

Peak Debt and Income

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Just over two years ago, in a paper on Peak Debt, I analyzed the effect that reaching a limit on the amount of debt that can be supported by personal income would have on restricting consumer spending, and by extension, on reducing the potential for growth in the economy as a whole [Ref 1.]. At the time it appeared that a peak in consumer purchasing power had already been reached, and that it was likely that there would be a long period of economic decline to follow. Three ways in which the consequences of the large over-hang of debt might be ameliorated were examined: (1) a significant growth in real personal income, (2) a default on outstanding debt, and (3) a central bank induced hyper-inflation. At the time, the first option was considered to be an unlikely possibility given that the trend in real incomes for the lowest 99% of the population has been flat or in decline since about 1970. The second option, eliminating part of the accumulated debt through bankruptcy and default, turned out to have little actual impact on the projected decline in purchasing power. With regard to the third option, it was found that a significant devaluation of the currency would only exacerbate and prolong the inevitable unwinding of the economy.

Since the time of the original analysis, the economies of the world have experienced a long period of recession, equity and housing markets have seen precipitous declines, and unemployment has reached a troubling level. Private and government responses to the situation have centered on various versions of options (2) and (3), generally to little effect. Loan-defaults and bankruptcies including "strategic" defaults on mortgages are at an historic high; and the government has assumed, in one way or another, an enormous amount of bad corporate and private debt, transforming it into a large increase in public liability and raising the prospect of an eventual serious inflation. The issue of real income, option (1), has mainly been addressed through unemployment benefits and job-stimulus programs which in magnitude fall far below what would be required even to replace what has been lost.

There is an additional approach, strongly espoused by the political and economic right, which argues that reductions in taxes are needed to encourage affluent individuals and businesses to invest their present large holdings of cash in new means of production, and thereby generate jobs and income. On the surface it would seem, even without considering its negative impact on the deficit, that this approach would be hard to justify given both the present under-utilization of manufacturing and service capacity, and the root problem of the consumer's inability to support additional spending. It is also unlikely that this US domestic quandary will be solved by an increased exploitation of foreign markets, as some proponents argue, when all of the economies of the world are in distress. Nevertheless, because of its prevalence in the political sphere, it is worth examining the implications of this 'supply-side' approach in some detail.

We can analyze the relationship between business investment and individual income using a global sum-rule for financial assets. In particular the sum of all financial assets and liabilities (negative financial assets) over all economic entities must be by definition zero:

$$\sum A_n = 0 \quad [1]$$

If the assets are divided between foreign (f) and domestic, and the latter again sub-divided into public (p), business (b), and household (h), we can write an expression that relates changes among the respective quantities:

$$\Delta A_h + \Delta A_b = -\Delta A_p - \Delta A_f \quad [2]$$

Recognizing that economic recovery will depend on the resumption of household consumption, the issue becomes one of maximizing ΔA_h . Two obvious options are (1) to increase the rate of government deficit spending (ΔA_p negative), and (2) to increase the current-account surplus (ΔA_f negative). The first of these cannot be pursued indefinitely, and the second is not really practical in a world-wide down-turn where all countries are seeking to increase exports simultaneously. If we assume instead that prudent policy is to stabilize both the deficit and the trade imbalance over time, equation [2] becomes:

$$\Delta A_h + \Delta A_b \sim (\text{constant}) \quad [3]$$

Consider now a simple model in which household income derives from business activity. In particular that ΔA_h is in some proportion, α , equal to business financial assets less the amount re-invested in real-assets for production, ΔB_b . That is:

$$\Delta A_h = \alpha \cdot (\Delta A_b - \Delta B_b) \quad (\alpha \leq 1) \quad [4]$$

If we further suppose that the amount invested in real-assets for production should be related to demand, which is in turn related to household financial assets, we can write:

$$\Delta B_b = \beta \cdot \Delta A_h \quad (\beta \leq 1) \quad [5]$$

and

$$\Delta A_h = \alpha \cdot (\Delta A_b - \beta \cdot \Delta A_h) \quad [6]$$

If we now substitute this in equation [3], and do a bit of algebra we find that:

$$\Delta A_h \sim (\text{constant}) / (1 + 1/\alpha + \beta) \quad [7]$$

We see that in order to maximize household financial assets, ΔA_h , we want to make β as small as possible, and α as large as possible. This means that it is important (1) to invest only as much in business real-assets as is required to meet demand, and (2) that most business financial-assets should be distributed as wages and dividends in a manner that is most likely to encourage demand. These conclusions directly contradict the argument that encouraging business investment will lead to economic recovery. Rather, they support the adoption of policies that would re-direct most of the proceeds of business activity into personal income in ways that would best favor consumption.

