

PROSPECTS FOR HOUSEHOLD BORROWING IN GREECE AND THEIR IMPORTANCE FOR GROWTH

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Abstract

The paper analyses the evolution of household borrowing in Greece, in an attempt to examine its importance for growth. The analysis suggests that the need to maintain household debt at sustainable levels is likely to 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, a possible drop will cause a considerable 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 is argued to justify concerns with regard to the future prospects of domestic demand growth.

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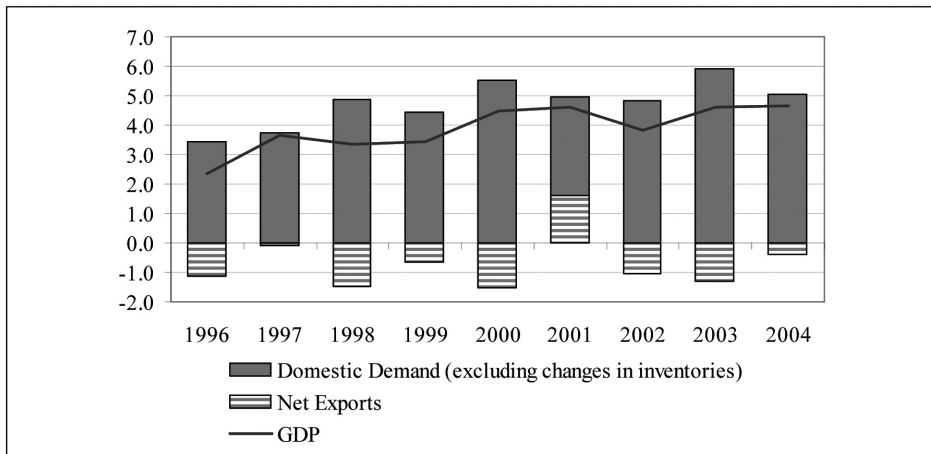
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1. Introduction

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 the year 2001, the effect of net exports on GDP growth in Greece has been negative (see Figure 1).

Figure 1. Real GDP growth in Greece and contributions to growth (%)



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 annual rate of 4.6% at constant prices, while public fixed investment increased at an average annual 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 (Ministry of Economics and Finance, 2005).

Apart from public expenditure, another important source of the expansion of domestic demand in recent years has been 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 average annual rate of 5.4% at constant prices. These increases appear to have been funded partly through the fast expansion of household borrowing. The annual increase in the outstanding balance of housing loans reached 82% of the annual investment in housing in 2004, compared to around just 22% during the period 1996-1998. Similarly, the annual increase in the outstanding balance of consumer and other loans reached 72% of the annual increase of household consumption in 2004, compared to just 6% in 1996. Despite the fact that an increase in housing debt does not translate in its entirety into an increase in the demand for new houses¹, these developments appear to suggest that, in the case of Greece, household borrowing has in recent years contributed significantly both to housing investment and to private consumption growth.

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 paper 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 can be seen in Table 1, household borrowing in Greece has grown at very high rates since the deregulation of housing and consumer credit. More particularly, 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 apparent from a comparison of developments in Greece with 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 at only 3.5% in the case of consumption and other uses.

1. A percentage of households borrows in order to purchase an existing house or to buy land.

Table 1. 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%

Sources: 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 the one hand upon the expectation that the level of interest rates will continue to be relatively low 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 comparatively low. The ratio of household debt to the GDP in 2004 was still much lower in Greece (31%) than in the Euro Area (50%), despite the rapid convergence observed over recent years.

The tendency of households to assume additional debt is influenced both by their expectations concerning the level of interest rates² and by their existing degree of borrowing³. However, although a relatively low degree of household borrowing does

2. According to the life-cycle model, real interest rates constitute one of the main determinants of household debt. Real interest rate shocks have been identified by Barnes and Young (2003) as being one of the main causes of the rise of in US household debt since the 1970s. Tudela and Young (2005) have shown that in the case of the UK, a rise in the real interest rate to the levels seen in 1996-2000 would cause a significant reduction of the household debt to income ratio, while if real interest rates were to remain at low levels, the ratio would rise substantially further from current levels.

