POOR HOUSEHOLDS FINANCIAL BEHAVIOR

Surviving constraints
Uncertainty
Liquidity constraints
Interaction between constraints
Wage Adjustments Practices and Buffer Stock Savings:
Poor financial behavior and post-stabilization consumption booms

As usual, we start with a basic textbook intertemporal optimization model:

$$Max \sum_{i=0} E_T (1+d)^{-i} \; C_{t+i}$$, where U'<0 and U">0

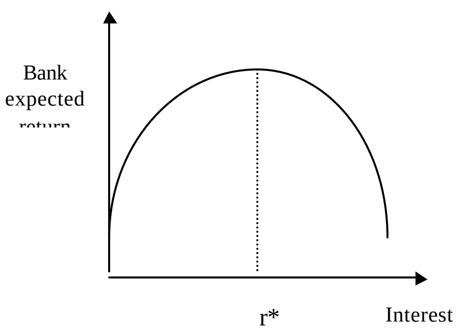
$$A_{t+1} \;=\; (1+r)^{-1} \quad (A_t + Y_t - C_t)$$

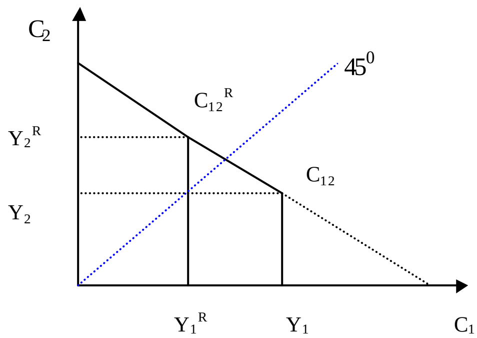
where :
C_{t+i} is consumption at time t.
δ is the rate of time preference (i.e., rate of impatience)
A_t are net financial assets at time t
Y_t is earnings at time t
r is the interest rate
One first-order condition of the problem above corresponds to

$$E_t \; U''(C_{t+1}) = \frac{1+d}{1+r} U''(C_t)$$

According to the equation above the marginal utility of consumption today is the best forecast of tomorrow marginal utility of consumption. If r = δ and the marginal utility of consumption is linear then consumption follows a random-walk: EtCt+1= Ct.. In this case DCt = e_t, where e_t is new information not available at time t (i.e., surprises).

Liquidity constraints





The most intuitive way to incorporate credit constraints in the basic utility optimization framework presented in section ? is through a non-negativity constraint on net assets (i.e.; **At** >= 0). If this constraint is binding (i.e., **At** = 0) then all increases in current earnings will be consumed. Impatient individuals with a rising expected earnings profile are the ones most likely to face binding liquidity constraints.

AN INTEGRATED MACRO-FRAMEWORK

We extend now the basic framework of analysis proposed by Campbell and Mankiw (1989). The primary objective of this exercise is to set an aggregate model that nests the different extensions on household behavior discussed above. This integrated framework is specially useful to discuss the impacts of inflation and stabilization on aggregate consumption that operate through the financial behavior of poor individuals.

Campbell and Mankiw (1989) presents an aggregate formulation alternative to the standard representative agent model. According to their model there are two basic types of agents:

- Agents that consume all their current income (i. e., unitary marginal propensity to consume), that may be denominated as keynesian consumers;
- Agents that follow the basic temporal textbook model presented above, that may be denominated as permanent income.

Hence aggregate current income (Ya_t) can be decomposed into::

$Ya_t = Yk_t + Yp_t$ where: Yk_t corresponds to the income appropriated by keynesian consumers;

Yp_t corresponds to the income appropriated by permanent income consumers;

Defining l as the value of aggregate earnings that goes to keynesian consumers:

$Ya_t = lYa_t + (1\text{-}l)Ya_t$ where , $lYa_t = Yk_t$

$(1\text{-}l)Ya_t = Yp_t$

As a result increments on aggregate earnings produce increments on keynesian consumers equals to $DCk_t = DYk_t = lDYa_t$. In the case of the other type of agents their consumption increments are a sole by-product of surprises $DCp_t = (1\text{-}l)e_t$. Hence, aggregate consumption changes correspond to: $DCa_t = DCk_t + DCp_t = lDYa_t + (1\text{-}l)e_t$

