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Income Distribution, Irrational Exuberance, and Growth: A Theoretical Model of the U.S. Economy

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Abstract

The current economic crisis facing the U.S. economy, and thereby the entire world, has its origins in not just the subprime markets but is more of a systemic crisis. Its roots can be found in certain significant economic developments in the United States since the late 1970s: dramatic growth in inequality of income; restricted government sector, especially in the 1990s; growing trade deficit; and declining business investment. Given that the three main sources of demand, and thereby of growth, were declining in importance, the only way that the U.S. economy could have grown was through injection of consumption demand. Here again, an increase in income inequality had the potential of dampening consumption through the route of underconsumption. Therefore, for even the consumption demand to increase there was a need for some external impetus. I present a theoretical model arguing that the growth process in such a situation *perforce* becomes dependent on speculative asset price markets which have the potential of influencing consumption of households through the wealth effect. It is precisely for this reason that such a trajectory of growth becomes a "bubble in the whirlpool of speculation."

JEL classification: E2, O1, O4

Keywords

income distribution, growth, instability, U.S. economy

Debates on the effects of distribution on growth within economics have invariably coincided with periods of high inequality. This paper, on the concentration of income and business, too has been prompted by the significant increase in inequality in the 1980s and '90s in the advanced capitalist countries. Concentration of capital has taken place at two levels. First, there has been an increased consolidation of business as a result of the merger waves across the advanced capitalist countries. Second, this has been a period of a significant increase in income inequality.

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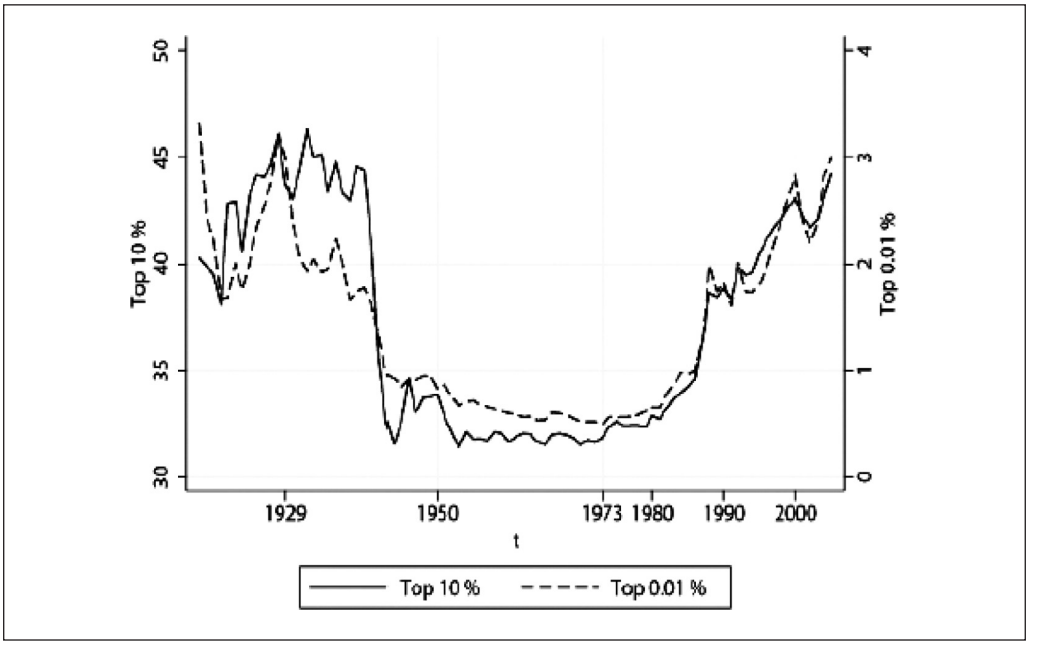

Figure 1. Increasing Income Inequality in the United States, 1917-2005
Source: Piketty and Saez (2003).
Note: In this paper, the author has calculated the top shares in income and wages from 1918-1998 in the United States based on individual tax return data, then updated this series to include the period from 1999 to 2007 which can be accessed at http://elsa.berkeley.edu/~saez/TabFig2007.xls

While there are similarities in the increase in levels of concentration and, consequently, the growth process across the advanced capitalist countries, the United States stands out in terms of its size and the control that it exercises over the global economy. Its role as the driving force of both growth and crises in contemporary capitalism has encouraged me to make it the subject of this paper.

A lot is being written about the current economic crisis in the world economy. Its origins have been traced to the financial markets in general and the subprime markets in the United States in particular. While it is true that functioning of the subprime markets is at the center of the present crisis, I believe that there is a need to place this crisis in a broader macroeconomic perspective. This paper attempts to formulate a growth model incorporating the salient features of the U.S. economy which could help us understand the nature of the crisis. Section 1 presents a brief overview of the U.S. economy. Sections 2 and 3 present the underlying assumptions and the theoretical model respectively. Section 4 relaxes two crucial assumptions to generalize the analysis by introducing the government sector and the issue of workers' bargaining power. The last section concludes the paper.

1. Overview of the U.S. Economy

There have been some very significant economic developments in the United States since the late 1970s which are critical to understanding the present crisis. First, the scale and reach of the mergers and acquisitions (M&As) in the 1980s and 1990s was unprecedented in the history of the United States. This was accompanied by widening income disparities. The extent of these disparities can be gauged from the fact that the level of income inequality, after a decrease in the postwar years, bounced back to almost the same level as the 1920s (see Figure 1 for income inequality).

