

Household Debt in Turkey: The Critical Threshold for the Next Crisis

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Abstract

Turkey by and large avoided the financial meltdown of 2008-2009 thanks to its moderate level of household debt ratio and relatively sound public finance structure. The stylized fact is that the consumption loss as a percentage of GDP has been greater for the countries with higher growth rates of household debt-to-income ratios prior to the global crisis. Although Turkey also witnessed a surge in household debt levels, the starting point was so low that the general effect was not as destructive. We study two main factors that will make this dynamic more fragile and hence increase the likelihood of a financial crisis in the future: (1) Due to formalization of land and real estate markets, home ownership rates decline for the median group of households which constitute the backbone of the labor force and (2) The share of consumer credit in household budgets increase steadily for the lower and middle income groups. Both factors have the potential to induce dramatic rises in household debt-to-income ratios and create systemic financial risks . We use a simple Kaleckian model to study the relationship between these factors and the critical threshold of household debt-to-income ratio in Turkey.

JEL Classifications: G01. E32. R31

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1 Introduction

Consumption-led recovery in Turkey which began after the 2001 crisis and continued onwards is generally viewed as a success story. However, the fragility of the household balance sheet dynamics is largely ignored. For example in 2010 among 34 OECD members the household liabilities increased fastest by 12.1% and 10.8% in Greece and Turkey, respectively. Nevertheless, policy makers as well as the mainstream economists preferred to focus on public sector balance sheet dynamics in Turkey, which are in sound position in comparison to the EU and US economies. The saving rate in Turkey declined to its historical lowest level in the same period, yet the public debt-to-GDP ratio became the yardstick to judge the financial stability.

We argue that underestimating the surging household debt can be a fatal mistake. Although the Great Depression had offered many lessons on the importance of household debt dynamics in both triggering the crisis and aggravating the duration and severity of the downturn, economists and policy makers largely ignore these (Eichengreen and Mitchener 2003 [?])¹. The recent global crisis reminded us of these lessons and the mainstream economists as well as IMF, OECD and World Bank recently turn back to the question of why households debts rise and what the consequences would be (IMF 2012 [?]).

As Eggertsson and Krugman (2010) [?] demonstrates gross debt matters as long as the lenders and debtors are two different groups. In various credit rationing models, households suffer from sudden stops or rapid decline in consumer credit. And the outcome is a volatile and lower consumption growth. In the Turkish case we also witness what Mason and Jayadev (2012) [?] underline as the "Fisher Dynamics for the Household Sector". As the inflation rate declines in an environment of low household income growth and high or moderate levels of effective nominal interest rates, households are obliged to increase net borrowing. Furthermore as we will discuss shortly in the next section, increasing formalization in the housing market also put considerable burden on the indebted households. Lower home ownership rates decrease overall disposable

¹Eichengreen and Mitchener (2003) is especially relevant. The title of their study is "The Great Depression a Credit Boom Gone Wrong", which is quite telling.

income as the "imputed rental income" is foregone and squeeze the households in terms of interest payment capacity even with a given (non-increasing) debt level. Moreover, indebtedness in Turkey rises involuntarily due to the supply side of the credit market, and these two factors combined would lead to long-run instability.

The structure of the paper is as follows. The next section presents a brief evaluation of the existing studies. The third section reviews the stylized facts. In the forth section we set up a simple Kaleckian model in which debtors and creditors are distinct groups with different behavioral features. The fifth section contains the discussion of the expected results due to changing patterns in the housing market and the capacity for debt service. The last section concludes.

2 Related Literature

The relationship between slow income/wage growth and increasing debt burden is documented by various studies. Pollin (1990) [?], for example, argues that the increase in household indebtedness beginning in the early 1970s was due to efforts to maintain past living standards in a period of low wage growth. Dynan (2012)[?] uses household-level data to examine the link between leverage and consumption and finds that highly leveraged home owners had larger declines in spending between 2007 and 2009 than other home owners, despite having smaller changes in net worth.

There are also many studies focusing on the relationship between consumer debt dynamics and economic performance, mainly output growth (Palley 1994 [?], Dutt 2006 [?], Barba and Pivetti 2009 [?], Hein 2012 [?], Basu 2012 [?], Azad 2012 [?]). In the simplest case as in Palley (1994) [?], the household debt plays a contradictory role in aggregate demand and accumulation dynamics. On the one hand, additional debt enhances further consumption thus increases aggregate demand but on the other hand it causes higher interest payments to lenders thus decreases the overall aggregate demand.

The various channels through which the fragility in balance sheets of households may affect the output are emphasized in recent studies. For example in Dutt (2012), the increase in indebtedness of the households would imply a transfer of income from

the workers to capitalists/rentiers with lower propensity to consume, thus leading to lower output growth rates in the short-run. In the long-run the ultimate effect depends on mainly the relative levels of initial growth rates, savings behaviour of capitalists and the interest rate.

In Hein (2012), the rentier/capitalists decide how much of their savings should be allocated to consumer and corporate loans. The firms enjoy higher aggregate demand derived from increasing household borrowing but also suffer as the available funds to finance investment are declining in relative terms. The critical insight is that the creditors could decrease the availability of loans to households after a certain threshold of consumer debt is reached, thus negatively affecting the overall consumption and growth rate.