3. Since financial markets are not perfect, lenders practice credit rationing, meaning that the ability of individuals to borrow is influenced by, among other things, their current incomes (see for example Stiglitz and Weiss, 1981; Bester, 1981; Rinaldi and Sanchis-Arellano, 2006). This implies that the household's existing debt to income ratio will weigh on the lender's decision to grant a new loan, irrespective of the household's future earnings potential.

suggest that, other things being equal, there is considerable potential for further debt expansion, it does not follow that a very high annual rate of debt growth may be sustained for long. As in a country with rapidly growing debt the high rates of debt growth are superimposed each year upon substantially increased debt levels, the distance between a relatively low and a relatively high degree of debt may be covered much sooner than would appear at first sight. Once a relatively high debt-to-income ratio has been reached, households will be pressed to reduce their credit expansion in order to maintain solvency.

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 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 2.

According to Table 2, the preservation of the annual rate of growth of household debt at 29% would, in a matter of only a few years, render debt 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. It is noted that as of 2005, the annual increase in household debt would have overtaken the corresponding increase in nominal GDP.

Since the preservation of the current rates of growth of household debt would soon lead to very high debt-to-income ratios, it is worth examining the possibility of a considerable decline in these rates of growth and in particular their impact on the domestic demand size. To clearly depict such a result, one could assume two possible scenarios. According to these scenarios the deceleration could commence earlier and develop more gradually, or it could be delayed for a few years and unfold thereafter more intensely. Table 2 presents these two indicative scenarios with different patterns of deceleration and a common end result as to the share of household debt in the GDP in Greece for 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 2. 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%	65	177	37%	116%	65	177	36%	112%
2006	86	193	45%	135%	82	189	43%	137%	78	189	41%	109%
2007	111	208	53%	162%	98	202	48%	118%	91	202	45%	100%
2008	143	225	64%	193%	109	217	50%	83%	104	217	48%	90%
2009	184	243	76%	231%	120	232	52%	72%	117	232	50%	82%
2010	238	262	91%	275%	130	248	52%	59%	129	248	52%	79%
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, 14% in 2008, 12% in 2009 and 11% in 2010. Annual GDP growth = 7%.												

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

The model

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 each other out, and the net expansionary effect on domestic demand is of little importance. Therefore, the variation of this effect through time will also tend to be of slight importance. However, when, as 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 increasing steeply. As appears from the analysis that follows, under the latter circumstances a decline in the debt growth 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 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 year⁴.

4. Loans assumed in year j for which interest payments 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.

If the sum of the interest payments 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 household debt contributes to domestic demand is equivalent to:

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

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 payments 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, and the proportion of consumer loans in total household debt. As consumer loans carry larger interest rates compared to housing loans, the larger the proportion of consumer loans in the total debt, the higher will be the value of ρ_j .

The path of I_j across time 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:

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

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 2. Scenarios for the net injection that household debt contributes to domestic demand over a decade with $S_0 = \text{€}10$ billion and $\rho = 7\%$

