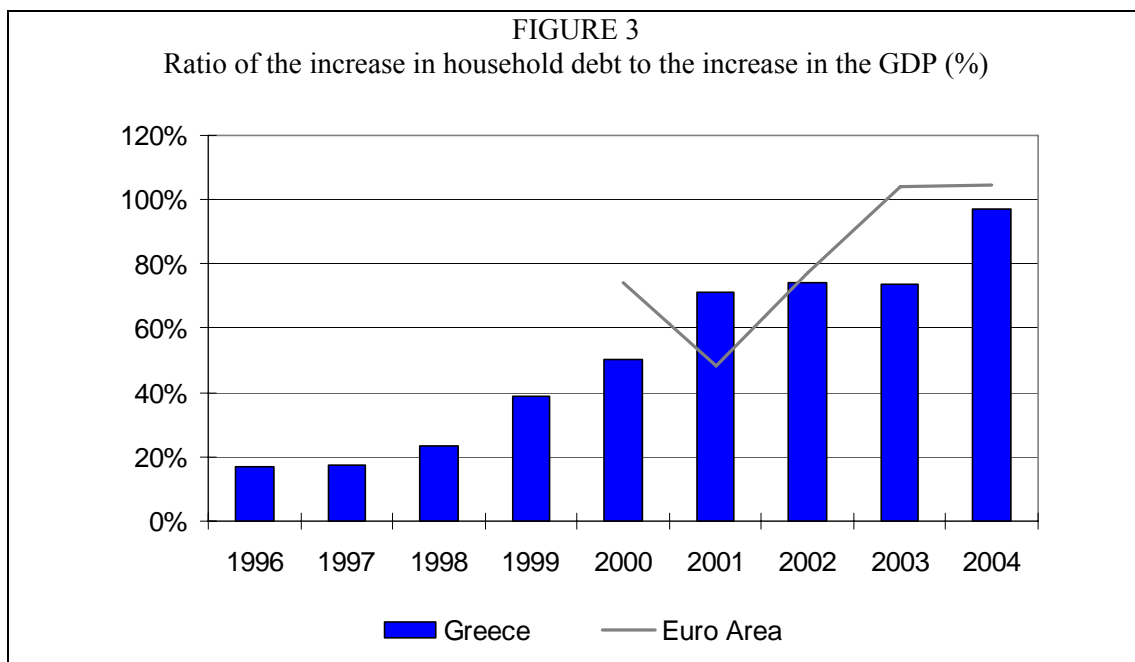
Despite its continuing rapid growth over several years, Greek household borrowing is still widely regarded as a figure with considerable potential for further expansion and therefore with significant capacity for feeding domestic demand in the near future. This perception is based on one hand upon the outlook for the preservation of interest rates at low levels in the foreseeable future and on the other hand upon the observation that the degree of borrowing of Greek households (i.e. the ratio of household debt to national income) continues to be rather low in Greece compared to other developed countries. As illustrated in Figure 2, despite the rapid convergence observed over recent years, the ratio of household debt to the GDP in 2004 was still much lower in Greece than in the Euro Area.

The tendency of households to assume additional debt is undoubtedly influenced both by their expectations concerning the level of interest rates and by their existing degree of borrowing. However, the formulation of forecasts regarding the development of household debt cannot be based solely upon the observation of these two parameters. Of great importance for the future evolution and prospects of household debt is also another side of the phenomenon: the rate at which this debt escalates.



Source: Bank of Greece & European Central Bank.

As it may be observed from Table 2, over the period 2002-2004 the annual rate of change of household debt has moderated compared to the period 2000-2001. Despite this fact, the value of the annual change in the debt, not only did not decline, but continued to increase rapidly. In 2004, Greek household debt increased by € 11.44 billion compared to the previous year, a sum which surpassed by far any other precedent. The escalation of the annual increment to the debt is explained by the fact that the high rates of debt growth are superimposed each year upon increased initial debt levels.



Source: Bank of Greece & European Central Bank.

Figure 3 depicts the evolution of the annual change in household debt as a percentage of the annual change in the GDP for Greece (period 1996-2004) and the Euro Area (period 2000-2004). As it can be seen from this Figure, in 2004 the increase in the borrowing of Greek households amounted to about 97% of the increase in the country's GDP, a percentage which lies very close to the respective ratio for the Euro Area.