Table 1. An Overview of the U.S. Economy

Period	Growth Rate	Capacity Utilization	C/O	G/O	(X-M)/O	I/O	(net I)/O
Golden Age (1955.4-1973.1)	4.05	83.46	62.09	21.9	0.45	15.53	8.04
Age of Finance (1978.4-2006.4)	3.07	79.61	65.91	19.66	−1.95	16.37	6.66
Business Cycles							
Golden Age							
1955.4-1959.2	1.71	82.23	62.52	21.65	0.41	15.4	7.57
1959.2-1966.1	4.83	83.02	62.26	21.65	0.77	15.29	7.95
1966.1-1973.1	3.05	84.53	61.7	22.28	0.17	15.83	8.37
Transition Age							
1973.1-1978.4	3.01	81.29	62.63	20.81	−0.16	16.71	7.93
Age of Finance							
1978.4-1989.2	3.21	78.96	64	20.48	−1.7	17.22	7.34
1989.2-1997.4	2.82	81.27	66.82	19.28	−1.05	14.94	5.36
1997.4-2006.4	2.69	77.88	69.27	18.34	−4.08	16.46	6.26

Source: Bureau of Economic Analysis (BEA) Statistics, Federal Reserve, author's calculations
Note: Data for consumption, government expenditure, trade deficit, investment (gross and net) have been taken from Table 1.1.5 of BEA. Data for capacity utilization has been taken from Table G.17 of the Federal Reserve. Growth rate has been calculated based on the real GDP data from Table 1.1.6 of BEA.

Second, there was a remarkable increase in the share of consumption as a proportion of GDP from 62 percent in 1980 to close to 70 percent towards the end of the 1990s (see Table 1). In the Keynesian framework, this would mean a dramatic increase in the income multiplier.

While consumption was increasing at a fast pace, the rates of growth of business investment and government expenditure were low (see the values of G/O and net I/O in Table 1). It is interesting to note that the fiscal deficit was declining through the 1990s and even ran into a *surplus* in the second half of the 1990s, especially because of President Clinton's balanced budget policy (see Figure 2). The fourth source of aggregate demand, the external markets, was already running in negative starting from the 1980s (see X-M/O in Table 1 and Figure 2).

Third, despite the increase in the consumption/GDP ratio, there was a decline in the rate of growth in the U.S. economy as a whole compared to the high rates of growth of the 1950s and the 1960s. While GDP per capita for the United States grew at an average of 2.70 percent during 1950-1973, it slowed down to an average of 1.13 percent during 1973-2000. Though there was a spurt of growth in the late 1990s and the first half of the present decade, the average rate of growth over the entire business cycle of the 1990s was still much lower than that of the 1950s or 1960s. As far as the present decade is concerned, the U.S. economy is witnessing a prolonged recession, which makes the calculation of the average rate of growth indeterminate for the present business cycle. But it seems quite obvious from the extent of the decline that the present business cycle would record a lower average growth rate than the 1990s.

In this context, there is a need to address the following issues which form the core of this paper:

1. There are four sources of demand based on which an economy can grow: consumption, investment, government expenditure, and external sector. When the rate of growth of the last three has stagnated since the 1980s, how does one explain the high

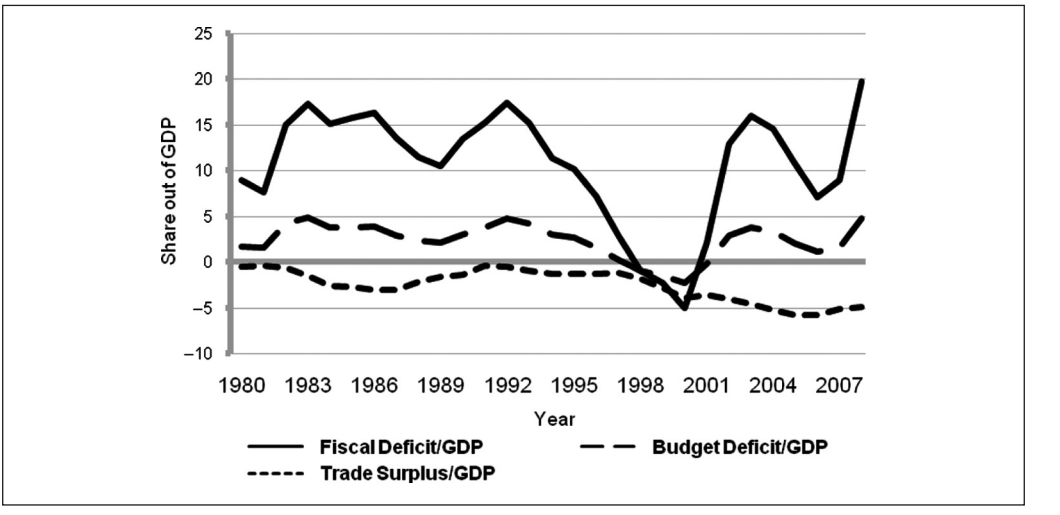

Figure 2. Two Main Sources of Demand Since the 1980s: Net Government Expenditure and Trade Surplus in the United States
Source: Bureau of Economic Analysis (BEA) statistics, author's calculations. Data for trade surplus and GDP have been taken from Table 1.1.5 and fiscal and budget deficit from Table 3.1 of BEA.

growth that the United States has witnessed in the latter half of the 1990s and the first half of the 2000s?

2. It becomes obvious that the source of this high growth has to be located in the sphere of rapidly growing consumption demand of the household sector, both in the form of consumption of goods and services as well as residential investment. But here arises an interesting contradiction. If there was an increase in income inequality, how did the share of consumption in GDP increase? In the Kaleckian framework, a shift of income from poor to rich (wages to profit) leads to a decline in overall consumption because the rich have a lower propensity to consume than the poor.[1] Does the U.S. experience of the recent period nullify this growth framework?
3. How does the working class fare during the upswing and downturn in such a growth path? It is generally assumed that though workers face the brunt of a downswing the most, during the upswing they benefit from low rates of unemployment and, therefore, a possibility of higher wage share. But the evidence is to the contrary for the United States. There was a decline in the wage share even through the upswing of the late 1990s or the 2000s, despite a low rate of unemployment. Thus, unlike in the case of normal business cycles, in the neoliberal growth trajectory the working class suffers through a declining wage share irrespective of whether the economy is in an upswing or a downturn. How does one explain this in a theoretical model? Can the Kaleckian growth framework address this issue as well?