In a country with a degree of inequality of Brazil, the heterogeneity of behavior present in Campbell and Mankiw's (1989) model is an interesting feature to be incorporated in the analysis (recall Belíndia Edmar Bacha's aphorism). However, there are a few adaptations to be incorporated in Campbell and Mankiw's model to make the model take into account some specificity's of the Brazilian case. In particular, we suggest a few features in order to capture the impact of stabilization on consumption:

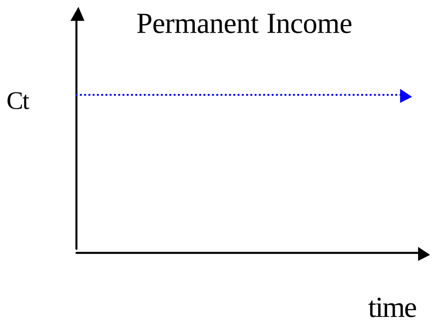
A key extension of the basic framework of analysis proposed for our purposes is to incorporate the possibility that the share of individuals with a high propensity to consume *l* (keynesian consumers), changes across time. In particular, we will argue in this and the next sub-sections in favor of the existence of a negative relationship between *l* and the inflation rate. This channel will offer an alternative explanation for the rise of consumption booms after stabilization.

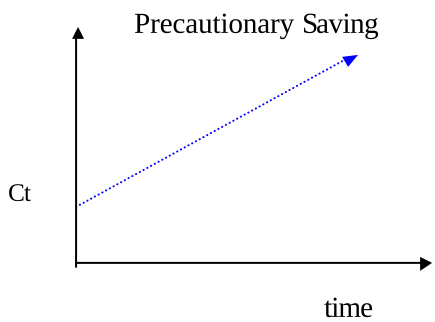
PRECAUTIONARY SAVINGS

The second extension proposed is to incorporate in the basic model a precautionary savings component. This implies exchanging the hypothesis of linear marginal utility of consumption (i.e., $U'''(C_t) = 0$) for the hypothesis of convexity of the function (i.e., U"'(Ct)>0). More specifically, we will start with a Constant Absolute Risk Aversion (CARA) utility function (see Caballero (1989)): *E [S(-½)exp(-aCt) / q]*. It can be shown that in this model the Euler equation amounts to: $C_{t+1} = C_t + as^2/2 + e_t$

The Euler equation posed above differs from the previous model corresponding equation in term of the additional term $as^2/2$. This term depress current consumption levels in benefit of future consumption. This precautionary component losses importance as we move towards the end of the agent planning horizon. That is, as outstanding uncertainties gets solved, the need of precautionary savings reduces and consumption tends to rise as time passes. Intuitively, earnings uncertainty makes individuals cautious, postponing their current consumption levels to the future.

ILLUSTRATION 3





According to the graph above, traditional permanent income consumers attempt to smooth their temporal consumption profile [3]. The introduction of uncertainty coupled with the precautionary behavior (U"'(Ct)>0) , agents tips their temporal consumption profile towards the future.

Surviving constraints

The main advantage of the CARA specification discussed above is to offer the possibility of finding a closed form solution for consumption and asset accumulation equations. The advantage of the specification below is to introduce a positive 'bliss level of consumption' (i.e. when the marginal utility of consumption tends to infinity). This surviving constraint could inhibit the ability of individuals to accumulate capital with high return rates.

$$U\left(C_t\right) = \frac{\left(C_t - C_{min}\right)^{1-g}}{1-g}$$

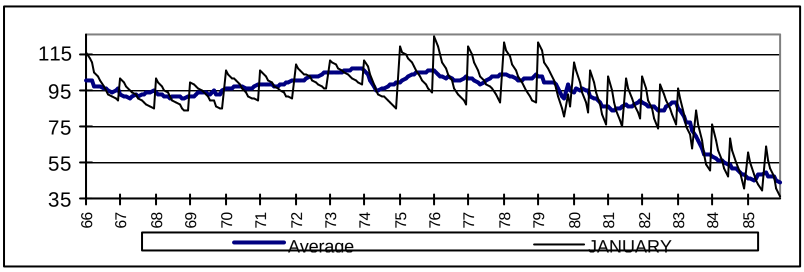
Interaction between constraints

Wage Adjustments Practices and Buffer Stock Savings:

The main testable result is a high frequency savings stock that decreases with the frequency of wage adjustments and increases with inflation. The changes occurred in the Brazilian Wage Law offer us an opportunity to analyze the effects of observable switches in the regime of wage indexation (i.e. in the micro earnings process) on savings decisions of household units.