Let us consider then how incomes are distributed, and the impact that this distribution has on personal consumption. Recent data on household incomes [Ref 2.] are shown in Figure 1. The points correspond to the top income for each of the lower nine deciles, and the curve is a least-squares fit of a Lorentz-line to the data points. The fit is remarkably good.

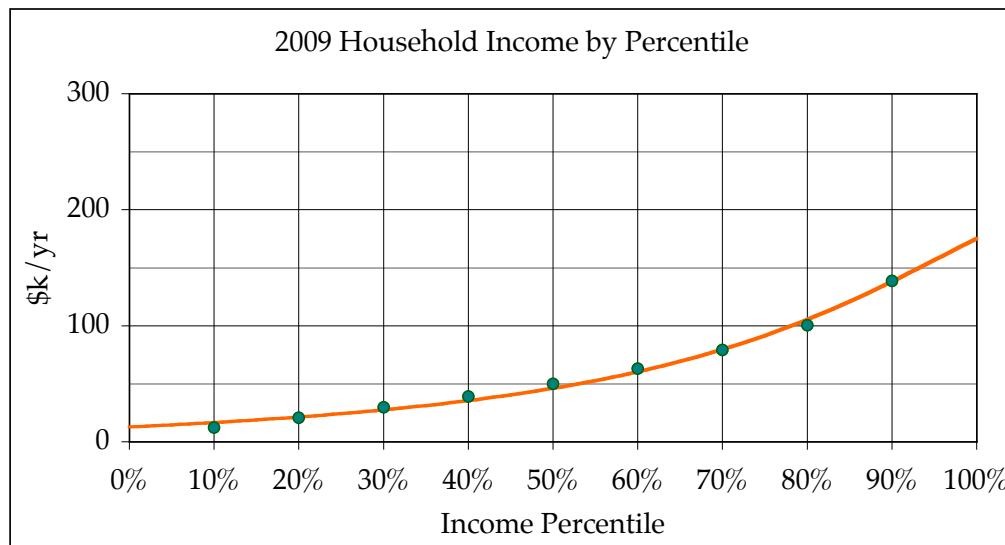


Figure 1. Top income in each of the lower nine deciles. Lorentz-line fit.

Data for the distribution of incomes within the tenth decile are irregular and are included as the histogram plotted in Figure 2. The subdivisions of the histogram correspond to the properly normalized average income in each of the respective percentile ranges 90% to 95%, 95% to 99%, and 99% to 100% [Ref 3.]. It can be seen from the figure that there is a dramatic skewing of income into the top decile, and that the values in this interval rise significantly above the projected trend-line of the lower nine deciles. In fact, 50% of all income goes to households in the top 10%. This degree of maldistribution is historically unusual and, as can be seen from Figure 3, is greater now than any time in the last century.