In Charpe et.al. (2012) [?]. the credit demand of households and the profits of banks build a feedback loop and lead to instability. There is another loop in which prices rise at a slower rate than the real wages thus dampening accumulation due to declining profit rates. Finally, in a Fisher-dynamics accounting framework Mason and Jayadev (2012) examine the household budget-debt developments in US and argue that due to the changes in nominal growth rates, effective interest rates on debt and inflation rates especially after 1980s a large part of the increase in leverage is involuntary.

In evaluating the insights from the studies discussed above we mainly focus on the two trends we observe in Turkey. First, home ownership rate in urban areas is declining. Second, consumer loans are going up at a much faster rate than increase in disposable incomes or consumption expenditures. The first (exogenous) change implies that for workers/households the disposable income shrinks as "imputed rent" component is lost. As tenants they have to reserve a portion of their income to pay rents, thus the requirement to borrow increases even if they are willing to keep their consumption bundle constant. The second trend points towards an involuntary built-up of household debt rather than keeping up with Jones -Veblen effect- which can also limit the likelihood of deleveraging even if household would like to do so.

3 Stylized Facts

3.1 Homeownership

As Erdodu (2010) [?] demonstrates in the absence of strong state support for formal housing especially for the lower and middle income groups in Turkey the solution was informality (i.e. gecekondus) till the early 2000s. Nevertheless this trend came to an end with the neoliberal policies of Justice and Development Party in the last decade. Home ownership rates have declined significantly especially in urban settings.

Despite the booming consumer loans in general and mortgages in particular, we observe a dramatic drop in home ownership rates in urban areas² Apparently, the declining home ownership rates and declining saving rates in the last decade move in tandem. We calculate home ownership rates in urban areas based on the data from the Turkstat. In Figure 1, the decline from 65 % in early 2000s to 54% in 2011 is illustrated. As the wage earners in the urban areas are more likely to be constrained in the housing market, they become indebted. The falling home ownership rates imply worsening household balance sheet dynamics since tenants have to pay monthly rents which constraint their consumption spending and debt service capabilities if they are in debt.

We also examine the home ownership trends among all urban households from 2002 to 2011. Although the total number of urban households has a cumulative increase of 34%, the home-owner households went up only by 12%. Put it differently, out of the total newcomer urban households. which amounts to 3.45 million. only 22% (780 thousand) could own a house. The gap between the urban settlers and those who can be home-owners widened steadily (see Figure 2). Table 1 emphasizes the relatively disadvantageous status of middle and low income families in urban areas.

²As of 2012, three-quarters of the population live in urban areas.

Figure 1: Declining Home Ownership Rates

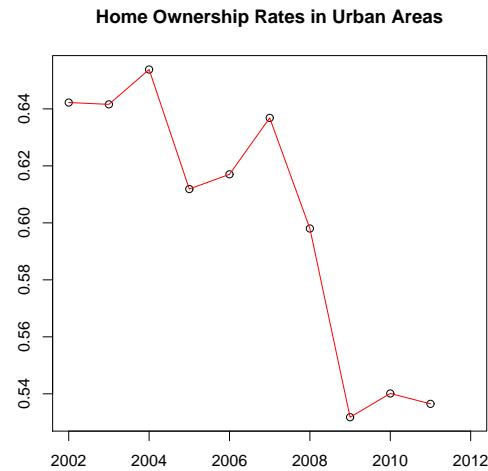


Figure 2: Urban Households

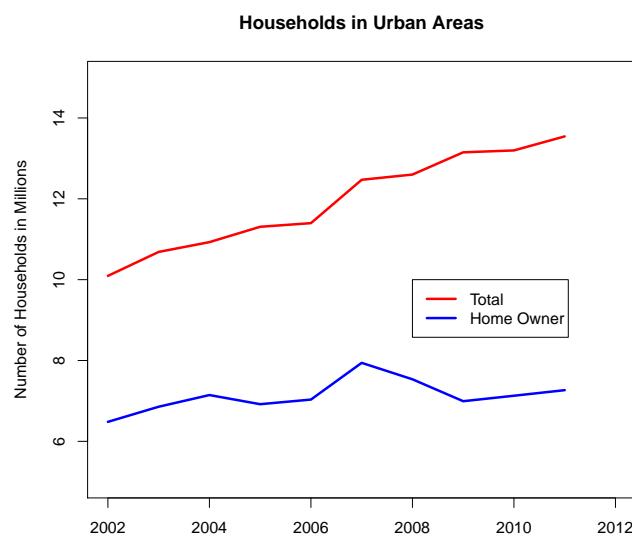


Table 1: Home Ownership in Urban Areas. 2006

	Above Median Income	Median Income and Below
Home ownership	69.86	50.58
Rent	22.1	39.06
Subsidized Rental	1.17	0.64
Other (inc. free residency)	6.85	9.72

3.2 The Booming Consumer Credit and Financial Sector

The dramatic surge of consumer credits in Turkey is no secret. The aggregate consumer credit volume, covering consumer, mortgage and credit cards, increased from 111 billion TL to 250 billion TL within the period of 4 years. from June 2008 to June 2012. The total increase amounted to staggering 125%. The crucial question for the analysis of financial fragility is to what extent this credit boom was due to the new customers who use the new loans to extend consumption, rather than the refinancing the needs of the existing pool of credit customers.