The fact that Greece has approached the Euro Area with respect to the proportion of the increase in household debt to the increase in the GDP raises some initial doubts as to the margins for further credit expansion to households at the rates recently experienced. In order to clarify the validity of such doubts, it is useful to examine how household debt figures and their ratios to the GDP will develop in the event that the rates of GDP and debt growth remain around the levels observed over the last three years.

During the period 2002-2004, the average annual rate of growth of household debt at current prices was equal to about 29%, while the average annual rate of growth of the GDP at current prices was equal to about 8%. If these rates were to remain stable at the levels just mentioned up until 2010, household debt, the GDP and their relevant ratios would develop as illustrated in 'Scenario A' of Table 3.

According to Table 3, the preservation of the annual rate of growth of household debt at 29% would inflict, in a matter of only a few years, the escalation of the debt to levels excessive relative to household incomes. By 2007, the ratio of household debt to the GDP in Greece would have exceeded the current respective ratio for the Euro Area, while by 2010 household debt would have reached over 90% of Greece's GDP, thus clearly rendering Greek households overburdened with debt. With respect to the ratio of the annual change in household debt to the annual change in the GDP, it is noted that already from 2005, economic expansion in Greece would lag behind the credit expansion to households.

Since the preservation of the current rates of growth of household debt will soon lead to non viable debt levels, it is highly likely that in future years these rates will eventually decline considerably. This deceleration could commence earlier and develop gradually, or it could be delayed for a few years and outbreak thereafter more intensely. Table 3 presents two indicative scenarios with different patterns of deceleration and a common result as to the share of household debt in the GDP in 2010 (approximately 52%, i.e. a share which according to the prevailing trends will lie close to the respective Euro Area average). According to 'Scenario B', the rate of growth of household debt declines sharply from 2007 onwards, while according to 'Scenario C', the rate decelerates more gradually throughout the period 2005-2010.

TABLE 3

Indicative scenarios for the development of outstanding household debt over the period 2005-2010 (current prices)

	SCENARIO A				SCENARIO B				SCENARIO C			
	Outstanding Debt (billion €)	GDP (billion €)	Debt to GDP	Increase in Debt to Increase in GDP	Outstanding Debt (billion €)	GDP (billion €)	Debt to GDP	Increase in Debt to Increase in GDP	Outstanding Debt (billion €)	GDP (billion €)	Debt to GDP	Increase in Debt to Increase in GDP
2004	52	165	31%	97%	52	165	31%	97%	52	165	31%	97%
2005	67	179	37%	113%	63	177	36%	98%	65	177	37%	116%
2006	86	193	45%	135%	76	189	40%	107%	82	189	43%	137%
2007	111	208	53%	162%	89	202	44%	98%	98	202	48%	118%
2008	143	225	64%	193%	103	217	47%	94%	109	217	50%	83%
2009	184	243	76%	231%	116	232	50%	88%	120	232	52%	72%
2010	238	262	91%	275%	130	248	52%	86%	130	248	52%	59%
Scenario A: Annual debt growth=29%. Annual GDP growth=8%												
Scenario B: Annual debt growth =26% in 2005, 26% in 2006, 19% in 2007, 12% in 2008, 10% in 2009 and 8% in 2010. Annual GDP growth =7%												
Scenario C: Annual debt growth =25% in 2005, 21% in 2006, 17% in 2007, 15% in 2008, 13% in 2009 and 12% in 2010. Annual GDP growth =7%												

3. The effects of the rates of credit expansion to households on domestic demand

Borrowing exerts opposing effects on domestic demand: the increase in the debt has an expansionary effect, while the debt service for pre-existing and new loans has a contractionary effect.

When the rate of debt growth is similar to the debt service, the latter expressed as a percentage of the debt, the aforementioned opposing effects cancel out each other, and the net expansionary effect on domestic demand is of little importance. Therefore, of little importance will also tend to be the variation of this effect through time. However, when, as it has happened in the case of Greece, the rate of debt growth is far higher than the debt service as a share of the debt, the net expansionary effect on domestic demand is strong and intensely increasing. As it has already been argued, the very high rates of household debt growth in Greece cannot be preserved for long. Importantly, as it turns out from the analysis that follows, a decline in these rates will be sufficient to lead to a severe weakening of the net expansionary effect on domestic demand, even if the level of the rates still remains quite high, thus leading to large annual increments to the debt.

