Briefing Notes in Economics

'Helping to de-mystify economics since 1992'

Issue No. 62, September/October 2004 *http://www.richmond.ac.uk/bne* *ISSN 0968-7017*

Necessities, the Marginal Utility of Money, and Saving

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This essay brings together the themes of two book chapters, publications separated by more than a decade but newly relevant. The first ties inflation in necessities to distributive efficiency; the second ties 'Reaganomics' to the Casino Effect, which generates a new kind of savings through asset inflation. The distributive effects of these two kinds of inflation—goods and asset—are linked by the marginal utility of money (or income) and the marginal propensity to save. The surprising macroeconomic implications of these relationships are explored within the context of the new welfare economics. **JEL: D11, D61, D63, E21**

1. Introduction

The themes of the two book chapters summarized here are separated by 14 years but are newly relevant. The first ties inflation in necessities to distributive efficiency; the second ties Reaganomics and saving to the "Casino Effect." In the 1970s goods inflation was a major problem, especially inflation in necessities. By the late 1980s goods inflation was subdued even as invisible asset inflation that I called the "Casino Effect" was

♦ *Author's note*: This paper is written as to honor the memory of Jim Gapinski and his perseverance that led me to contribute chapters to books he edited (see References). *Editor's note*: Jim Gapinski passed away in a November month about half a dozen years ago. I am grateful for having interacted with him for the short time that I did.

taking place. A new kind of savings was generated by the Casino Effect, something that I later called the "angels' share of savings." The Casino Effect was temporarily reversed by the stock market crash of 1987 only to be followed by a speculative Nasdaq bubble that burst in March 2001. We are still reeling from its effects even while observing the reemergence of a speculative asset bubble as well as inflation in necessities such as energy and food. The distributive effects of the two kinds of inflation—goods and asset—are linked by the marginal utility of money (or income) and the marginal propensity to save.

2. The Marginal Utility of Money and Distributive Efficiency

Abba P. Lerner had attempted to revitalize welfare economics with the remarkable idea of distributive efficiency. Since it presumes a diminishing marginal utility of income, distributive efficiency provides an ingenious defense of egalitarianism. Lerner saw distributive efficiency as exactly parallel to productive efficiency. In the analogy the efficient allocation of income requires the equalization of the marginal utilities of different expenditures on the various consumption goods. Lerner presumed that the marginal utility of income is derived from the marginal utility of expenditures on consumer goods and services. Then, transferring income from higher to lower income intervals is the only way utility can be maximized.

In turn, I attempted to explain why the marginal utility of income does, in reality, diminish (Canterbery, 1979). Every individual's utility cannot be determined, but that is not an issue since we are concerned only with probabilities. For that, it is sufficient to measure marginal utility between one income interval and another. Individuals have a hierarchy of needs and wants; that is, basic needs trump other needs and some wants are more compelling than others. Properly defined, a hierarchy of bundles of goods and services can be lexicographically ordered. That is, individuals would rather have some goods and services (hereafter simply goods) from bundle-type one than to have any at all from the bundle-type ranked two, and this holds for all subsequent rankings.

In this layered view personal income levels decide not only "marginal" but total utilities. Imagine these bundles stacked like the sandbags on a levee with the water level representing the level of income. All the goods and services in each bag will not be consumed until income (liquidity) rises to the top of the bag. The other bags remain dry. If income rises adequately, all the basic necessities will be consumed and the consumer moves on to satisfy wants. The threshold level of income for, say, bundle-type two, equals the satiation level of income for bundle-type one so that the satiation level of income in each case specifies a kink in the Engel curve (quantities consumed at different incomes). The sandbags at the top of the levy provide the *least extra* utility but together with those beneath, the greatest *total* utility.

As far as I can surmise, we cannot move directly from the set theory of lexicographic functions to an econometric estimate of the implied parameters. Fortunately, this appears to be both unnecessary and unwise. The extended linear expenditure system (ELES) not only is a way of measuring consumer responsiveness to changes in income, but also can identify "necessities" versus "desired goods" for a society of a particular per capita income. That income devoted to non-necessities is supernumerary or purely discretionary income, giving rise to a supernumerary function (the ratio of expenditures on non-necessities to total expenditures). This ratio is higher in higher income countries and is higher for high-income families and lower for low-income families in the *same* country.