According to Turkstat Survey (Income and Living Conditions Survey 2011) almost 60% of all households report that debt payments put a burden on the households on their budgets. The median household income was around \$6000 -about 7500TL- in mid 2000s. Supposing that the median household is the representative credit customer in the 2003-2008 period, the likelihood of being financially squeezed by debt services is high, which can be also seen from the actual interest rates and debt service. The average nominal interest rates on consumer credits in the 2003-2008 period was 20%, and the yearly total debt service was more than 25 billion TL as of June 2008. This picture bears certain similarities with the Greek case. According to Marsellou (2012) [?], for the poor households (annual income less than 7500 euros) the debt service burden as a share of disposable income had increased dramatically from 25.2 % in 2002 to 45.8% in 2007.

In Table 2, 3 and 4 we summarize the household budget dynamics. We gather the data from "Financial Stability Reports" of the Central Bank of Turkey. We report

Table 2: Household Budget Dynamics

	2010	2011	9-Months. 2012
Disposable Income (DI)	448.8	531.2	591.3
Household Debt (HD)	195.1	252	284.4
Interest Payment (IP)	20.4	23.1	29.3
IP/DI (%)	4.5	4.4.	4.9
HD/DI (%)	43.5	47.4	48.1

Source: Financial Stability Report. CBRT. November 2012

household liabilities and interest payments both in terms of levels and in terms of ratios of household disposable income. As can be seen from Table 2, both the household debt and interest payments have risen significantly. Table 3 shows that almost 75% of all borrowers have less than 2000 TL (1300 \$) monthly income. In Table 4 we demonstrate annual growth rates of each item over the last decade. With a 4-person household, that level of income correspond to even less than the half of the GDP per capita in 2012.

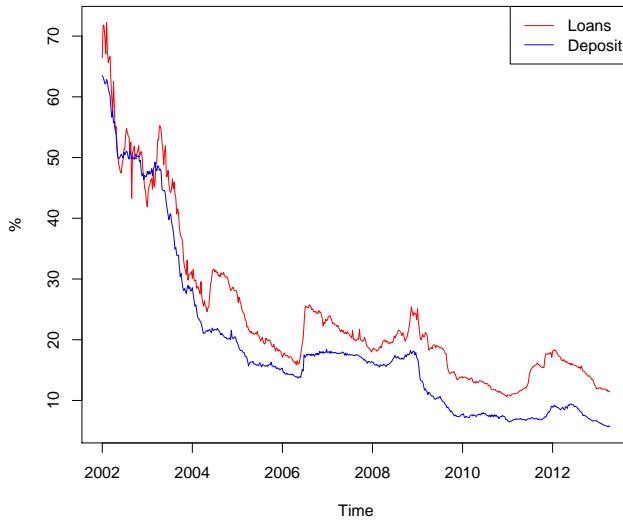
Table 3: Debtors by Household Monthly Income Brackets

	Share in Volume	Share in Numbers
< 1000	25.4	38.8
1000-2000	21.1	25.5
2000-3000	16.8	12.3
3000-5000	11.2	5.9
> 5000	14.7	6.2
Other	10.8	11.8

Source: Financial Stability Report. CBRT. November 2012

In Figure 3 we plot interest rates charged by the bank for short-term deposits and interest rates charged for consumer loans (a composite rate on credit cards, mortgages and other consumer loans). There exist a visible gap between these rates, especially apparent after 2004. It can be observed from the figure that the gap widens considerably

Figure 3: Spread Between Deposit and Loan Rates



after 2008.

In Figure 4, we focus on the ratio of the spread to the deposit rate as a proxy for the mark-up for the lenders. Although volatile, the upwards trend of this variable manifests itself clearly. We take this observation as a reflection of growing profitability of banks on consumer loans.

In Figure 5, we underline the differences in growth rates of consumer borrowing and consumption expenditures, both in nominal and real terms. Note that especially after 2011, although real consumption growth drops to zero, households keep on borrowing at a rate of almost 20%. We argue that this is due to distress borrowing on behalf of financially squeezed households.

In Figure 6 below, we show that net increase in real wages is not sufficient to explain the growth of consumer borrowing. Average private sector wages are generally less than the public sector wages. Moreover, the growth rate of wages in private sector is lower.

In terms of the responsiveness of the firms on the slower growth of wages and higher growth of consumer loans in the last decade, Figure 7 is illuminating. Real private investment growth is highly volatile but does not demonstrate an upwards trend.