For a given economy, household debt at the end of any year j may be expressed as:

$$S_j = S_{j-1} (1 + r_j) \quad (1)$$

where S_{j-1} is household debt at the end of the previous year and r_j is the growth rate of household debt in year j . Equation (1) implies that the change in household debt in year j may be expressed as:

$$S_j - S_{j-1} = S_{j-1} (1 + r_j) - S_{j-1} \quad (2)$$

It is practically certain that households spend the funds raised through debt shortly after obtaining them - no one has a reason to borrow unless he means to spend. Therefore, an increase in household debt within year j will have a nearly equivalent expansionary impact on that year's domestic demand. In parallel, given that the assumption of debt by households creates an obligation for the payment of interest and principal repayments and hence an

obligation for the cutback of expenditure in subsequent years, domestic demand in year j will be negatively influenced by the debt burden accumulated up until the beginning of this year¹.

If the sum of interest and principal repayments paid by households in year j is expressed as a product $\rho_j S_{j-1}$, where $0 < \rho_j$, and if additionally it is assumed that households spend the funds borrowed in year j within that year, then for year j , the net injection that the change in household debt contributes to domestic demand is equivalent to:

$$\begin{aligned}
 I_j &= \text{change in debt} - \text{interest and principal repayments} && \Rightarrow \\
 I_j &= (S_j - S_{j-1}) - (\rho_j S_{j-1}) && \Rightarrow \\
 I_j &= S_{j-1} (1 + r_j) - S_{j-1} - \rho_j S_{j-1} && \Rightarrow \\
 I_j &= S_{j-1} (r_j - \rho_j) && (3)
 \end{aligned}$$

From equation 3, one observes that in order to have $I_j > 0$, it is not sufficient that $r_j > 0$. In any given year j , domestic demand will be reinforced by household debt, only if the growth rate of this debt is sufficiently high to exceed the ratio of the interest and principal repayments to S_{j-1} , i.e. only if $r_j > \rho_j$.

The level of ρ_j differs among economies, depending on the prevailing interest rates, the average duration of household and consumer loans and the proportion of consumer loans in total household debt. As consumer loans carry larger interest rates and are characterized by shorter repayment periods compared to housing loans, the larger the proportion of consumer loans in the total debt, the higher will be the value of ρ_j .

Taking into account the proportion of consumer loans in the total debt of Greek households (34% in 2004), but also the comparatively high - by Euro Area standards - level of Greek interest rates on consumer loans (6.5%-15.0% depending on the terms for granting), one may gather that in the case of Greece, ρ_j takes at an annual basis quite high values. While the estimation of the value of ρ_j for Greece is beyond the scope of this article, a very rough indication of the possible size of ρ_j in a country like Greece may arise by observing the example of a household that assumed in year $j-1$ a consumer loan of €34 thousand with a fixed annual interest rate of 9% and repayment in 7 equal annual instalments, and a housing loan of €66 thousand with a fixed annual interest rate of 3.5% and repayment in 15 equal

¹ Loans assumed in year j for which interest and/or principal repayments are due within the year will also have a negative effect on domestic demand in year j . For the sake of simplicity, we may avoid taking into account this effect separately, without any significant consequence for the conclusions of our analysis.

annual instalments². This household will be obliged in year j to pay interest & principal repayments equal to €12.5 thousand, meaning that the household's ρ_j equals $(12.5/100)=12.5\%$.

It is for certain that the growth rates of household debt prevailing in Greece over the period 1996-2004 satisfied with ease the condition $r_j > \rho_j$. With an r_j much higher than ρ_j and with a rapidly expanding S_{j-1} , it is clear from equation (3) that over the period 1996-2004, the value of I_j followed an upward trend. The path of I_j during the period 1996-2004 and the decisive role of the values of r_j in determining this path may be better understood through a simple model of the evolution of I_j in n years ($j=1,2,\dots,n$).