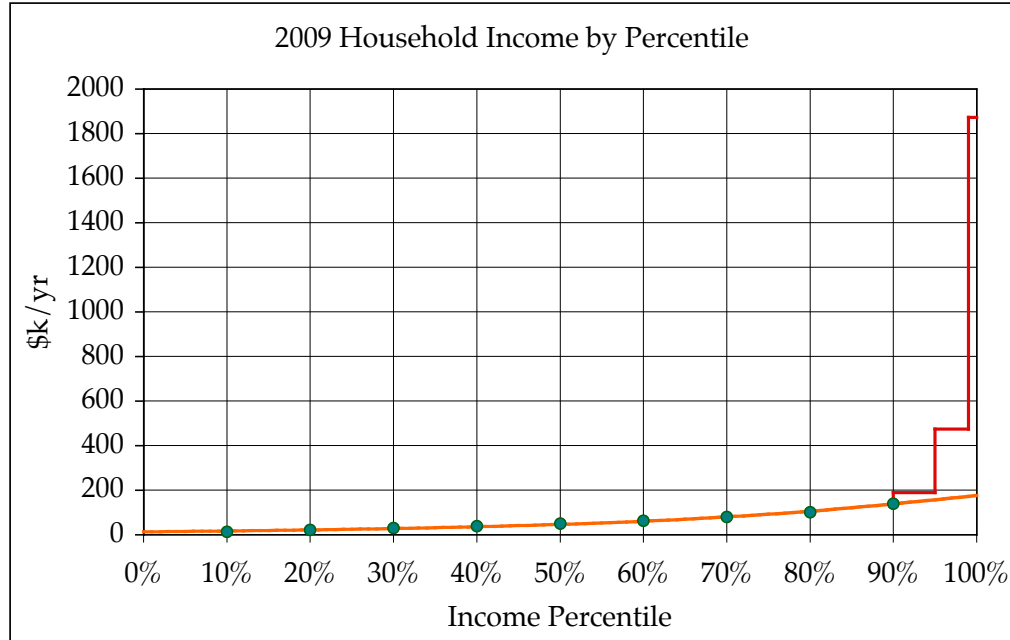


Figure 2. As in Figure 1, with a histogram of averaged top-decile incomes.

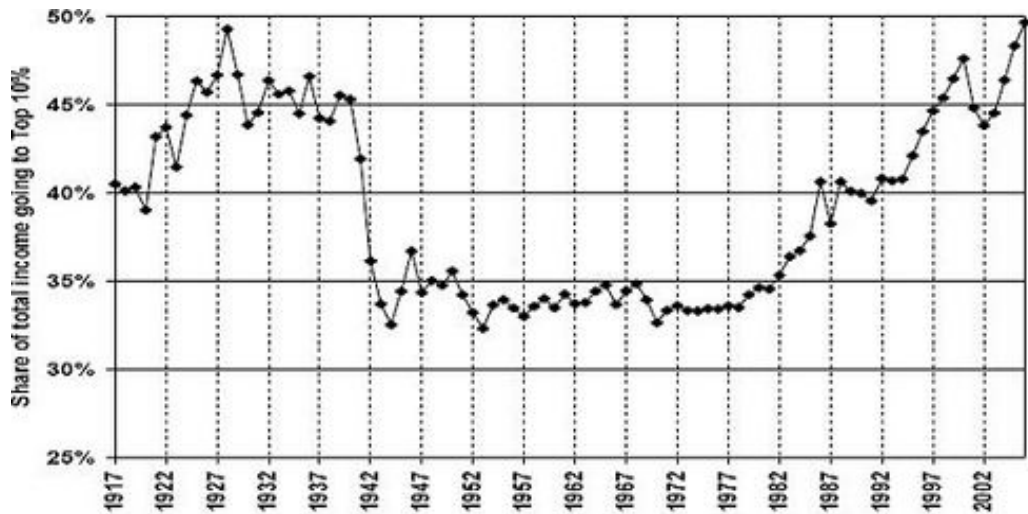


Figure 3. Top decile share of total income.

From the period of World War II through the early 1980's, the top decile typically received only about 34% of the total income.

It is interesting to observe that if the income fraction of the top 10% were returned to the historic value of 34%, and the difference distributed in proportion, the current incomes of the other 90% of households could be increased by the surprisingly large factor of 1.3. Equivalently, this would amount to a 30% increase in earnings for most of the population.

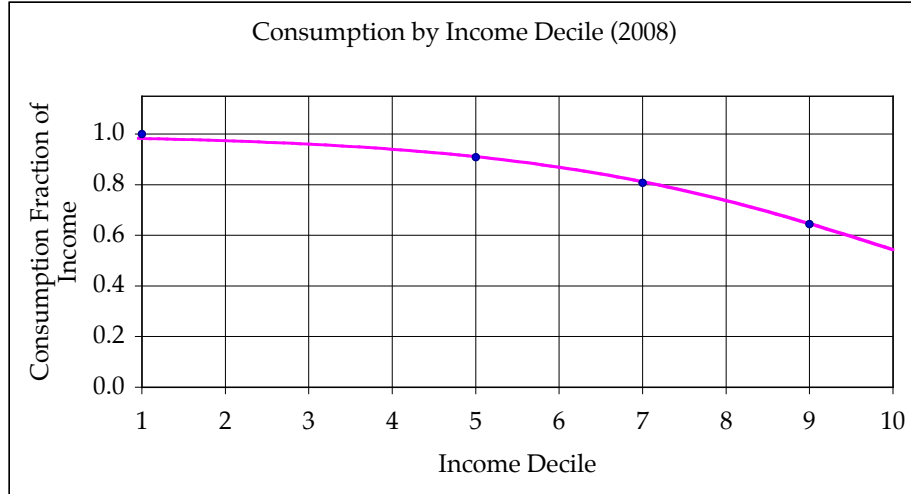


Figure 4. Consumption-fraction of income by decile.