Illustration 4

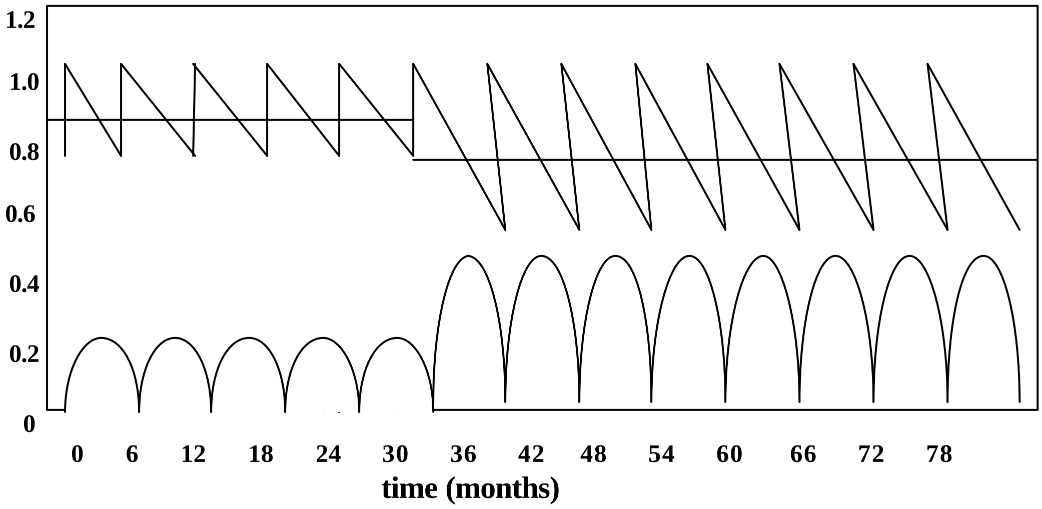
Institutional Wages - Aggregate X Individual -1966-85



[3] For simplicity, we are still assuming that interest rate equals to the rate of time preference **(r = d)** .

We will start thinking in terms of an intertemporal utility optimization framework where individuals face high inflation and a system of wage indexation that restores labor income values in fixed intervals. The first effect analyzed is due to the interaction between the declining path of labor income between wage adjustments and a standard consumption smoothing. Since no borrowing is allowed, the gap between receipts and expenditures in the representative consumer cash flow is met by a high frequency savings stock.

Illustration 5 - Real Earnings, Consumption and Asset Holdings



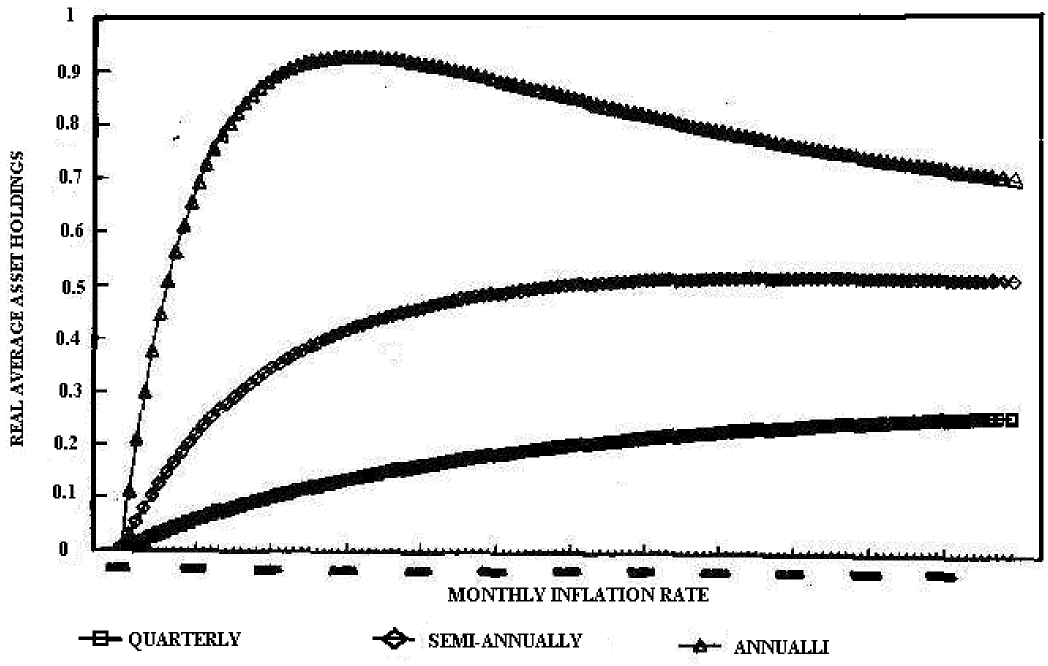
The main result of this approach is a demand function for average asset holdings that is decreasing with the frequency of wage adjustments and increasing with the inflation rate in the relevant interval[4]