Let us assume that year 1 begins with an outstanding debt of S_0 carried over from the previous year. From equations (3) and (1) we know that:

$$\begin{aligned} I_1 &= S_0(r_1 - \rho_1) \\ I_2 &= S_1(r_2 - \rho_2) = S_0(1+r_1)(r_2 - \rho_2) \\ I_3 &= S_2(r_3 - \rho_3) = S_1(1+r_2)(r_3 - \rho_3) = S_0(1+r_1)(1+r_2)(r_3 - \rho_3) \\ &\vdots \\ I_n &= S_0(1+r_1)(1+r_2) \dots (1+r_{n-1})(r_n - \rho_n) \end{aligned} \quad (4)$$

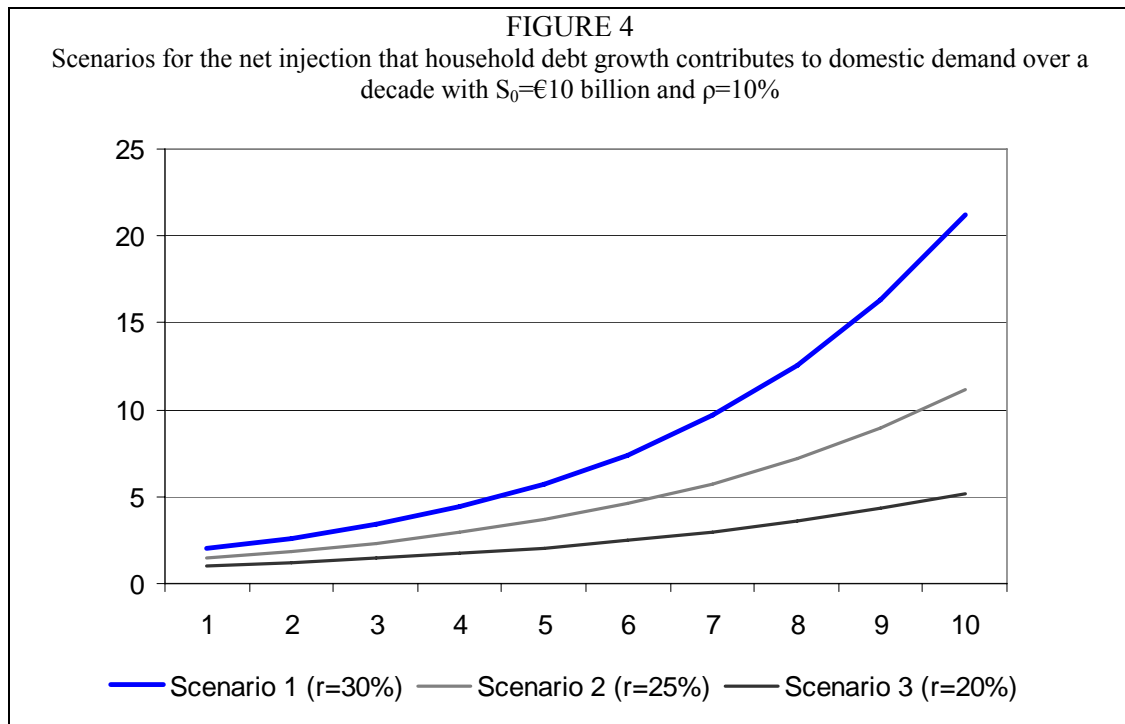
From equation (4) it follows that if $r_1 = r_2 = \dots = r_n = r$ and $\rho_1 = \rho_2 = \dots = \rho_n = \rho$, then:

$$I_j = S_0(1+r)^{j-1}(r-\rho) \quad (5)$$

The exponential form of relationship (5), combined with the condition that $I_j > 0$ only if $r > \rho$, renders clear the fact that the path of I_j through time will depend critically upon the value of r .

Figure 4 illustrates three alternative scenarios for the evolution of I_j in a ten year period ($j=1,2,\dots,10$) that begins with a debt of $S_0 = \text{€}10$ billion and is characterised by a stable $\rho=10\%$. In ‘Scenario 1’ the assumption is that r remains stable at 30%, a percentage which is approximately equal to the average annual growth rate of the debt of Greek households over the decade 1995-2004. In ‘Scenario 2’ and ‘Scenario 3’ the assumption is that $r=25\%$ and $r=20\%$ respectively.

² Notice that the household's ratio of housing to consumer debt is roughly equal to the respective ratio for the Greek economy, while the interest rates chosen are currently typical of a standard consumer loan and a standard housing loan.