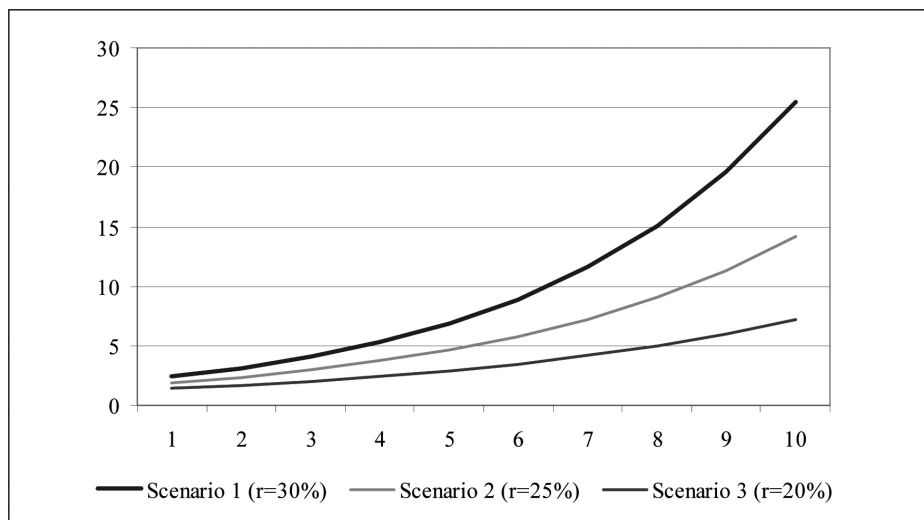


Figure 2 illustrates three alternative scenarios for the evolution of I_j in a ten year period ($j=1, 2, \dots, 10$) that begins with a debt of $S_0 = \text{€}10$ billion and is characterised by a stable $\rho = 7\%$. In ‘Scenario 1’ the assumption is that r remains stable at 30%, (a percentage which 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.

As may be clearly observed from Figure 2, even relatively limited variations in the rates of growth of household debt are sufficient to alter radically the annual injection that household debt contributes to domestic demand. While high 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.

The Case of Greece

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 (usually between 9% and 16.0% de-

pending on the terms of the loan), 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 paper, a very rough indication of the possible size of ρ_j in a country like Greece may be obtained by observing the example of a household that assumed in year $j-1$ a consumer loan of €34 thousand at a fixed annual interest rate of 12%, and a housing loan of €66 thousand at a fixed annual interest rate of 4.5%⁵. This household will be obliged in year j to pay interest equal to €7.1 thousand, meaning that the household's ρ_j equals $(7.1/100)=7.1\%$.

It is 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 for Greece followed an upward trend.

Observing carefully all that has been said with respect to the dependence of I_j upon r_j , one is led to the conclusion that a significant decline of the rates of credit expansion to Greek households would reduce considerably the thrust to domestic demand provided by household debt. An illustrative example to this end is presented in Figures 3 and 4.

In Figure 3, 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 2.

Figure 3 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 2. 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 7%.

As appears from Figure 3, during the period 1996-2004, both the annual change in the debt and the annual contribution of the debt to domestic demand followed an upward trend. By contrast, over the period 2005-2010, the annual contribution to domestic demand shows significant and continuous decline, despite a more or less stable annual change in the debt. For the period 2005-2010, and according to scenario C of Table 2, household debt expands by very large sums every year, but this borrowing becomes progressively less effective in strengthening domestic demand.

5. Note 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.

Figure 3. Annual net injection contributed by household debt to domestic demand (I_j), annual change in household the debt ($S_j - S_{j-1}$) and annual rate of credit expansion to households (r), according to Scenario C of Table 3 and the assumption that $\rho = 7\%$