I argue that one could modify the Kaleckian growth framework to incorporate the contemporary reality. I believe that there are counter tendencies to underconsumption which

[1]The origin of the theory of underconsumptionist crisis is due to Karl Marx. This has been further extended upon in modern macroeconomic tradition by Kalecki, Steindl, Baran, and Sweezy. In more recent literature, Dutt (1984) and Taylor (1985) have dealt with this issue in a mathematical framework.

could enhance the share of consumption even as income shifts from wages to profits. One such factor is the wealth effect which could increase the consumption of wealth owners. Another could be the effect of higher dividend payout by the corporations since it would increase the consumption of capitalists due to higher distributed profits. Since wealth itself is the money value of the assets owned, it gets influenced by speculative pricing in asset price markets. In that case, even though the boom in such a business cycle may seem spectacular, downturns are far more severe than the normal business cycles.

2. Assumptions

I make the following assumptions in the model described below.

1. Assume a single-good[2] closed economy with no government sector.[3] I introduce the government sector later in section IV.
2. Workers consume their entire wages whereas the capitalists save a substantial part of the profits.
3. An increase in the profit share does not lead to any wage-price spiral even at low rates of unemployment.[4] I relax this assumption in section 4.
4. Wealth of the society is owned entirely by the capitalists.
5. The economy is working below full capacity.
6. Investment is a function of current demand and technological innovations.
7. Consumption of the rich is a function of both profits and the wealth that they own.

For matters of simplicity, I assume there is no depreciation of capital stock.

3. The Model

Since we are dealing with a closed economy without the government sector, we need to deal only with the consumption and investment functions of such an economy.

3.1 Consumption Function

The consumption function can be divided into two parts: workers' and capitalists' consumption. While the workers consume their entire wages, capitalists consume only a fraction of their profits. This would constitute the Cambridge consumption function. I propose some changes in this function. First, I believe that the consumption of the capitalists is not only influenced by their current income (profits) but it is also dependent on the value of wealth that they hold.

[2]I have assumed a single-good because the purpose here is to discuss the overall level of activity and not its composition. Dealing with the issue of composition of output is beyond the scope of the present paper.

[3]This assumption broadly represents the reality of the contemporary U.S. economy because while the United States has been running current account deficits, the importance of government has gone down especially in the 1990s during Clinton's drive for a balanced budget as has been shown in Figure 2. However, the role of fiscal as well as budget deficit got reversed in the 2000s primarily due to an increase in military expenditures on account of the wars waged in Afghanistan and Iraq. Keeping this in mind, I relax this assumption of the model in section 4.

[4]This means that despite an upward movement of the profit share, there is no wage-price spiral and inflation is kept under check even under low rates of unemployment.

Second, since the corporations distribute in the form of dividends only a part of the profits to the owners of capital, the dividend payout ratio would also influence the consumption function. Let us define such a consumption function.

$$pC = pW + c_p \lambda pP + \alpha\omega^e \tag{1}$$

where,

C = Total real consumption
W = Workers' real wages
P = Real Profits
p = General price level
c_p = Capitalists' propensity to consume
λ = Dividend pay-out ratio
α = Consumption propensity out of wealth
ω^e = Expected wealth

Let us define the wealth of the capitalists, which, in our case, is equivalent to the total wealth of the economy since they are the only wealth holders. The real wealth of the economy is defined by the real capital stock K that exists in the economy at any given point of time. The book value of wealth can be defined as pK where p is the production price of capital goods (which, in a one-good model, is the general price level). The capitalists hold their entitlements to this capital stock in the form of equities,[5] E. Let p_E be the price of the equities. In the presence of bullish speculation, the expected value of wealth (ω^e) in the form of equities ($p_E E$) can be greater that its book value which leads to a virtual increase in the wealth of the capitalists. The relation between virtual wealth and its book value is given by a proportion q.

$$q = \frac{\omega}{pK} = \frac{p_E E}{pK} \tag{2}$$

The capitalists base a portion of their consumption demand on the anticipation of wealth increases (ω^e) in the future. It is to be noted here that the definition of wealth that would enter their consumption function is liquid wealth. This is because the information of their wealth level is conveyed by the value of the equities instead of any book value of the capital stock that they hold. In fact, most of the time, shareholders are not even aware of the value of the real capital stock that these corporations hold on their behalf. The wealth induced consumption demand is, however, not met by any *actual* increase in the *realizable* wealth because the value of this form of wealth is virtual, i.e. only on paper. Therefore, to fund this portion of their consumption, the capitalists take debt from the market. This debt is taken from other capitalists through financial intermediaries. Thereby, these debts cancel out when we take the total credit of the capitalist class as a whole into consideration. This can be understood if we assume that the capitalists keep deposits in the bank which, in turn, are used to provide credit to the other capitalists. In that case, the interest payment of those capitalists who have taken the debt would get cancelled out by an equivalent amount of interest income of the capitalists who have extended it.

Assuming the expected value of wealth to be determined by the present value and substituting the value of ω from equation (2) into (1) and dividing the whole equation by the price deflator, we get the following consumption function,

[5]The entitlements to capital stock in the economy do not only come in the form of equities. So, they should be treated as entitlements to all forms of capital including housing. Therefore, this model can help explain the effect of increasing housing prices on the economy.

$$C = W + c_p \lambda P + \alpha q K \tag{1'}$$

Consumption of the capitalists, under these conditions, can increase in two different ways, even if the total profits remain constant. First, it could increase due to an increase in the payout ratio because a higher payout means a lower saving for the economy, as corporations save their entire undistributed profits.[6] Second, capitalists' consumption can also increase if there is an increase in their liquid wealth due to a favorable run in the price of the equities relative to the general price level in the economy. This would lead to an increase in the q-ratio and increase the demand accordingly.

It can be seen from the consumption function above that while a shift of income away from workers towards the capitalists can result in a decline in the total consumption of the economy (underconsumption), there are ways through which this tendency can be suppressed viz. increased dividend and the wealth effect. In fact, not only is it possible for the underconsumption to disappear but these forces could also result in what we call *overconsumption*.

This overconsumption can have a positive effect on the growth rate since it increases the income multiplier. But can something be said about the stability of such a growth trajectory? The possibility of linkage of consumption to the volatile stock market through the wealth effect adds another source of instability into the system, in addition to the instability already existing due to investment decisions. Though the investment process has been extensively studied because it contained the key to understanding business cycles, consumption has always been a passive player in the study of business cycles. But with the consumption function defined in the manner as above, it has an equal potential, if not more, in contributing to the volatility of the system. We would see this in the section where I discuss the long run.