The microeconomics of ELES provides a measure of the marginal utility of income even as it dovetails with Keynesian macroeconomics. The negative of the inverse of the supernumerary function is the expenditure elasticity of the marginal utility of expenditure or the Frisch parameter. Since the marginal propensities to consume each discretionary commodity or bundle out of income can be estimated from the ELES equation, their sum is the *aggregate* marginal propensity to consume (MPC). In turn, the MPC and the MPS can linearly transform the Frisch parameter into the income elasticity of the marginal utility of income. The integral, mathematically, of the income elasticity *is* the *marginal utility of income*. Repeated ELES estimates find the absolute value of the Frisch parameter as well as the MPC declining as income rises. The ELES provides a direct estimate of Lerner's elusive but nevertheless diminishing marginal utility of income because lower-valued commodity bundles are consumed at higher incomes.

3. Personal Savings and the Wealth Distribution – Keynesian or Classical?

Lexicographical orderings and ELES provide some special insights into savings as normally defined as well as the their macroeconomic implications. A general rise in the price of necessities such as food, public utilities and medical care (at a given money income) requires a diversion of income away from discretionary items.[1] The

[1] The slowdown in U.S. aggregate consumption during the second quarter of 2004 (and perhaps beyond) probably can be attributed to rising energy and food prices. Ironically, what is now called core inflation *excludes* these necessities from the CPI as parts of meaningful goods inflation. The one possibly commendable but unmentioned rationale for this exclusion is that energy and food prices inflation is beyond the reach of monetary and fiscal policies. In such case all necessities, including health care, should be excluded from the core. Indeed, price inflation driven by any supply-constrained goods output is immune to tightening monetary and fiscal policies (except through massive employment and output reductions). The influence of

household shifts expenditures away from those items yielding lower marginal utility and toward those providing higher marginal utility. As the subsistence share of total expenditures rises, savings will fall. The sensitivity of savings to the prices of the "most necessary" goods declines as per capita income rises. Put differently, as absolute necessities become smaller shares of incomes, savings become less responsive to price changes in the highest ranked (least desired) good. Therefore, we can expect the MPS and savings to rise at higher levels of per capita income, Keynes' long forgotten admonition.

Two contentious views of the role of personal savings in the macroeconomy exist. In the classical view, personal savings (plural) not only generate real investment but the two are always equal. Because of the direction of effects—from savings toward investment—the social purpose of the rich is elevated to uncommon heights. By the deployment of Say's law, this transmutation of savings assures a natural rate of full employment. Supply creates its own demand. The prosperity, even the survival of capitalism depends greatly on higher incomes and greater savings by the rich. It is a matter of great social convenience.

An equally compressed sketch of John Maynard Keynes' ideas has demand creating its own supply; in this view, maintaining the purchasing power of the middle class and its low MPS is critical to full employment. When incomes of the masses are too skimpy to buy industry's discretionary products, business firms have little reason to invest in plant and equipment or in research and development. When demand-driven private investment is adequate, so too is employment; when investment is inadequate, total demand in the economy is insufficient to employ everyone desiring work. Thus, to a true Keynesian, real investment in factories generates real saving (singular). These grand claims are not as remarkable as their polarity.

In today's economy, both the classicals and Keynes cannot be correct. Yet, the art of knowing which policies to deploy depends on a reliable design of the bridges between investment and savings or saving. As I will contend, Keynes comes closer to the truth inasmuch as real investment leads to real saving (singular), but he offers only an incomplete explanation of financial asset inflation and its effect on the real economy. We nonetheless correctly measure real national saving as the value of real investment. A society has not really saved unless it has a new factory, equipment, house, or highway to show for it. If personal or household saving(s) does not somehow link up with real investment as cause or effect, in the cloistered worlds of both classical and Keynesian economics they play no further economy role.

The traditional version of Say's law, buried by the Great

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such policies on even demand-driven inflation is suspect.

Depression and Keynesian economics, was resurrected in Reaganomics and later re-energized by the George W. Bush Administration. Numerous and large tax cuts for income-earners in the top-most income brackets bolstered by cuts in the top rate on capital gains would, it was claimed, lead to a flood of personal savings (plural) and of real investment. This rehabilitation of Say's law has happened at the same time as other trends tending to lower workers' incomes while elevating those at the top. There has been a flight of manufacturing to low-wage countries that has put downward pressures on U.S. manufacturing wages and employment. At the other end of the income distribution corporate CEO compensation has soared even as corporations have been (on a net basis) buying back more common stock than they have been newly issuing. The collective consequence has been the greatest redistribution of income and wealth toward the top in peacetime American history. A bull market in bonds and the Nasdaq stock price bubble enhanced these trends during the late 1990s.