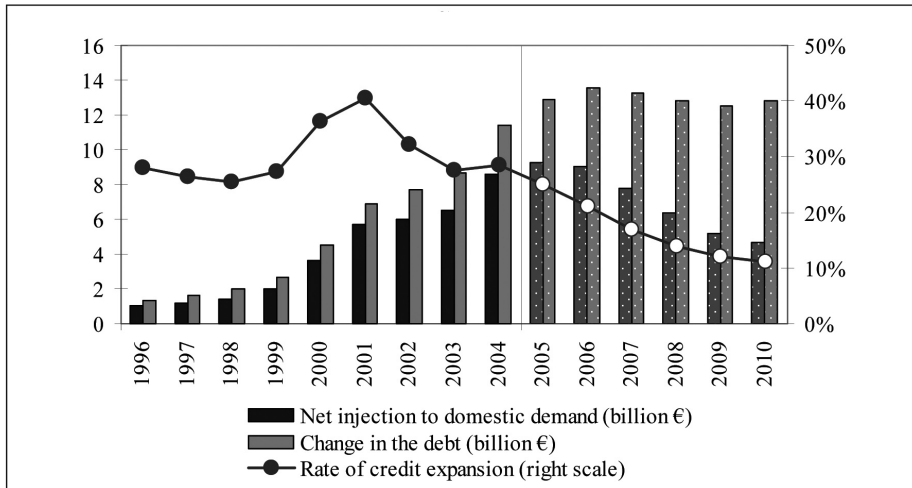
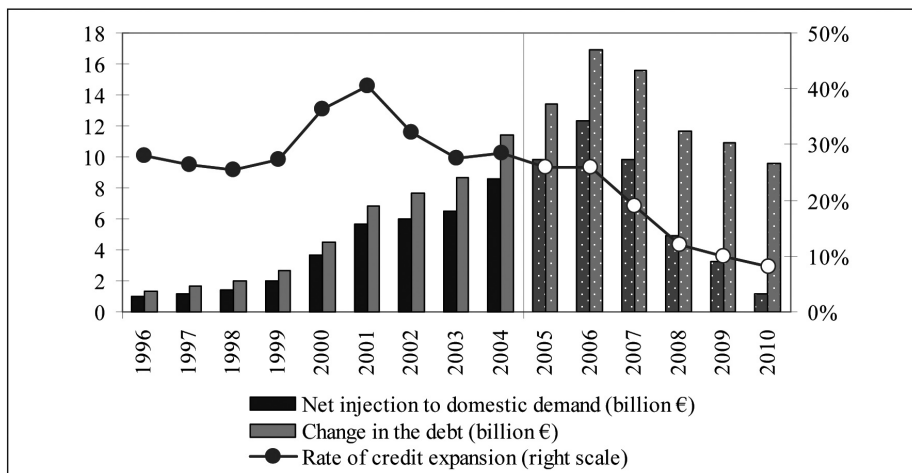


Figure 4. Annual net injection contributed by household debt to domestic demand (I_j), annual change in household the debt ($S_j - S_{j-1}$) and annual rate of credit expansion to households (r), according to Scenario B of Table 3 and the assumption that $\rho = 7\%$



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 2. As shown in Figure 4, the annual contribution of changes in household debt to domestic demand is led by 2010 to very low levels, through a delayed but sharper deceleration of credit expansion rates.

At this point it is worth noting that, given the preceding examples, the prevailing rates of credit expansion to Greek households may 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.

Having reached the conclusion that a decline of the rates of credit expansion to Greek households will damage significantly the boost that household debt provides to domestic demand, a question arises concerning 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 spent mainly either for the purchase of housing or for the consumption of goods and services. As already indicated in section 1, in the case of Greece, household borrowing has become in recent years an important factor, both for the levels of housing investment and for the evolution of private consumption. On the basis of this observation it would seem reasonable to expect that the foreseen decline in the rate of growth of household debt in Greece would have a direct and significant negative impact on the country's housing construction sector and on various other sectors in the production and trading of consumer goods and services. However, the drawing of safer conclusions on this issue would demand further empirical work that is beyond the scope of the present paper.

4. Conclusions

In most economies, the need to maintain household debt at sustainably moderate levels is likely to induce a drop in the rate of growth of household debt to low rates. As implied by a simple model presented in the paper, such a drop would induce a substantial weakening of the injection that household debt contributes to the internal demand for consumption and housing. In the case of Greece, taking into account the restrictions in the area of public spending, the possibility of such a weakening creates concerns with regard to the prospects for domestic demand growth in the foreseeable future and therefore with regard to the overall development prospects of the Greek economy.

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