3.2 Investment Function

Investment is assumed to be dependent on the level of demand in the economy and the rate of introduction of technological innovation into the production process. The level of demand is measured by the rate of capacity utilization in the economy, as Steindl argued. He argued that the capitalists want to attain a "desired" rate of capacity utilization which is adequate enough to dissuade rivals from encroaching on their respective markets but not large enough to unnecessarily go to waste. Since investment in capital adds to the capacity of their production, the capitalists would want to invest less than the previous period if the actual capacity utilization is less than the desired rate and more if it is greater. In such a situation, the investment function[7] can be written as,

[6]It is possible to argue that this extra dividend that is distributed to the shareholders might lead to a decline in investment, which is another source of demand, because firms' investment depends heavily on their internal savings. In such a case this would nullify the increase in consumption. But I disagree with this proposition because it assumes that internal savings are *necessarily* invested or that investment of firms is *constrained* by internal savings. However, in a strictly demand constrained system, as assumed in this analysis, investment *cannot* be constrained by savings, including the internal savings of the firms.

[7]Some comment on the functional form of investment is in order. First, I have used a differential equation instead of a difference equation for simplicity. Second, since the level of capacity utilization is nothing but a ratio between the actual output and the full capacity output, it has to be multiplied by the rate of growth of capital to make it compatible with the left hand side of the equation.

$$\dot{g} = b\left(u - u_0\right)g + e \quad b > 0 \tag{3}$$

where,

$g = \left(I / K\right) =$ Rate of growth of capital

$u =$ Capacity utilization

$u_0 =$ Desired rate of capacity utilizatiton

$e =$ Technological innovation

To close this system of equations, we need to add the aggregate demand equation, which would give us a dynamic system of an economy with three equations: consumption, investment, and aggregate demand functions.

$$O = C + I = W + P \tag{4}$$

where,

$O =$ Total output

3.3 Short-Run Equilibrium

In the short run, investment is autonomous and savings adjust to it through the movement of capacity utilization. Assuming the investment level to be given, we solve for short-run equilibrium by equating the aggregate demand to aggregate supply. This would give us a short-term equilibrium level of capacity utilization. Using equations (1') and (4), we get the following,

$$u^* = \frac{g + \alpha q}{\beta\Gamma} \tag{5}$$

where,

$\beta =$ Technologically given output capital ratio

$\Gamma = \left(1 - \lambda\right)h + s_p\lambda h$

$h =$ Profit share

$s_p = 1 - c_p$

This result is a static analysis of the Keynesian variety. The RHS above shows that the level of demand in the economy is decided by the level of investment and consumption of the capitalists out of their wealth. The overall increase in demand is much higher than the sum of these two components because of the presence of the income multiplier given in the denominator. Before going into a dynamic analysis, it would be worthwhile to see what effect do changes in parameters have on the single period equilibrium. To show the effect of changes in various parameters or exogenously given variables, we need to partially differentiate the equilibrium level of capacity utilization with respect to those parameters or variables.

The Wealth Effect

$$\frac{\partial u^*}{\partial q} = \frac{\alpha}{\beta\Gamma} > 0$$

The Dividend Effect

$$\frac{\partial u^*}{\partial \lambda} = \frac{\left(g + \alpha q\right)\left(1 - s_p\right)h}{\beta\Gamma^2} > 0 \tag{6}$$

The Underconsumption Effect

$$\frac{\partial u^*}{\partial h} = -\frac{\left(g + \alpha q\right)\left[1 - \left(1 - s_p\right)\lambda\right]}{\beta\Gamma^2} < 0$$

The Overall Effect

$$du^* = \frac{\alpha}{\beta\Gamma}dq + \frac{\left(g + \alpha q\right)\left(1 - s_p\right)h}{\beta\Gamma^2}d\lambda - \frac{\left(g + \alpha q\right)\left[1 - \left(1 - s_p\right)\lambda\right]}{\beta\Gamma^2}dh$$

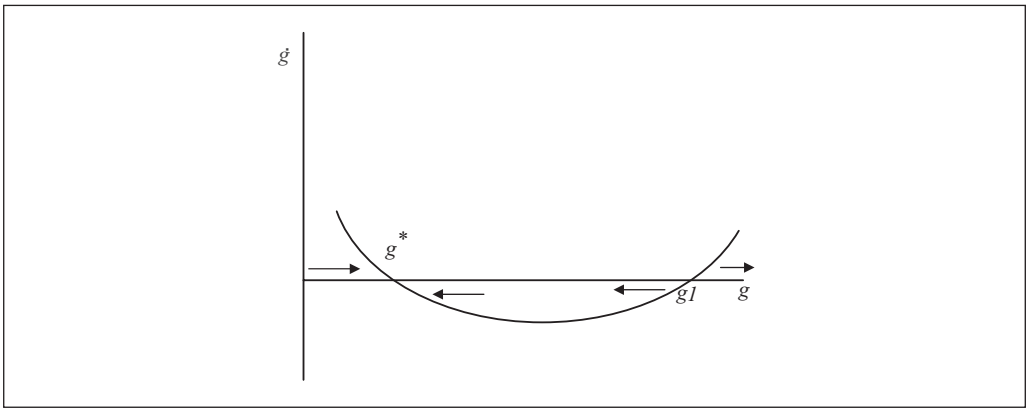

Figure 3. Phase Diagram for the Model

It is clear that the wealth effect has a positive role on the consumption of the capitalists. Apart from the wealth effect, another important factor that increases short-run capacity utilization is the dividend payout ratio. This is an important factor in the U.S. economy today where the dividend payout ratios have increased for the firms at a drastic rate especially with the shareholder revolution unleashed by the predatory takeover markets of the 1980s and '90s. This would again be easy to interpret since any increase in the dividend payout ratio[8] increases the consumption propensity of the economy due to the sheer fact that the dividend holders consume at least some portion of their income whereas the corporations do not necessarily consume or invest it.