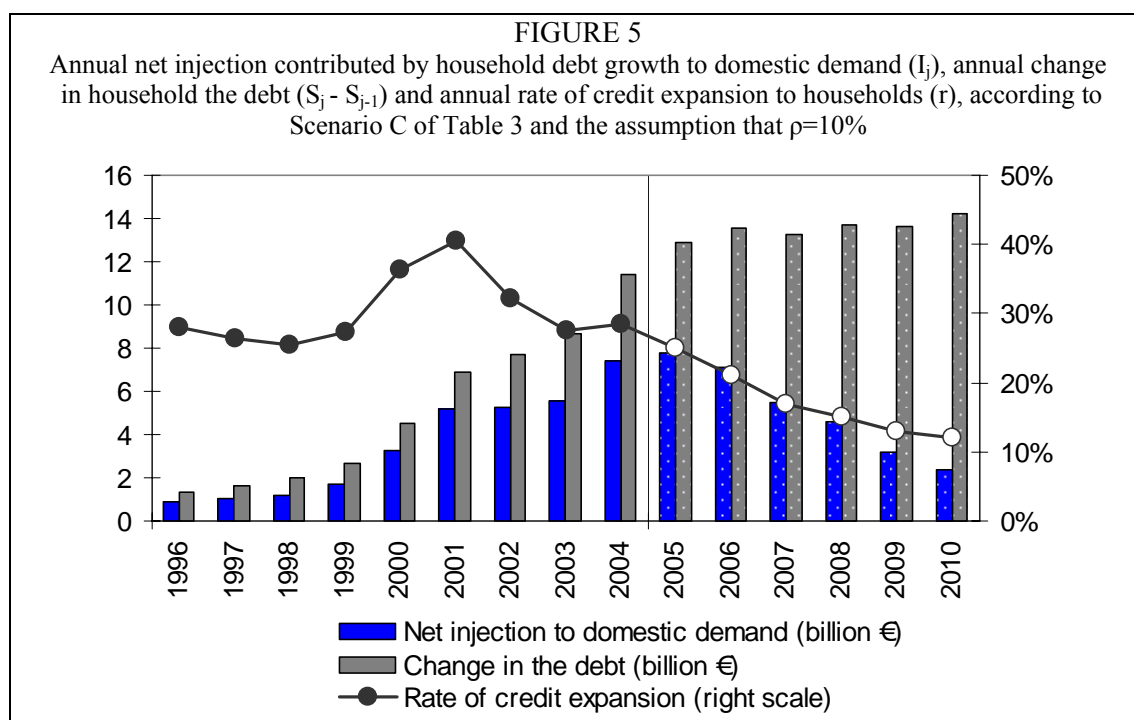


As it may be clearly observed from Figure 4, even relatively limited variations in the rates of growth of household debt are sufficient in order to alter radically the annual injection that the increase in household debt contributes to domestic demand. While rates of credit expansion similar to those observed over the last decade in Greece induce a remarkable strengthening of domestic demand, rates in the area of 20% produce a comparatively much weaker and slower effect.

Observing carefully all that was up to now mentioned with respect to the dependence of I_j upon r_j , one is led to the conclusion that the forecasted decline of the rates of credit expansion to Greek households will reduce considerably the thrust to domestic demand provided by household debt. In Figure 5, an attempt is made to illustrate the weakening of the role of debt as a driver for domestic demand in the event that the rates of credit expansion to Greek households drop according to Scenario C of Table 3.

Figure 5 consists of two parts. The left part, which corresponds to the period 1996-2004, depicts the actual annual rates of credit expansion, the corresponding increases in household debt and the net injections that these increases contribute to domestic demand. The right part, which corresponds to the period 2005-2010, simulates the path of the same three variables on the basis of Scenario C of Table 3. It is noted that for the entire period 1996-

2010, the net injections contributed to domestic demand were computed by applying equation (4) with ρ stable at 10%.