In Keynesian economics a rising national income from rising real investment leads to greater real saving. Even if "real," a portion of saving out of a rising national income should accrue to households. In classical economics a rising level of personal savings (as loanable funds) leads to rising business investment. Both views are confounded by a U.S. national income accounts measure of personal savings *as a share* of disposable personal income peaking at 7.5 percent in 1981 and since declining to near invisibility. Since the 1970s the surges in business investment came with the splurge on new information technology as a counterpart of the Nasdaq bubble that burst and the recent boomlet that has left the Nasdaq once again overpriced. There also is the quandary of a secular bull market in bonds and stocks in an era of zero or near-zero personal savings.

4. The "Casino Effect" and the Angels' Share of Savings

The saving(s) paradox cannot be resolved in the absence of a third, unrecognized form of personal savings. The national income accounts do not measure savings directly; rather, savings comprise the difference between disposable income and consumption. Properly defined, personal savings is the same as an increase in net worth. Using a flow-of-funds approach, the Federal Reserve System has a much closer approximation of changes in net worth. It adds increases in financial assets to net investment in consumer durables (such as a house purchase), and then subtracts the net increase in debts to arrive at savings. If the Federal Reserve figures are compared with the national income account figures, the Commerce Department has greatly understated savings by as much as 45 percent (in 1987).

These diverging measures suggest a defect shared by Keynesian and classical theories. Neither Keynes nor the classicals defined saving(s) as a positive change in net worth.

During periods of rapidly rising financial asset prices, personal net worth grows rapidly at the very top of the wealth distribution. If home prices also are rapidly appreciating, personal net worth of the middle, especially the upper middle class, also soars. These personal savings simply evaporate in macroeconomic theory because of the absence of financial asset prices. During speculative episodes there is an irresistible tendency to make money with money. Why take huge risks buying real assets when highly liquid financial assets are yielding exorbitant returns? I have called the exponential growth in asset prices during such speculative times the "Casino Effect" (Canterbery, 1993, pp. 171-172; and Canterbery, 2000, pp. 243-245).

Though speculative asset gains (capital gains) may not appear in macroeconomic theories, surely their reality has some real macroeconomic effects. In the vineyards of France, the angels' share of cognac is the amount necessarily evaporated to give cognac its celebrated quality. The amount evaporated seasonally roughly equals all the cognac consumed in France during the year, sufficient to keep many spirits high. In like fashion, most of the personal savings of the wealthy evaporate; it is the "angels' share" of savings (Canterbery, 2000, pp. 227, 252-255, 292-295). This "angels' share" of savings mostly benefits bankers, investment firms and brokers on Wall Street and other blue-stocking financial centres. Ironically, such savings from speculative gains divert funds from the real economy and, in that sense, do indeed evaporate. Real investment is compromised.

Even so, where the angels' share goes is the great unsolved mystery of Keynesian economics. The solution to the mystery is found in the net worth approach to personal savings. The net-worth economy is one of revolving-door finance wherein the angels' share of personal savings remains as financial assets without intersecting real investment. Since the 1970s the financial services sector of the American economy has grown much faster than the GDP. The positive growth in personal income has been rentier's (unearned) income. In fact, all of the increase in disposable income during the 1980s was more than accounted for by the rise in the share of *interest* income, while the shares of labor and other income sources declined. Such a financial services economy is quite distinct from an economy that produces goods and services for consumption and for further production (real investment). A truly efficient economy would not need more finance than production.

There is another way of looking at the macroeconomic consequences of the angels' share. GDP is measured two ways by the Department of Commerce; one estimate is from the product side (consumption, investment, government spending, and net exports), the other from the income side (wages and salaries, profits, depreciation, etc.). Capital gains, including those from the financial markets, are not counted as "income" in the national accounts. Although these two ways of estimating GDP should give the same number, measurement errors have always led to differences. The statisticians halve the difference in the two measures—adding half to the lower figure and subtracting half from the higher estimate—to arrive at one reported value for GDP. Generally, it has been said, the product side will be higher than the income side because some income will be hidden through the efforts of business firms and households to evade income taxes. In the past several years, however, the difference between the product measure and the income measure has turned *negative* with the income-based estimate of GDP exceeding the output measure by more than a full percentage point by 1997.