It is clear from above that underconsumption (due to an increase in the profit share "h") could be overcompensated by an increase in the wealth of, and higher distribution of, dividends to the capitalists. It is more likely in a situation where the increase in stock market wealth (change in q) and the increase in the dividend payout ratio by the corporations are higher whereas the change in the profit share is smaller.[9] Now let us proceed to the long-run analysis of this model.

3.4 Long-Run Equilibrium

In the long run, investment is not autonomous any more. We substitute the equilibrium level of capacity utilization arrived at in equation (5) into equation (3) to get the dynamic growth equation in one variable, i.e. the growth rate. For a steady state, the rate of growth of investment has to be equated to zero which results in the following condition,

$$\dot{g}\Gamma\beta = bg^2 - b\left(\Gamma u_0\beta - \alpha q\right)g + e\Gamma\beta = 0 \tag{7}$$

Since the growth equation is in quadratic form, it results in two solutions as shown in Figure 3. The phase diagram clearly shows that the lower of the two steady state growth rates is stable.

[8]This route of positive effect of the dividend payout ratio on increase in output should be seen in sharp contrast to the efficiency route of the financial economists. Jensen and others argued the positive effect of higher dividend payout in terms of the increase in efficiency, because the shareholders would be free to save this money where they get the highest return in the share market as opposed to the firms who were wasting it in spending on projects of negative NPVs. My argument is exactly the opposite: the output would increase in so far as the higher dividend that they get is *not* saved, say in higher return assets, and consumed instead.

[9]The underconsumption effect could also be smaller if the difference between the consumption propensities of the workers and the capitalists is less.

This growth rate is exactly analogous to Kalecki's lower growth rate and entails the presence of *undesired* excess capacity even in the long run, which is not at variance with what even most of the advanced capitalist countries face except during exceptional circumstances of war.

Let us calculate the two solutions to equation (7) and see how the stable rate of growth depends on the various parameters of the system.

$$g^* = \frac{B \pm \sqrt{B^2 - 4C}}{2} \tag{8}$$

where,

$$B = \Gamma u_0 \beta - \alpha q \quad C = e\Gamma\beta / b$$

As noted above, it is only the lower rate of growth which is stable so we concentrate on that. Let us see what are the effects of increasing profit share, wealth, and dividend on this growth rate. Partially differentiating equation (7) with respect to *h, q,* and λ, we get the respective strengths of the underconsumption, wealth, and dividend effect.

The Underconsumption Effect

$$\frac{\partial g}{\partial h} = \frac{Bg - C + \alpha qg}{h(2g - B)} < 0$$

The Wealth Effect

$$\frac{\partial g}{\partial q} = \frac{-\alpha g}{h(2g - B)} > 0 \tag{9}$$

The Dividend Effect

$$\frac{\partial g}{\partial \lambda} = \frac{-(1 - s_p)[Bg - C + \alpha qg]}{\Gamma(2g - B)} > 0$$

$$\text{For, } g^* = \frac{B - \sqrt{B^2 - 4C}}{2}, \quad 2g - B < 0; \quad Bg - C = g^2 > 0$$

It can be seen from the above that the growth rate decreases with an increase in the profit share whereas it increases with an increase in the q-ratio and the dividend/payout ratio. The overall effect of these three factors on the growth rate can be calculated as follows.

The Overall Effect

$$dg = \frac{\alpha g}{h(B - 2g)} dq + \frac{(1 - s_p)[Bg - C + \alpha qg]}{\Gamma(B - 2g)} d\lambda - \frac{Bg - C + \alpha qg}{h(B - 2g)} dh \tag{9'}$$

Let us interpret this result. Starting from a steady state, assume that the profit share "*h*" increases. This would lead to a decline in the consumption demand as reflected in the last term of equation (9'). This decline in consumption, however, can be compensated by an increase in the consumption of the capitalists based on the increase in their nominal wealth, as shown in the first term above, and the increase in the dividend payout ratio, as shown in the second term. In general, the steady state growth rate would increase or decrease depending on whether the underconsumption effect is weaker or stronger than the sum of the wealth and dividend effects. These two possibilities can be visualized in a phase diagram. When the underconsumptionist tendency dominates the wealth and dividend effects, the growth curve shifts down in Figure 1, which decreases the steady state rate of growth. On the other hand, when the wealth and dividend effects dominate the underconsumption effect, the growth curve shifts up, which leads to an increase in the growth rate.

The most interesting aspect of this model is its dependence on the q-ratio. A closer look at the comparative statics performed above shows that in the case where the wealth and distribution effects overcompensate the underconsumption effect, the higher growth rate so generated would be dependent on the magnitude of change in the q-ratio and the dividend-payout ratio. The dividend-payout ratio has an upper bound, so it cannot act as an instrument to counter underconsumption for an extended period of time. The q-ratio, on the other hand, is primarily dependent on the divergence between the stock market value and the book value of the capital stock (see equation (2)). If the P/E ratio is increasing in the stock market, it leads to an increase in the value of wealth of the capitalists. This induces a higher wealth effect, and therefore an extra impetus to growth in the economy. But such high growth in the P/E ratios generally reflects a speculative bubble, where stock prices are driven higher by sheer speculative trading. Such booming stock markets would be necessary for this wealth effect to provide extra impetus to growth in the economy. If, however, there is a meltdown in the stock market, for any reason, it would dampen the wealth effect and have an adverse effect on the consumption of the capitalists. A dependence of growth on the stock market increases the instability of the growth process.

4. Relaxing the Assumptions

In the model above, certain assumptions, especially 1 and 3, i.e. the absence of the government sector and no bargaining power of the workers even at low rates of unemployment, respectively, seem stringent. However, it can be shown that, even if we relax these assumptions, the fundamental results could still hold, especially because of the correlation of class forces inherent in such growth trajectories. We introduce these two factors separately into the model presented above.