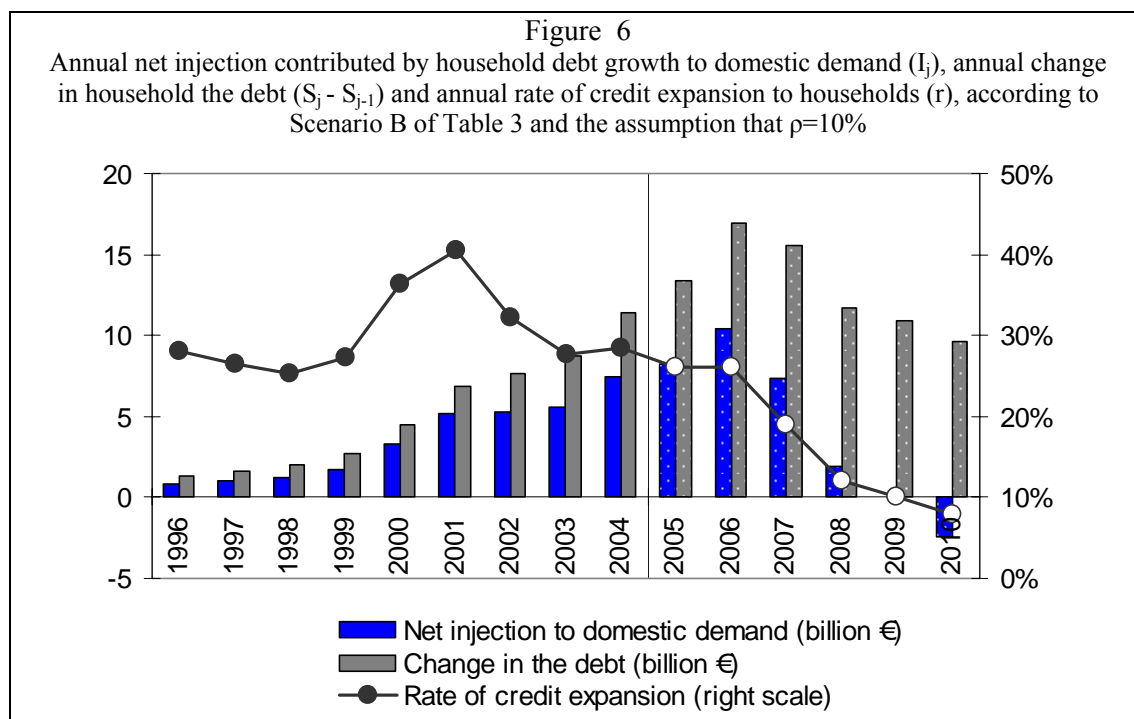


As it appears from Figure 5, during the period 1996-2004, both the annual change in the debt and the annual contribution of this change to domestic demand followed an upward trend. On the contrary, over the period 2005-2010, the annual contribution to domestic demand shows a strong and continuous decline, despite a mildly increasing trend in the annual change in the debt. For the period 2005-2010, and according to scenario C of Table 3, household debt expands by very large sums every year, but this borrowing becomes progressively less effective in strengthening domestic demand.

Worrying conclusions as to the implications of a decline in the rates of credit expansion for domestic demand also arise from a simulation based on Scenario B of Table 3. As shown in Figure 6, the annual contribution of changes in household debt to domestic demand is led by 2010 to negative levels, through a delayed but sharper deceleration of credit expansion rates.

At this point it is worth noting that, given the preceding analysis, the prevailing rates of credit expansion to Greek households appear to place the country in a negative, for the domestic demand, path of developments, irrespective of what will occur in the future in the areas of interest rates and household debt default rates. A rise, either in interest rates, or in the percentage of borrowers that fail to meet their obligations, does not constitute a requirement

for the weakening of household borrowing as a mechanism for the support of domestic demand in Greece. However, if such rises were to occur, the weakening just mentioned would be significantly intensified.