The Fisher-dynamics for the household sector is also considered for the Turkish case

Figure 4: Monopoly Power of Creditors

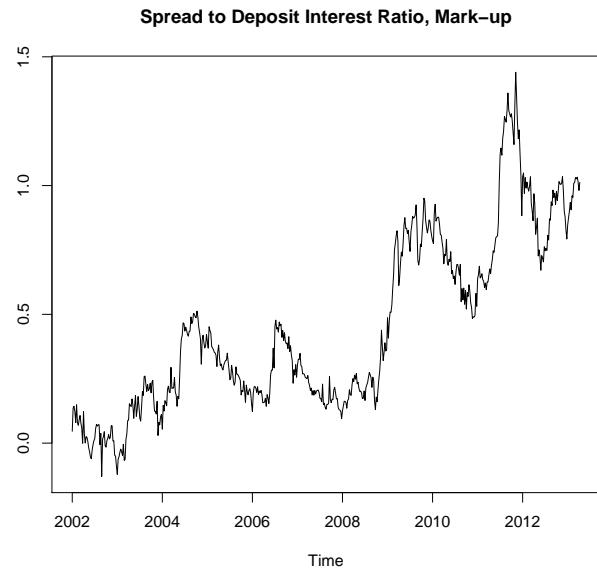
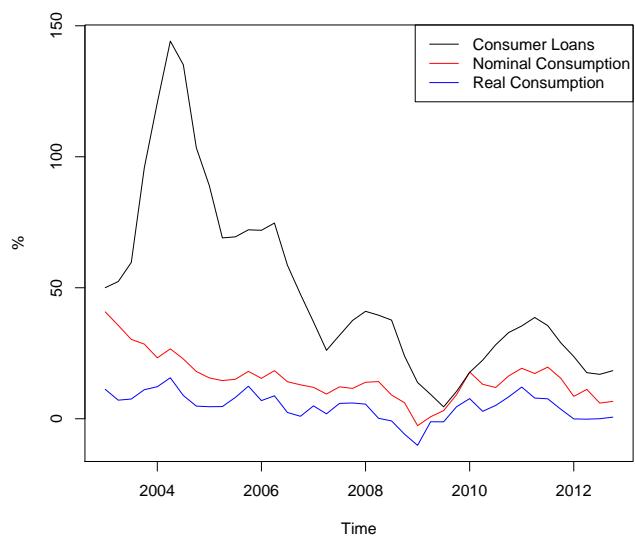


Figure 5: Booming Consumer Credits and Private Consumption



(Mason and Jayadev 2012). The following analysis illustrates that a big chunk of the consumer borrowing could be involuntary. We denote Household Debt-to-Disposable Income ratio as b and Net Borrowing-to-Disposable Income ratio as d . The other variables i , g and π represent effective interest rate on consumer loans, nominal disposable income growth and inflation rate respectively. The above equation suggests that even if the consumers target a leverage, if g and π decline b will rise. For instance average disposable income growth dramatically went down from 29 % till 2008 to 8 % afterwards. Average inflation rate also decreased from 25% to 10%.

$$b_{t+1} = d_t + \left(\frac{1+i}{1+g+\pi} \right) b_t \quad (1)$$

$$\Delta b_t = b_{t+1} - b_t = d_t + \left(\frac{1-g-\pi}{1+g+\pi} \right) b_t \quad (2)$$

3.3 Durable and Non-Durable Consumption and Income

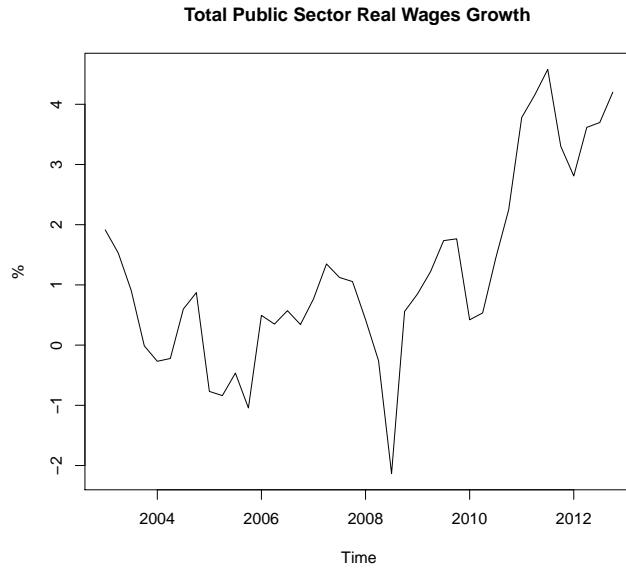
We extend the analysis on the issue of whether households have used consumer loans to buy durable goods, thus increasing their implicit savings. According to Ceritoglu (2013) [?], the econometric results show that there are important differences in terms of effects of financial variables on various components of household consumption expenditures. Household expenditures on durable goods are more sensitive to changes in household expectations, the real interest rates and consumer credits than household expenditures on non-durable goods and services as expected. Moreover, the empirical analysis indicates that the credit channel is more important than the interest rate channel for household consumption expenditures. Household budget dynamics have a similar role in the housing market. Demand for housing requires steady income growth, favourable conditions in the financial market, long-term planning and commitment.

In order to shed light on to the different consumption patterns of home owners and other households, we examine Household Budget Surveys from 2002 to 2011. We find that overall nominal increase in durable consumption is 430% in the ten-year period ³.

³By durable consumption we mean spending on "Housing", "Consumer Durables", "Transportation" and "Education"

However, while the home owners have increased their spending on the durable goods by 340% the tenants have increased their spending by 556%. The gap in relative growth in total spending is also striking. The increase in total spending from 2002 to 2011, reached 302% for the home owners and 452% for tenants. As the income growth for each group is not expected to be very different, the excessive spending of tenants should be sustained through debt.