4.1 Demand Management Through Government Intervention

Introduction of the government sector changes some of the equations above. The consumption function (1') changes in the following manner, assuming no wealth tax,

$$C = (1-t_1)W + c_p\lambda(1-t_2)P + \alpha qK \qquad (1'')$$

where,

t_1 = Tax rate on wages

t_2 = Tax rate on profits

The output equation (4) changes to the following,

$$O = C + I + G = W + P \qquad (4')$$

where,

G = Government expenditure

Solving (1'') and (4') above, we would get the following short-run equilibrium,

$$u^* = \frac{g + \alpha q + G/K}{\left[(1-t_2)\Gamma + t_1(1-h) + t_2 h\right]\beta} \qquad (5')$$

The expression above requires some explanation. The addition of the last term in the numerator shows the positive effect of fiscal policy of the government on the capacity utilization of the economy in the short run. The term in square brackets in the denominator depicts, as

earlier, the share of savings in total output of the economy *as a whole*. While the first term in the square brackets gives us the share of savings in total output out of post-tax profits, the last two terms give us the share of government savings, through respective taxes, in total output.

In the short run, therefore, it is possible to increase the rate of capacity utilization through active state intervention either by an increased fiscal expenditure (G) or by a reduction in tax rates or a combination of both. This is reminiscent of what Keynes and Kalecki suggested as solutions to the problem of growing unemployment during the Great Depression.

Active state intervention can not only increase the short-run equilibrium but also increase the rate of growth in the long run through its effect on the rate of capacity utilization. Let us briefly see how that happens. The dynamic equation for growth rate is now altered in the following manner,

$$\zeta\beta\,\dot{g} = bg^2 - b\left(\zeta u_0\beta - \alpha q - G/K\right)g + e\zeta\beta = 0 \tag{7'}$$

where,

$\zeta = \left(1-t_2\right)\Gamma + t_1\left(1-h\right) + t_2 h$ [Share of total savings in output]

It can be shown that fiscal policy of the government would have a positive effect on the rate of growth. If we differentiate the equation above with respect to G/K, we get the following,

$$\frac{\partial g}{\partial\left(G/K\right)} = \frac{-g}{\left(2g - B_1\right)} > 0 \tag{10}$$

where,

$B_1 = \zeta u_0\beta - \alpha q - G/K$

$2g - B_1 < 0$ [for the same reasons as in (9)]

Similarly, it can be shown that, *ceteris paribus,* a reduction in the tax rate by the government would also have a positive effect on the growth rate through an increase in consumption by the workers and the capitalists.

$$\text{Tax on Wages: } \frac{\partial g}{\partial t_1} = \frac{\partial g}{\partial \zeta}\cdot\frac{\partial \zeta}{\partial t_1} = \frac{\left(B_1 g - C\right) + \alpha q g + \left(G/K\right)g}{\left(2g - B_1\right)}\left(1-h\right) < 0$$

$$\text{Tax on Profits: } \frac{\partial g}{\partial t_2} = \frac{\partial g}{\partial \zeta}\cdot\frac{\partial \zeta}{\partial t_2} = \frac{\left(B_1 g - C\right) + \alpha q g + \left(G/K\right)g}{\left(2g - B_1\right)}c_p\lambda h < 0 \tag{11}$$

where,

$B_1 g - C > 0$ [for the same reasons as in (9)]

It can be seen from the above that the lower the consumption propensity of the capitalists, the lower would be the effect of a decrease in their tax rate on the growth rate. On the other hand, a reduction in the tax rate on wages would have a higher effect on the growth rate if the profit share is small.

While it could be argued that the quantitative effect of government spending is invariably positive on the rate of growth, it is important to study its qualitative aspects and the limitations of this spending especially in an era of speculative finance. First, the dominance of speculative finance restricts the role of the government in steering the economy to start with. The rentier class argues for absolute freedom to let the financial corporations grow at their "natural" rate to ensure economies of scale.

Second, the government is forced to act as a shock absorber for such an unstable system. When such high rates of speculation lead to crises of serious proportions, the same rentier interests, which were the driving force behind the growth of this nature, demand state intervention to bail them out. The government is obliged to do so because of the sheer fact that collapse of such financial corporations would further decrease confidence in the financial system and aggravate the crisis. These corporations would not have posed such a threat to the system had they not been allowed to grow to such massive proportions where they became "too big to fail." This makes Keynesian state intervention stand on its head. Not only is the government not allowed to stimulate the aggregate demand through employment creation, it is made to bail out the very forces which were responsible for the crisis in the first place.

Third, there is demand for tax sops to the capitalist class to stimulate the demand in the economy during such crises. Such a step might have the possibility of stimulating demand, which in itself would be meagre given the low consumption propensity of this class, but it has an adverse impact on the capacity of the government to finance even the existing schemes on the social sectors. This is more so because the government is forced to balance its budget as soon as the crisis is over, even as the decisions regarding the tax sops are hardly ever reversed. This creates a persistent downward pressure on the expenditure on social sectors, thereby closing the limited possibility of betterment of conditions of the working class in the long term. What is even more interesting is that despite being opposed to active state intervention in driving the economy, there is a striking consensus amongst this class vis-a-vis military expenditure, which is in complete contrast to what Keynes-Kalecki would have imagined and argued for. A case in point is the extent of opposition in the U.S. Congress to the minimal health care reforms even as there was strong approval for President Obama's plan to send more troops to Afghanistan.

4.2 Workers' Bargaining Power

The other assumption which seems stringent is the absence of any bargaining power of the workers. Such an assumption seems less likely, especially for an advanced capitalist country such as the United States where the trade unions could bargain for a higher *ex ante* nominal wage at lower rates of unemployment. What seems striking again for the neoliberal growth trajectory is that the working class suffers both in the upswing (declining wage share) as well as the severe downturn (increasing unemployment with declining wage share) in the economy. How does one accommodate this possibility in the model? Let us use Marx's theory of a reserve army of labor to explain the bargaining strength of the workers in the economy.

To proceed further on this issue, we need to discuss the process of determination of wage share of the workers in a capitalist economy. At the cost of a digression, let us briefly present a model of wage bargain which would place this question in a theoretical perspective. Assume a simple model of wage bargain in which there are only two classes: workers and capitalists. In a world of price makers, the relative share of these classes is decided by their *ex ante* claim in the total output. It should be obvious that these claims are dependent on the relative as well as absolute strength of the stakeholders.