But we are really interested in seeing the impact that any redistribution of income has on spending. If all income levels spent at the same rate, shifting income up or down the scale would have little net effect on the economy. The actual situation is shown in Figure 4 which plots the fraction of household income that goes to personal consumption as a function of income decile. The graph was constructed from data provided in [Ref 4.]. As might be expected, lower-decile incomes are directed almost entirely into consumption, while we can see that only about half of the very highest incomes are actually spent.

We are now in a position to compare the relative effect on consumption that might be expected from several alternative distributions of income. Consider the function:

$$(C_{TOT}/I_{TOT}) = \Sigma [(C_N/I_N) \cdot (I_N/I_{TOT})]. \quad [8]$$

It gives the total consumption fraction as the product of respective decile consumption and income fractions summed over the deciles. In any comparisons, we would want to see (C_{TOT}/I_{TOT}) be as large as possible.

As an example, the current income distribution illustrated in Figure 2, with the top 10% having 50% of the total income, gives $(C_{TOT}/I_{TOT}) = 0.67$. If we consider the more historically typical situation in which the top 10% receive only 34% of I_{TOT} , then $(C_{TOT}/I_{TOT}) = 0.71$. This number corresponds to a factor of 1.06 improvement in total consumption, and if realized would translate directly into a very significant addition of 4.2% to the current value of GDP (i.e. domestic consumption is about 70% of GDP).

It is also interesting to consider an income-distribution that is based on the Lorentz-line fit to the income data for the lower nine deciles (Figure 1), extrapolated into the tenth decile. With this distribution, shown in Figure 5,

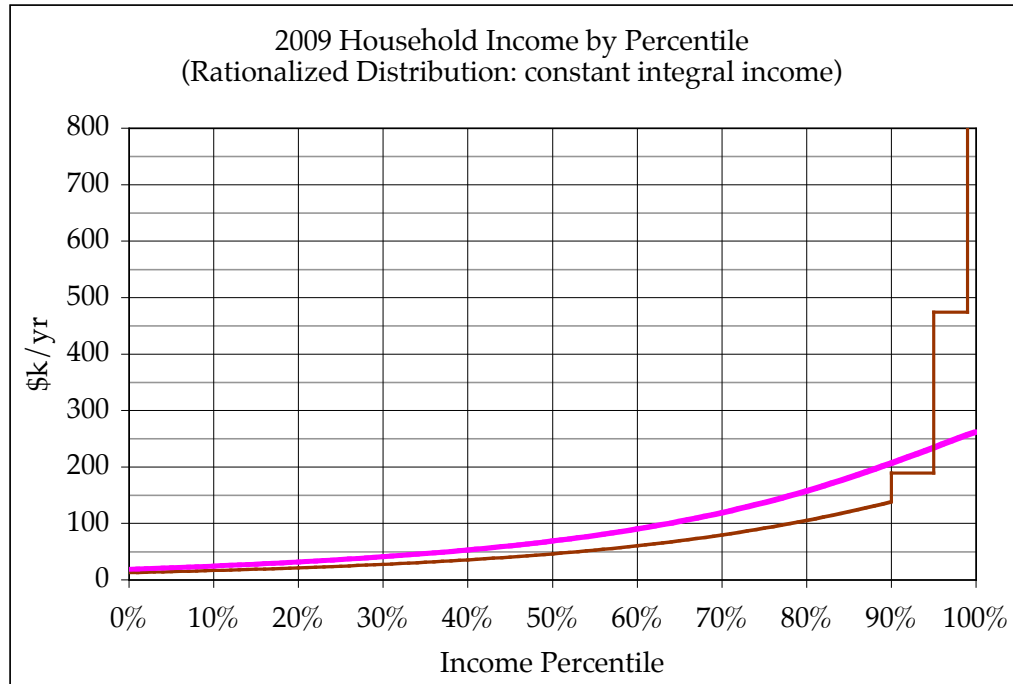


Figure 5. Lorenz-line income distribution. Proportional redistribution (A).