Figure 6: Public Wage Growth



We underline the fact that private investment growth is highly volatile but does not demonstrate an upward trend (Figure 7). Our observation of the limited effects of consumer debt on the economic performance is further confirmed by the capacity utilization rates (Figure 8). The capacity utilization rates in the industry stay flat after the 2008 crisis at a lower plateau.

Figure 7: Growth in Gross Fixed Capital Formation

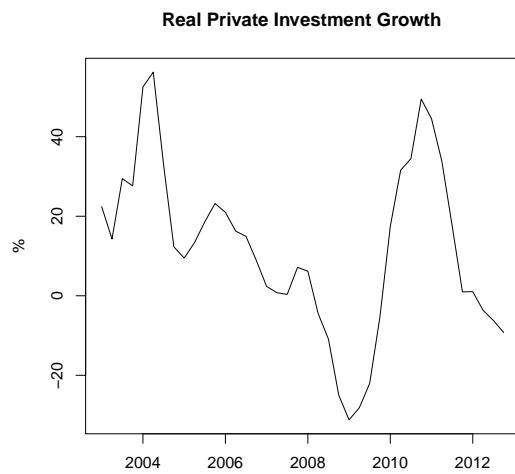
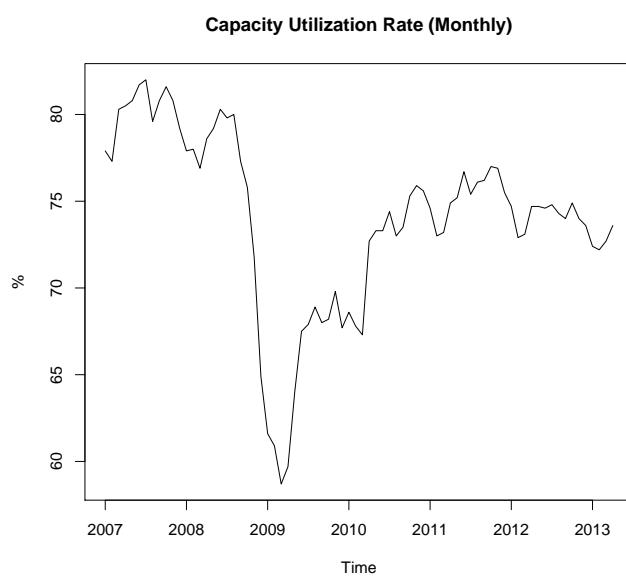


Figure 8: Capacity Utilization



4 Rentier Constrained Debt-Led

We follow Hein (2012) and employ a simple Kaleckian closed economy model. The model assumes that the economy is a closed private economy in which output depends on capital stock and utilization rate. Capital productivity, q , is given and constant. The profit share, h , is determined exogenously. The profit rate, r , on the other hand is endogenous. There are two groups of agents: Workers and Rentiers. The latter also finance the firms through equity purchases. Thus all the profits flow to the Rentiers and there are no retained earnings.

The consumption patterns differ among the workers and the Rentiers. More importantly, the Rentiers are exclusively the lenders and the workers are exclusively the borrowers in this simple economy. The consumption of workers depend on their wage income W , their net borrowing ΔB_W and the debt service iB_W .

$$C_W = W + \Delta B_W - iB_W = (1 - h)Y + \Delta B_W - iB_W \quad (3)$$

The most critical assumption is that the workers spend all of their incomes. Nevertheless they target a debt service-to-income ratio. The Rentiers on the other hand spend a portion of their aggregate income which is derived both from the profits and also from the interest earnings.

$$C_R = c_R(hY + iB_W) \quad (4)$$

where c_R is the average propensity to consume for the Rentiers. There are neither banks nor Central Bank in the model. The sole decision takers are the Rentiers in the credit market. Rentiers are the owners of the banks ⁴. Depending on various institutional factors and behavioral preferences they decide how much to lend to workers from their aggregate savings. The savings of the Rentiers (thus the total savings in the

⁴We adopted this approach due to the fact that the majority of the dominant banks belong to the business groups ultimately controlled by a few families who also own non-financial firms.

economy) is

$$S_R = s_R(hY + iB_W) = (1 - c_R)(hY + iB_W) \quad (5)$$

The second critical assumption is that the Rentiers divide their savings in fixed proportions among the workers' households and the firms, that is

$$\Delta B_W = \theta S_R = \theta s_R(hY + iB_W) \quad (6)$$

$$\theta = \theta(\kappa, \xi) \quad (7)$$

where κ denote the home ownership rate and ξ reflect the spread or the mark-up (the difference between interest on consumer loans and deposits). As the home ownership rate increases the demand for consumer credit will decrease, thus $\theta_\kappa < 0$. Thus, Rentiers reduce the share of their savings allocated to consumer loans when ownership goes up. As the spread goes up the supply of credit through an increase in θ rise, since profitability of lending to consumers increase. Therefore, $\theta_\xi > 0$, and the Rentiers increase their allocation to consumer loans.

and

$$E_R = (1 - \theta(\kappa, \xi))S_R = (1 - \theta(\kappa, \xi))s_R(hY + iB_W) \quad (8)$$

The equity finance of the firms are treated as a residual. What is left after lending to workers' households are diverted as investment flows into the firms. Normalizing the consumption and net debt equations by the capital stock K we get

$$\frac{C_W}{K} = (1 - h)uq + \hat{B}\lambda_W + -i\lambda_W \quad (9)$$

$$\frac{C_R}{K} = c_R(huq + i\lambda_W) \quad (10)$$

$$\frac{\Delta B_W}{K} = \hat{B}\lambda_W = \theta(\kappa, \xi)s_R(huq + i\lambda_W) \quad (11)$$

where $\lambda_W = B_W/K$ denote the debt-capital stock ratio and $\hat{B}\lambda_W = \Delta B_W/B_W$ is the rate of change in debt.