The weapon of the workers in this struggle is the *ex ante* money wages that the trade unions bargain for. The level of bargain is set in such a manner that they can command a real wage bundle tomorrow at the expected price. This claim over a real wage bundle relative to labor productivity, as argued by Marx in his theory of the reserve army of labor and later by Phillips in his famous Phillips's curve, is dependent on the rate of unemployment "v." If the pool of unemployed is small, then the labor unions have a higher bargaining power because of the lesser likelihood of defaulters to the wage negotiated between the union and the capitalists.

Since the price level of the next period is not known, the unions make an expectation about it based on their existing experience.

$$\begin{aligned} & w = p^e \bar{w} \\ \text{such that} \quad & \bar{w} l = F(v), \quad F' < 0 \end{aligned} \tag{12}$$

where,

w = *ex ante* money wage claim

p^e = expected prices

$\bar{w}$ = real wage bundle

l = labor coefficient per unit of output

v = rate of unemployment

Capitalists stake their claim on the output through the markup "μ" that they set in the product market. The markup has generally been assumed to depend on the rate of capacity utilization. But I would argue that it should be dependent on the extent of concentration in the industry. This is because with oligopolistic enterprises, the possibility of a price war even in the wake of low capacity utilization seems quite dim, i.e. there is a downward rigidity in the markup in such market structures.

Prices are determined as a markup over the costs. Assuming away intermediate goods for simplicity, wage costs are the only costs,

$$p = wl \tag{13}$$

Substituting (12) in (13) gives us the following dynamic price equation,

$$\frac{p}{p^e} = F(v) \tag{13'}$$

For price stability, actual prices should not diverge from expected prices. If the actual prices in this period are higher than what the workers had expected earlier, they would incorporate the higher price of today into next period's demand for the real wage bundle. This is the essence of the instability that ensues if the reserve army of labor gets depleted. It can be seen if the RHS is greater than 1, i.e. the combined share of workers and capitalists is greater than 1, it would result in an accelerating inflation.

Therefore, the price equation would solve for one unemployment rate v* (as shown in Figure 4) where the demands of the two participants just equal the total output. This is what is called the non-accelerating inflationary rate of unemployment[10] (NAIRU). Thus, *ceteris paribus*, an increase in the markup would push the curve rightwards (shown by the dashed line in Figure 4). At v*, there would be pressure for accelerating inflation which would undermine the claim of the capitalists for a higher share of output since the workers would stay the course and not part with their existing share of output. A new equilibrium would require an increase in the unemployment rate to v_1.

[10]This concept of NAIRU, which can be found in Rowthorn (1997), is completely different from the way NAIRU has been defined in neoclassical economics. In the latter, it has been equated to a "natural" rate of unemployment which is constant. But in our case the NAIRU itself is variable since it depends on the bargaining strength of the two classes. It is possible, therefore, that if the capitalists stake a higher claim over output through a higher markup, the level of NAIRU would have to *increase* to accommodate this demand.

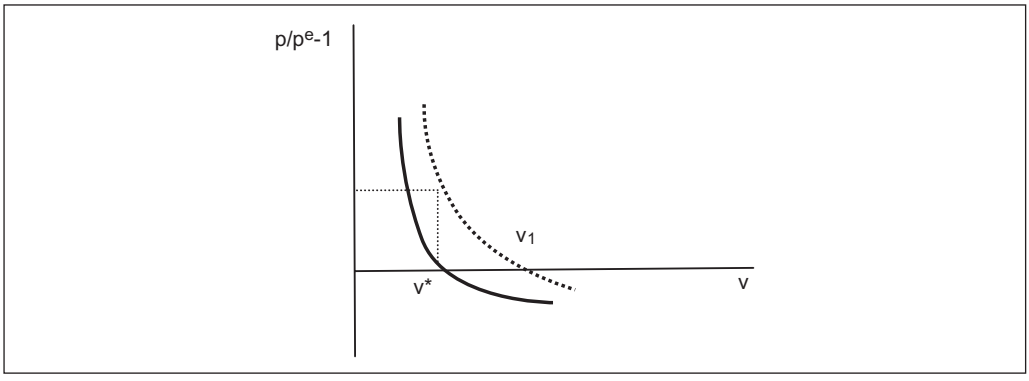

Figure 4. Dynamics of Workers' Bargaining and the Capitalists' Claims Over Output

Let us now look at what happens to the working class under the growth regime of speculative finance. It is obvious that any downturn decreases the bargaining strength of the working class through an increase in the unemployment rate. But what would happen during an upswing? Do they at least gain then?

With an increase in the profit share due to centralization of capital, *ceteris paribus*, there is an upward pressure on the level of NAIRU to accommodate the higher claim by the capitalists. But it is quite possible that there is a downward pressure on the unemployment rate during the upswing. Since both these forces are moving in the opposite direction, how does one ensure that the claims of the capitalists are met at the cost of the workers even as the level of capacity utilization and employment rates are soaring. This is precisely what seems to have happened during the second half of the 1990s in the United States. Even as the unemployment rates were hitting a low 4 percent mark, the wage share of the blue-collar workers was *declining* steadily. This decline in the wage share resulted *ipso facto* in an increased share of income of the rich.

This paradox can be resolved if we look at the wage bargaining equation of workers. I believe that the workers' bargaining power does not merely depend on the unemployment rate but there could be other factors that affect it. First, it is the rate of unionization that should enter as an argument for workers' bargaining power. It is quite possible that even at lower rates of unemployment, there is a declining power of the unions. This is something that seems to have happened in the United States. In the name of restructuring and consolidation of business during the 1980s and 1990s, there was a conscious effort to weaken the trade union movement particularly in the private sector (Figure 5).