As noted, capital gains are not part of real output gains either. Increasingly, however, top corporate executives have been paid partly in stock options at no cost to corporations. This practice explains, in great part, why compensation of the highest paid CEOs has soared into hundreds of millions of dollars in recent times, making CEOs even wealthier. Worse, shareholders may receive inaccurate profit reports because, generally in corporate accounting, the values of stock options are not subtracted from profits. Since the Commerce Department cannot effectively check the official corporate accounts and adjust for the value of newly issued stock paid to executives, the statisticians will overstate actual profits and, more to our point, overstate the income-side measure of GDP. In fact, the discrepancy between the income and product measures of GDP is highly correlated with the growth in the S&P 500. A similar correlation exists with bond price appreciation.

The growth of net worth or wealth in the economy has apparently switched from business firms to selected families. During the 1980s and 1990s the gain in net worth of the top 1 percent was about $1 trillion (equaling about an eighth of the national GDP) or roughly an average of half a million dollars per household. If such advances in the personal savings of the wealthy were being made, Say's law says that real investment must have been soaring. It wasn't and it isn't. The savings have evaporated, sadly going the way of so much cognac. American production and employment has slowed as a few households became super-rich from unearned income. Meanwhile, the incomes of working people have declined with manufacturing prospects.

5. Conclusions

The original classical argument for the importance of rich households in the economy was based on a household-business model in which the savers and the factory owners were the same persons. Thus, the factory owner used his savings to build and equip his factory. Once, as Keynes noted, the producer and the personal savers are separate entities with disparate motives, there is no assurance that savings and investment will be even loosely connected. Keynes believed that he had destroyed the basic economic welfare rationale justifying highly unequal income and wealth distributions. Meanwhile, the social and welfare implication of a MPS rising with income was lost in econometric aggregation. Keynesians never expected classical loanable funds theory to be rehabilitated for the purpose of *redistributing* income and wealth from the lower to the higher income classes by taxing ordinary wages at a higher rate than unearned income.

The "New Welfare Economics" beginning during the early 1950s based economic welfare entirely on *productive* efficiency. Pareto optimality requires that no further economic change should occur that would leave any individual "worse off." Since *all* microeconomic optima that yield productive efficiency meet this criterion, free markets simultaneously provide productive efficiency *and* social welfare optima. A shotgun marriage between general equilibrium as economic "science" and Pareto optimality blew away Keynes' social concerns. To considerable regret, once this is understood, there is no further need for economists (or philosophers, for that matter); both would be technologically unemployed (as indeed philosophers are).

The reality of a diminishing marginal utility of income found in ELES estimates supports Lerner's idea of distributional efficiency and could revive welfare economics. In truth, it *should* revive welfare economics. Optimal income and wealth distributions can happen without impinging on optimal mechanical production optima (Canterbery, 1979, July 1979; Lerner, 1978). After all, we expect relatively free market exchange conditions to generate a "social dividend" that can be redistributed among the population. A simultaneous allocative and distributional efficiencies optimum is what I have called a "maximax" (Lerner, 1978, p. 65; Canterbery, 1981, pp. 199-201). A society with extremely unequal income and wealth distributions is *not* an optimal society since many could be made better off by a great margin while the best-off are being made slightly less well off. Moreover, highly unequal distributions and a rising MPS from a diminishing marginal utility of expenditure preclude Keynesian full employment because of insufficient aggregate demand. Worse, heavy concentrations at the very top lead to speculative financial markets destined to collapse. Thus, a redistribution of unearned income away from the top can lead to optimal microeconomic conditions move an economy toward higher employment *sans* an inordinate amount of a wasteful angels' share of savings.

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ϖ **Professor E. Ray Canterbery** is Emeritus Professor of Economics at the Florida State University. His *The Making of Economics*, 4th edition (Volume I) appeared last year (World Scientific) and his co-authored intellectual biography of F. Scott Fitzgerald will appear next year (Paragon House). He was recently named by the International Biographical Centre in Cambridge, England, as one of the 500 Living Legends in the world. He is also the author of the best-selling *Wall Street Capitalism: The Theory of the Bondholding Class.* Professor Canterbery has also served as the President of the Eastern Economics Association, a learned society of economists within the United States.

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