The second effect analyzed here is due to the margin of substitution between the degree of wage indexation and precautionary savings as hedges against income risk faced by households units. The introduction of uncertainty coupled with a utility function with a positive third derivative reinforces asset holdings between wage adjustments. The previous effects of inflation and wage indexation on asset demand will be reinforced in two respects: a) For a given level of inflationary risk, an increase on the frequency of wage adjustments will reduce earnings risk and consequently the need for precautionary savings. b) If one is willing to accept a positive relation between the level and the variance of inflation rates, the predicted coefficient of inflation on the asset demand equation will be magnified.

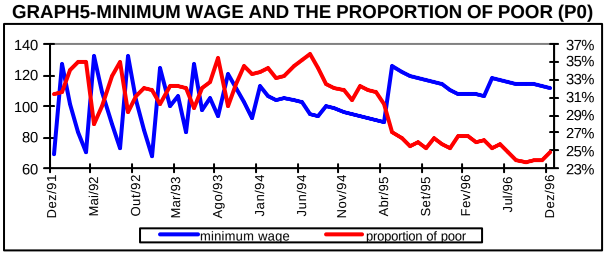
[4] This effect was first studied in Neri (1990).

INFLATION AND ASSET HOLDINGS

UNDER DIFFERENT INTERVALE BETWEEN WAGE ADJUSTMENTS



GRAPH5-MINIMUM WAGE AND THE PROPORTION OF POOR (P0)



GRAPH 6 - MINIMUM WAGES AND INEQUALITY (GINI)

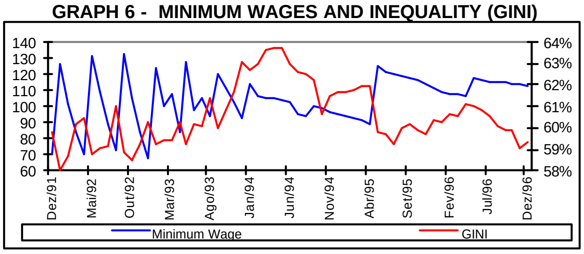
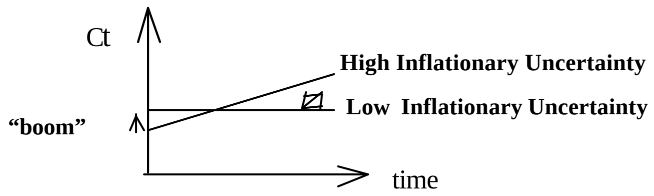
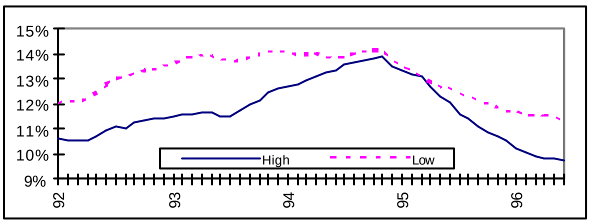


ILLUSTRATION 4



Poor and Non Poor Income Risk - Coefficient of Variation of Log Real Per Capita Earnings

Income Criteria



Schooling Criteria