Second, with globalization and the growth of predatory finance, *national* unemployment rates may not be a valid category to determine the bargaining strength of the workers at any rate. A lot has been written about the outsourcing industry which has kept the bargaining strength of the workers in the advanced capitalist countries under check. But what is even more interesting is that it is not necessary for capital to necessarily relocate abroad to ensure this. They could use the sheer possibility of a *global* reserve army of labor existing outside the national boundaries as a *credible threat* against demands for increasing wages by the local workers. Pollin (2005: 52) writes,

> [I]t is the changes in the balance of forces between capital and labor, and the growing integration of the US into the global economy—*which has increased the difficulty of the US firms raising prices and US workers getting wage increases*—that have been the main forces that have weakened the pressure for inflation to accelerate even at low unemployment rates. (emphasis added)

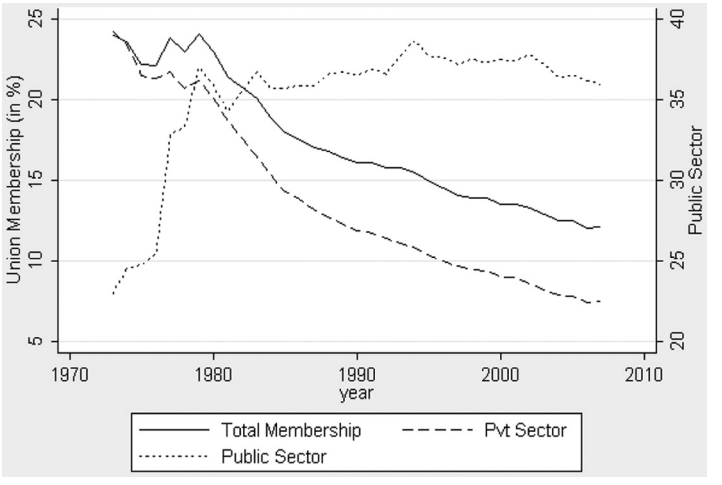

Figure 5. Percentage of Unionized Workers: Private and the Public Sector in the United States
Source: Data taken from the Union Membership and Coverage Database, available at www.unionstats.com, an Internet data resource which provides private and public sector labor union membership, coverage, and density estimates compiled from the Current Population Survey (CPS), a monthly household survey, using BLS methods. All three series have been taken from U.S. historical tables covering the period between 1973 and 2007.

This possibility can be formally shown in the following manner. With globalization of finance and industry, the workers' bargaining function (F(v)) becomes flatter for a whole range of unemployment rates. And only at extremely low rates of unemployment, and that too not necessarily, does the working class becomes strong. In other words, the lower limit of NAIRU decreases dramatically. This can be seen in Figure 6.

Thus, instead of just a single point, a whole range of points becomes consistent for any given markup in (13'). Even if the upswing leads to a decline in the unemployment rate domestically, the wage share would not increase for a whole new range of very low unemployment rates (between v_0 and v*). On the other hand, an increase in the profit margin can take place at the cost of the workers without any price instability. Thus, it is the working class which remains at the receiving end of such a growth process, whether it is the upswing or a severe downturn.

5. Conclusion

The current economic crisis seems to have far deeper roots than just the subprime markets in the United States. I argue that the fundamental problem lies with the economic trajectory that the United States has followed since the 1980s, especially after the withdrawal of the state (except for military purposes) in steering the economy. The distinguishing feature of the present growth trajectory is that out of the four main sources of demand, viz. consumption, investment, government expenditure, and trade surplus, the last three have declined in importance for various reasons. This leaves consumption by the households as the only avenue left for propelling growth in the economy. However, in the wake of growing inequality of income, even this possibility seems to be suspect because the rich have a lower propensity to consume than the poor. It is precisely this paradox of consumption that gives the present growth process in general, and the present crisis in particular, the dangerous proportions as we see them today.

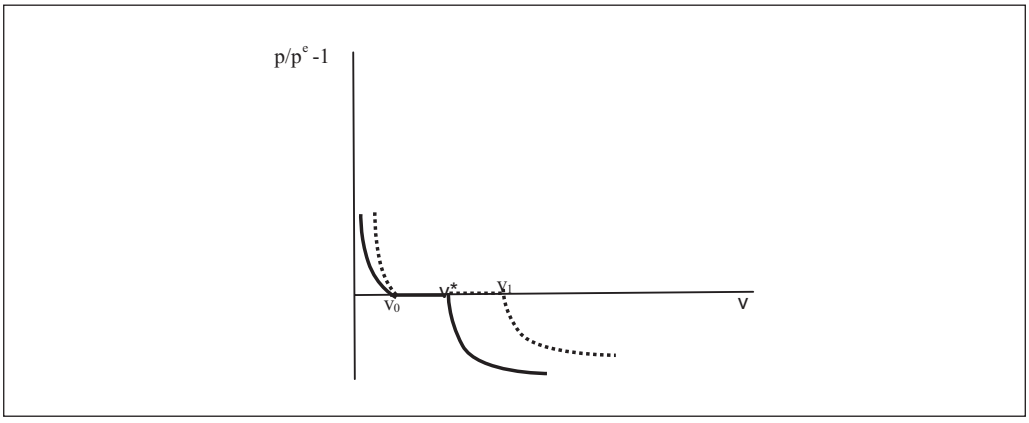

Figure 6. Dynamics of Workers' Bargaining Under Globalization

The only route left for the growth rate to pick up is through an increase in consumption of the rich through capital gains in the asset price markets, i.e. the wealth effect which, in turn, makes the growth process vulnerable to the vagaries of these markets. It would require speculative bubbles of one kind or another to sustain the surge in consumption demand, which, in turn, should constantly be at a level sufficient to counter the underconsumption effect. The growth story of the United States since the mid-1990s is a testimony to this. The growth rate in the U.S. economy in the 1990s was primarily sustained by increased consumption fed by the stock market boom, which in turn was riding on the dot.com bubble. As soon as this bubble went bust in 2000, the economy was in need of another speculative bubble to sustain itself. This was provided to in the form of the housing market. With the collapse of the housing market and the absence of another speculative bubble, the U.S. economy finds it difficult to tide over the present crisis. The question, in this time of crisis in the world economy, is whether there will be a revival of Keynesianism of the kind that the postwar period had witnessed, or would the U.S. economy wait for another bubble to tide over the slump. The answer to this question lies at the heart of the future of the world economy.

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Bio

Rohit is an Assistant Professor at the Faculty of Economics, South Asian University, New Delhi. As a macroeconomist he has worked on the effect of income distribution on growth in the advanced capitalist countries, with the United States as a case in point. While his primary focus has been on the growth trajectories of the advanced nations in the age of globalization, his interests also extend to the growth processes unfolding in India and China.