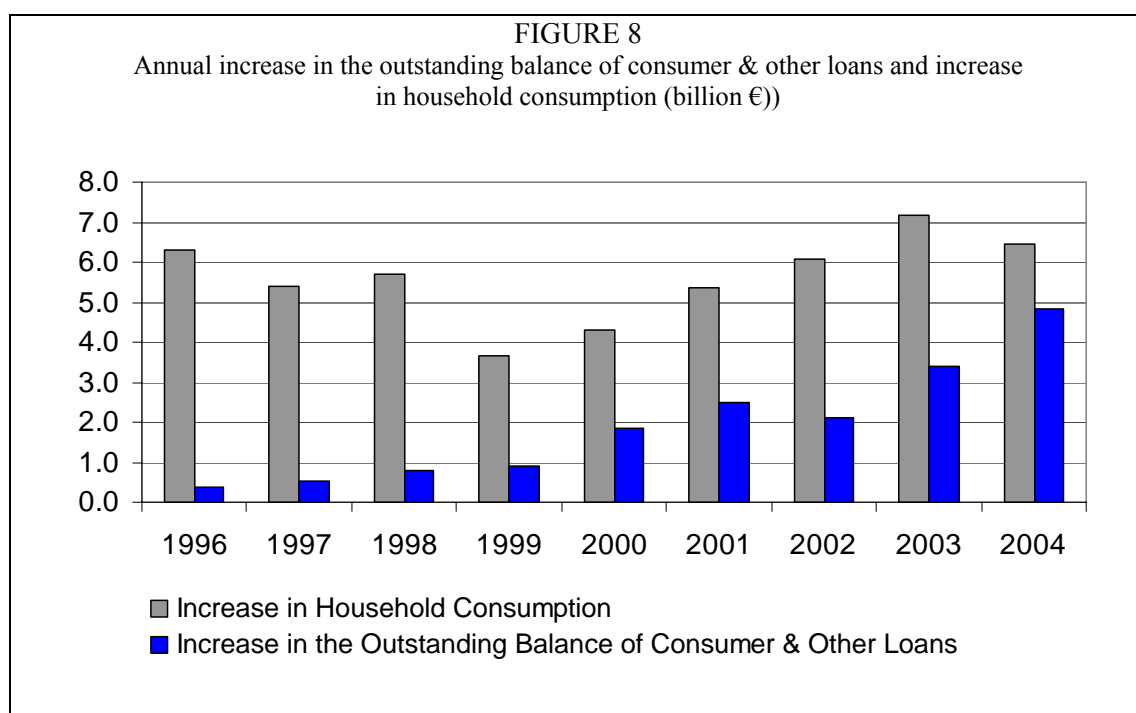
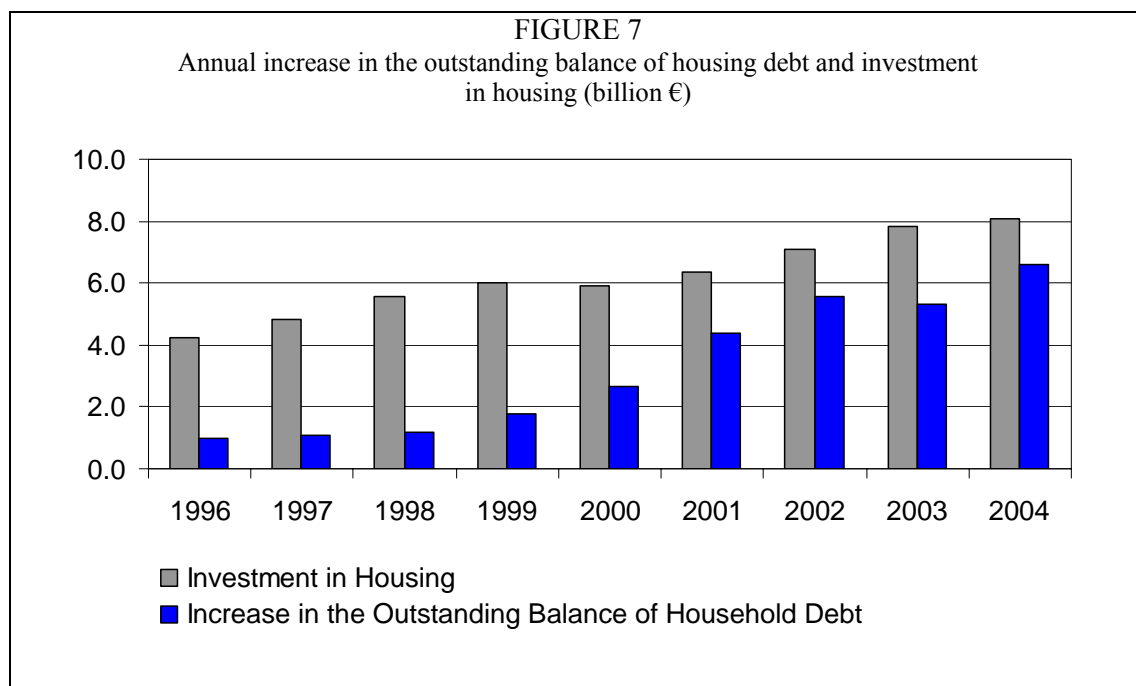
4. The dependence of private consumption and investment in housing upon household borrowing

Having reached the conclusion that the unavoidable decline of the rates of credit expansion to Greek households will damage significantly the boost that the increase in household debt provides to domestic demand, the next question arising concerns the components of demand that are likely to be affected in a more direct and, perhaps, a more intense manner from this process.