In our Kaleckian framework we integrate the debt relations into the basic investment and saving equilibrium relations. Then, the growth equation becomes

$$g = \frac{I}{K} = \alpha + \beta u \quad (12)$$

$$\sigma = \frac{S}{K} = s_R(huq + i\lambda_W) \quad (13)$$

$$g = (1 - \theta(\kappa, \xi))\sigma \quad (14)$$

The following normal stability condition requires that that Rentiers' saving net of Workers' debt financed consumption has to respond more elastically to the endogenous variable of the model, the rate of capacity utilisation, than does real investment of the firm sector.

$$(1 - \theta(\kappa, \xi))s_Rhq - \beta > 0 \quad (15)$$

4.1 Short-Run

In the short-run we treat the debt-capital ratio of the workers exogenously determined and constant. The two endogenous variables u^* and g^* are then follow from substitutions in the above equilibrium equations.

$$u^* = \frac{\alpha - (1 - \theta(\kappa, \xi))s_Ri\lambda_W}{(1 - \theta(\kappa, \xi))s_Rhq - \beta} \quad (16)$$

$$g^* = \frac{(1 - \theta(\kappa, \xi))s_R(\alpha hq - \beta i \lambda_W)}{(1 - \theta(\kappa, \xi))s_R hq - \beta} \quad (17)$$

Two critical comparative statics results matter. First, as the share of lending to workers' households out of total savings go up. $\theta(\kappa, \xi)$ increases, both the equilibrium levels of capacity utilization and the rate of growth rise. Second, as the exogenously given debt-capital ratio λ_W increases, both the equilibrium levels of capacity utilization and the rate of growth decline.

$$\frac{\partial u^*}{\partial \theta(\kappa, \xi)} = \frac{s_R(i\lambda_W + hqu^*)}{(1 - \theta(\kappa, \xi))s_R hq - \beta} > 0 \quad (18)$$

$$\frac{\partial g^*}{\partial \theta(\kappa, \xi)} = \frac{\beta s_R(i\lambda_W + hqu^*)}{(1 - \theta(\kappa, \xi))s_R hq - \beta} > 0 \quad (19)$$

As the share of lending goes up workers' consumption also goes up inducing higher aggregate demand hence higher growth rates and capacity utilization levels. On the other hand, increases in debt-capital ratios imply ever greater debt services by Workers, thus increasing income transfers from the workers to the Rentiers who are less likely to spend. Aggregate demand is dampened and the result is lower growth rate with lower capacity utilization level.

$$\frac{\partial u^*}{\partial \lambda_W} = \frac{-(1 - \theta(\kappa, \xi))s_R i}{(1 - \theta(\kappa, \xi))s_R hq - \beta} < 0 \quad (20)$$

$$\frac{\partial g^*}{\partial \lambda_W} = \frac{-\beta(1 - \theta(\kappa, \xi))s_R i}{(1 - \theta(\kappa, \xi))s_R hq - \beta} < 0 \quad (21)$$

4.2 Long-Run

In the long-run equilibrium , the growth rate debt-to-capital ratio is described below.

Since in steady-state $\hat{\lambda}_W = 0$. Then it follows that $\hat{B}_W = g$

. By substitution we obtain

$$\hat{\lambda}_W = \hat{B}_W - \hat{K} = \hat{B}_W - g \quad (22)$$

$$\hat{B}_W = \frac{\theta(\kappa, \xi) s_R (\alpha h q - \beta i \lambda_W)}{\lambda_W [(1 - \theta(\kappa, \xi)) s_R h q - \beta]} \quad (23)$$

There exist two equilibrium values for the debt-capital ratio for the workers

$$\lambda_{W1}^{**} = \frac{\theta(\kappa, \xi)}{(1 - \theta(\kappa, \xi))} \quad (24)$$

$$\lambda_{W2}^{**} = \frac{\alpha h q}{\beta i} \quad (25)$$

Stability of the long-run equilibrium Workers' debt-capital ratio requires

$$\frac{\partial \hat{\lambda}_W}{\partial \lambda_W} < 0 \quad (26)$$

Then the stability condition will be satisfied if

$$\lambda_W < \left(\frac{\theta(\kappa, \xi)}{(1 - \theta(\kappa, \xi))} \frac{\alpha h q}{\beta i} \right)^{1/2} \quad (27)$$

Since we have two equilibrium values for the Workers' debt-capital ratio and the benchmark for stability is given by the root of the product of these two values, only the lower value is stable whereas the upper value is unstable. We insert Eq. (24) into Eq. (16) and Eq. (17) in order to get long-run equations of capacity utilization and growth.