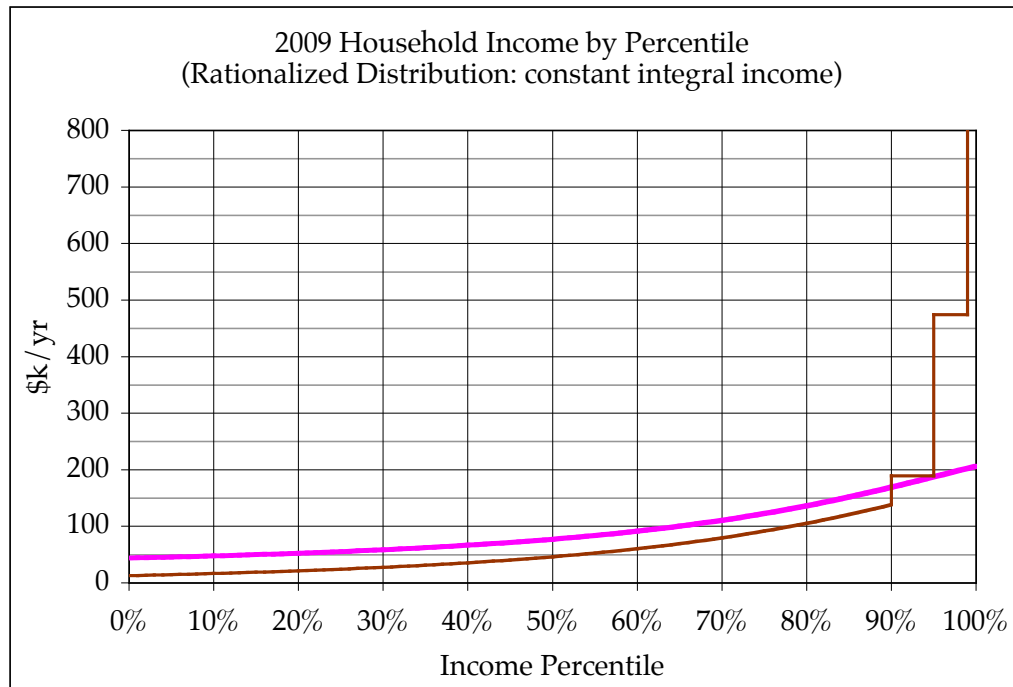


Figure 6. Lorenz-line income distribution. Additive redistribution (B).

we find that incomes at all levels could be increased in proportion by a factor of 1.5, and that $(C_{TOT}/I_{TOT}) = 0.73$. This number is a factor of 1.09 better than the

current value 0.67, and would correspond to a 6.3% addition to the GDP. In this case, the top 10% would still be receiving more than 25% of the total income.

As an alternative to increasing all incomes by a multiplicative factor, we can also examine the effect of adding a constant dollar amount to each income established by the Lorenz line. In this case, shown in Figure 6, we find that all household incomes would be increased by \$31.4k, and that $(C_{TOT}/I_{TOT}) = 0.77$, which is a factor of 1.15 better than the present number. More than 10% would be added to the GDP, and the top decile would be reduced to having 20% of the total income.

Table 1. Consequences of the income distribution for economic growth.

Income Distribution	$I_{TOP-DECILE}/I_{TOT}$	(C_{TOT}/I_{TOT})	$\Delta (C_{TOT}/I_{TOT})$	Addition to GDP
Current	50%	0.67	0%	0%
Historic	34%	0.71	+ 6%	+ 4.2%
Lorentz A	25%	0.73	+ 9%	+ 6.3%
Lorentz B	20%	0.77	+ 15%	+ 10.5%

Results for the four income-distribution examples that are considered in this note are summarized in Table 1. The most striking observation that can be made from the present analysis is that a gross maldistribution of income such as we now have in the US can have a very large negative impact on the overall level of economic activity. Not only does a large income disparity set the stage for unsustainable levels of borrowing in support of continued consumption (the Peak Debt issue), but it, in and of itself, significantly reduces the GDP.

It would seem that our current dire economic situation may be best addressed by the adoption of policies that encourage the redistribution of corporate and business profits as wages and dividends so as to increase the real incomes of all but those in the highest income decile.

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References.

[Ref 1.] Peak Debt. Ronald M. Laszewski. 2 July 2008.

[Ref 2.] CPS Survey, Work experience and Income Supplement. March 2009.

[Ref 3.] Wealth and Income in the US. A. B. Kennickell. Fed. Res. 9 Jan 2009.

[Ref 4.] BLS Consumer Expenditure Survey (2008).