The funds raised by households through borrowing are being spent mainly either for the purchase of housing or for the consumption of goods and services. In the case of Greece, household borrowing appears to have become in recent years a particularly decisive factor, both for the levels of housing investment and for the evolution of private consumption.

Figure 7 shows the evolution of housing loans and housing investment in Greece over the period 1996-2004. As it can be clearly observed from this Figure, the ratio of the annual increase in the outstanding balance of housing loans to the annual investment in housing

jumped from a level of about 22% during the period 1996-1998, to 45% in 2000 and 82% in 2004. Despite the fact that an increase in housing debt does not translate in its entirety to an increase in the demand for new houses, both due to the mechanism described in equation 4 and because a percentage of households borrows in order to purchase an old house, the developments just described clearly imply that, in Greece, housing loans have evolved into a critical factor for the evolution of the sector of housing construction.



Source: Bank of Greece & National Statistical Service of Greece.

With respect to private consumption, from Figure 8 it follows that the ratio of the annual increase in the outstanding balance of consumer and other loans to the annual increase of household consumption reached 75% in 2004, against 34% in 2002 and just 6% in 1996. Following its particularly sharp increase in 2004, consumer borrowing appears to have evolved into a key driver for household consumption.

Given what was just mentioned with respect to the increased dependence of private consumption and investment in housing upon household borrowing, it is clear that a decline in the rate of growth of household debt in Greece will have immediate and significant negative effects both for the country's housing construction sector and for various other sectors in the production and trading of consumer goods and services.

5. International experience

The aforementioned conclusions with respect to the future course of the rates of change of household debt in Greece and the potential effects of this course on the Greek economy, appear to be supported by the experience of certain European countries that preceded Greece with respect to the liberalisation of their financial systems.

In most western European countries, the abolition of the main barriers to household borrowing from the monetary and financial institutions was completed around the mid 1980s. Debelle (2004) provides a very interesting description of subsequent developments in four countries: Finland, Norway, Sweden and the UK.

As it can be clearly seen from Table 4, in the three Scandinavian countries, but also in the UK, the liberalisation of the financial system, in conjunction to a series of other favourable factors (low real interest rates on loans, favourable tax treatment of borrowers, optimism with regards to economic development prospects), led to a four-to-five-year period of fast credit expansion to households. This period was characterised by satisfactory rates of consumption growth, large increases in housing prices and overall good growth performance.

Towards the end of the 1980s or the beginning of the 1990s, the aforementioned picture of fast economic growth and credit expansion was completely reversed in all four countries. The enlarged debt burdens of households, in conjunction to a series of endogenous and exogenous unfavourable developments (interest rate increases, restraint in government spending, downturn of the world economy) led to a large decline in the rates of change of

household debt, a slowdown in domestic consumption, a serious housing market slump and sluggish or even negative GDP growth.

TABLE 4
Boom and bust in Finland, Norway, Sweden and the UK (annual changes %)

	Finland	Norway	Sweden	UK
Boom	March 1986-March 1990	March 1984-March 1988	March 1986-March 1990	June 1985-June 1990
Change in household debt	17.9	16.3	21.0	18.9
Change in consumption	3.8	3.6	2.8	5.1
Change in house prices	15.4	-	15.7	14.9
GDP growth	4.5	3.6	2.7	3.4
Bust	June 1990-March 1994	June 1988-June 1990	June 1990-December 1993	Sept/er 1990-March 1993
Change in household debt	-1.5	-8.0	-8.7	6.5
Change in consumption	-2.4	-1.5	-1.0	0.0
Change in house prices	-9.3	-	-3.2	-2.9
GDP growth	-3.1	0.7	-1.2	-0.3
<i>Source:</i> Debelle (2004).				

6. Conclusions

The present paper argued that the margins for further credit expansion to Greek households at the pace observed in the last few years have been limited considerably. In future years, the need to maintain household debt at sustainable levels will eventually induce a drop in the rate of growth of household debt to substantially lower rates. As implied by a simple model presented in the paper, this drop will induce a substantial weakening of the injection that household debt contributes to the internal demand for consumption and housing. Taking into account the restrictions Greece is faced with in the area of public spending, the possibility of such a weakening was argued to create concerns with regards to the prospects for domestic demand growth in the foreseeable future and therefore with regards to the overall development prospects of the Greek economy.

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