$$u_1^{**} = \frac{\alpha - \theta(\kappa, \xi) s_R i}{(1 - \theta(\kappa, \xi)) s_R h q - \beta} \quad (28)$$

$$g_1^{**} = \frac{s_R [\alpha (1 - \theta(\kappa, \xi)) h q - \beta \theta(\kappa, \xi) i]}{(1 - \theta(\kappa, \xi)) s_R h q - \beta} \quad (29)$$

We take a very simple form for the function $\theta(\kappa, \xi)$ as $\theta(\kappa, \xi) = \xi/\kappa$. The following figures (Figure 9 and 10) show the positive levels of long-run utilization and growth rates given this simple function and varying i , κ and ξ . The parameter values are set as follows: $\alpha = 0.2$, $h = 0.6$, $s_R = 0.2$, $q = 1$, and $\beta = 0.05$.

Figure 9: Long-Run Utilization Rate

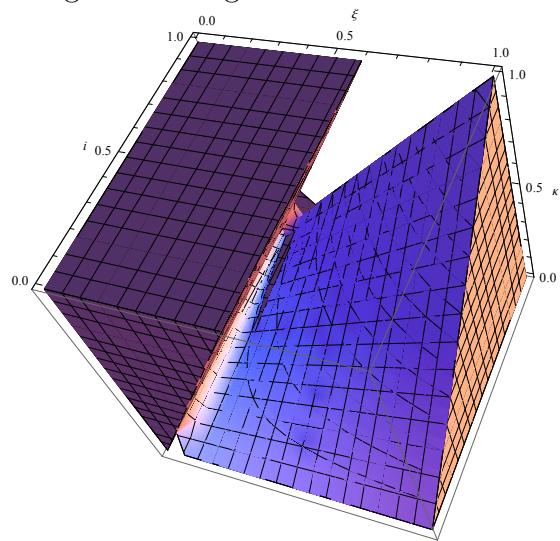
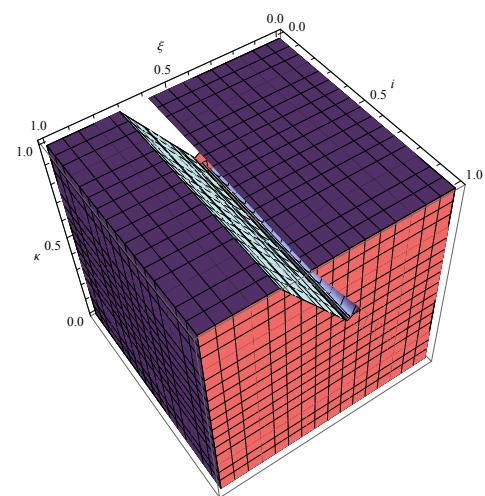


Figure 10: Long-Run Growth Rate



We are mainly interested in the effects of θ . The home ownership rates and the spread ratio (or mark-up power of creditors) will have influences through θ . Given positive levels of utilization growth rates we can obtain the following results

$$\frac{\partial u_1^{**}}{\partial \theta} = \frac{s_R(hqu_1^{**} - i)}{(1 - \theta(\kappa, \xi))s_Rhq - \beta} = \frac{s_R(r^{**} - i)}{(1 - \theta(\kappa, \xi))s_Rhq - \beta} \quad (30)$$

Similarly,

$$\frac{\partial g_1^{**}}{\partial \theta} = \frac{\beta s_R(hqu_1^{**} - i)}{(1 - \theta(\kappa, \xi))s_Rhq - \beta} = \frac{\beta s_R(r^{**} - i)}{(1 - \theta(\kappa, \xi))s_Rhq - \beta} \quad (31)$$

There are mainly two conditions (i) if $(r^{**} - i) > 0$ and there is a positive effect or (ii) $(r^{**} - i) < 0$ and there is a negative effect.

On the other hand $\theta(\kappa, \xi)$ depends on home ownership rate with a negative derivative and on the spread ratio with a positive derivative. We assume that their cross derivatives are zero. There can be two possible comparative statics results for each variable change in the $\theta(\kappa, \xi)$ function as

$$\frac{\partial g_1^{**}}{\partial \kappa} = \frac{\partial g_1^{**}}{\partial \theta} \frac{\partial \theta}{\partial \kappa} \quad (32)$$

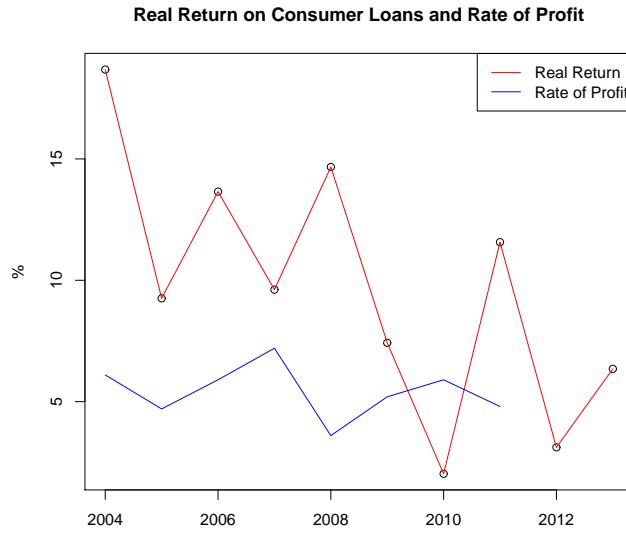
Although the latter part is negative, the former part depends on the sign of $(r^{**} - i)$. As both home ownership rates and spread change, the overall effect depend on the relative strengths of the derivatives. If we keep the simple form of the $\theta(\kappa, \xi)$ function, as $\theta(\kappa, \xi) = \xi/\kappa$ then the partial derivatives also depend on the levels of κ and ξ , corresponding to home ownership rates and the spread ratio.

Figure 11 give us a clue on the relative levels of profit rates and interest rates, r and i . There seems to be a convergence at the end of the period. This convergence makes the long-run equilibrium more unstable as the sign of $(r^{**} - i)$ can change if the values of r and i are close to each other in magnitude and the values slightly fluctuate. Depending on the sign of $(r^{**} - i)$, the effects of κ and ξ will also change.

4.3 Discussion

Both the declining rate of home ownership and the declining nominal income growth and/or increasing distress borrowing would squeeze the debtor households in terms of

Figure 11: Real Lending Rates and Rate of Profit



capacity to service the debt payments. There might be multiple consequences of such a development, and some of these act in the opposite direction. First, knowing that the debt service capabilities are largely shrunk the Rentiers might decreased the portion of their savings channelled to the workers' households, $\theta(\kappa, \xi)$ goes down. Second, keeping the share of the lending to households constant Rentiers require higher interest rates (i goes up). Third, Workers' households might deleverage so that their net borrowing might decline (ΔB_W going down). Hence debt-to-income, which is pretty much the same thing as the debt-to-capital stock might decrease (λ_W goes down). Fourth, to those worker households, the choice might be between bankruptcy and borrowing at much higher costs. If the second choice turns out to be dominant then both the net borrowing and the debt-to-capital ratio might rise up.

Depending on the rate of interest relative to the rate of profit, we may therefore have two stable long-run constellations in the face of higher lending of rentiers to workers. With a relatively low rate of interest a higher proportion of rentiers' saving being lent to workers, causing a higher Workers' debt-capital ratio, will be accompanied by higher rates of capacity utilisation and capital accumulation. Aggregate demand and growth will hence be debt-led. With a relatively high rate of interest, however, a higher

proportion of Rentiers' savings allocated to consumer credit leading to a higher Workers' debt-capital ratio will be accompanied by lower rates of capacity utilisation and capital accumulation. In this case, aggregate demand and growth will be debt-burdened. Both constellations are locally stable, however, the upwards corridor of stability will shrink due to the increase in the equilibrium Workers' debt-capital ratio in each constellation. If the interest rate is kept low relative to the rate of profit, such a result could be avoided and the economy remains debt-led in the long run, too.

5 Conclusion

Apart from casual warnings appearing in newspapers and journals the dramatically increasing household debt-to-income ratio in Turkey has been largely ignored both by the economists and the policy makers. In the paper we argued that this view is mistaken. Formalization of the housing market, hence declining home ownership rates as well as slow growth of nominal incomes are structural patterns that make the household debt dynamics in Turkey rather fragile.

In a simple Kaleckian model we demonstrate that equilibrium growth rates will be lower in a "debt-burdened" economy with lower home ownership rates and higher real costs of borrowing. This in turn triggers vicious feedbacks on the net borrowing and debt payment capacity of the households, and further suppress real aggregate demand and growth

We take note of the limitations of our study. First, the corporate debt dynamics are not considered. Given the huge increases in corporate debt levels in Turkey, especially debt denominated in foreign exchange, asset-liability mismatch in the economy is important. Second, the economy we model is closed. Thus, it neither takes into account the exchange rate dynamics nor the sudden stops of capital inflows. Nevertheless, we argue that our study sheds some light on why both the policy makers in particular and the economic agents in general should be careful with respect to the household-budget dynamics in a potentially debt-burdened economy, as in Turkey.

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Table 4: Household Budget Dynamics

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012Sep
Interest Payments (IP)	3.85	6.98	9.75	12.1	15.576	19.65	21.1	20.4	23.1	29.3
Household Debt (HD)	13.44	28.26	48.76	73.41	99.5	129	147.1	195.1	252	284.4
Disposable Income (ID)	180.3	218.75	233.37	404.68	466	352.7	358.7	448.8	531.2	591.3
IP/DI	2.1	3.2	4.2	3	3.3	5.6	5.9	4.5	4.4	4.9
HD/DI	7.5	12.9	20.9	18.1	21.4	36.6	41	43.5	47.4	48.1

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Table 5: Annual Growth Rates in Household Budget Items

	2004	2005	2006	2007	2008	2009	2010	2011	2012Sep	Average Growth
Interest Payments (IP)	81%	40%	24%	29%	26%	7%	-3%	13%	27%	27%
Household Debt (HD)	110%	73%	51%	36%	30%	14%	33%	29%	13%	43%
Disposable Income (ID)	21%	7%	73%	15%	-24%	2%	25%	18%	11%	16%
IP/DI	52%	31%	-29%	10%	70%	5%	-24%	-2%	11%	14%
HD/DI	72%	62%	-13%	18%	71%	12%	6%	9%	1%	26.50%