A Penny Saved May Not Be a Penny Earned: Thinking Hard About Saving and the Creation of Wealth

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Saving is a virtue, we are all taught, and this view permeates most of modern economic thinking. As individuals, we see saving as the path to wealth and economic security. The frugal habits of the Depression-era generation are held up as a role model that contrasts with the high-spending "live for today" attitude of the baby boomers. As the official U.S. personal saving rate has dropped and actually become negative in the 1990s, the talk shows and op-ed columns of America routinely lament our low saving rates.[1] This perception of saving also underlies widespread views about fiscal policy. For nearly two decades, the government deficit has been widely criticized a drain on national saving, and new incentives for saving are a common part of tax reform programs. There is little debate from any corner of the mainstream political spectrum that "a penny saved *is* a penny earned," and that U.S. economic performance in the future would be enhanced if our society saved more.

But, for our society as a whole, a penny "saved" may *not* be a penny "earned." While it is true that an individual's saving raises the individual's wealth, a greater desire to save in the whole population may not increase national wealth; indeed if individuals throughout the economy save more, national wealth could *fall*. This paradox (often called the "paradox of thrift") arises in large part from a fundamental difference in the effect of saving perceived by individuals and the effect of saving on the aggregate economic system. Individuals correctly perceive that saving adds to *their* monetary

[1] For example, in an article entitle "Less Than Zero: Few Americans Heed Washington's Urging For Bigger Nest Eggs," Jacob M. Schlesinger writes "[f]or a quarter century, politicians have been tinkering with the tax code and otherwise creating incentives to encourage people to save. Yet Americans have only become more profligate." *The Wall Street Journal*, June 29, 1999, page A1. The lament about low saving is not confined to conservatives. In a Levy Institute interview, Senator Daniel Patrick Moynihan says that the federal budget surplus should be used to pay down the national debt because "if we have one troubling economic indicator, it is our savings rate. The United States has the lowest savings rate in the OECD." (Levy Institute *Report*, August, 1998, page 9).

wealth. But they do not see that their act of saving may reduce someone else's monetary wealth. For the economy as a whole, the most obvious way for wealth to rise is through tangible investment in plant, equipment, and residential structures. A new act of personal saving makes an individual wealthier, but it will add to social wealth only if this act raises investment. It is by no means obvious that this will occur. If an increased desire to save does not generate investment and the creation of social wealth, the standard analysis of saving can lead to incorrect predictions and misleading policy advice.

This paper explores the effects of saving at both a personal and aggregate level. I begin by considering questions about the personal and aggregate concepts of wealth. What constitutes wealth? Why do people strive to accumulate it? Why is higher investment (broadly defined) necessary to raise national wealth? I then examine the theory that explains how saving at the personal level is typically assumed to translate into higher investment that adds to aggregate wealth. Simply put, higher saving raises the supply of "loanable funds" in the capital markets, which reduces the rate of interest, lowers the cost of capital, and encourages firms to invest more in durable assets. According to this theory, a penny saved must necessarily be a penny earned in the form of tangible assets.

As I discuss next, however, the conventional loanable funds theory assumes away a fundamental problem. Additional saving, by definition, must result in lower spending by the saver. All savers recognize this point explicitly. But it is not so obvious that an increase in someone's saving lowers others' incomes (because one person's spending is another's income). Those whose incomes fall cannot accumulate personal wealth in the way that they planned; they become, in a sense, the victims of other peoples' saving: their

saving falls as the result of increase in saving by others. From this perspective it becomes clear that the supposed increased supply of loanable funds that is typically assumed to lower the cost of capital and stimulate investment in the conventional theory *does not exist* in any direct sense.

For a higher desire to save in the aggregate to translate into higher investment requires the operation of a subtle and potentially fragile string of economic phenomena relying on adjustments to wages and prices and the effects of these adjustments on aggregate spending. Unemployed resources arising from lower spending must cause wages and prices to fall (or at least to inflate more slowly), and the resulting disinflation must raise aggregate spending through indirect channels. I summarize theoretical and empirical evidence that raise serious doubts about whether these complex phenomena operate effectively, thereby questioning the assumption that policies that encourage saving actually lead to higher investment and higher wealth. I conclude, in sharp contrast to conventional wisdom, that it is more likely for an increased desire to save, other things equal, to *reduce* investment, and thereby reduce social wealth.

This striking conclusion creates a significant dilemma for public policy. It is important that individuals accumulate wealth, especially in the face of unfavorable demographic trends that will reduce the number of active workers available to support the retirement of the baby boom. In a purely private system, the only way for individuals to accumulate wealth is in fact for them to save, which gives them title to a part of the aggregate wealth created by investment. But if a greater desire to save (or a stronger set of policy incentives for saving) does not raise investment it will not increase *aggregate* wealth. In this case, baby boomers *as a group* will find that their efforts to provide for a

more secure retirement through higher aggregate saving will ultimately fail. Saving therefore creates a fundamental paradox. Individuals may improve their future consumption possibilities by saving, including their ability to finance a comfortable retirement. But an increased desire to save throughout the economy need not raise aggregate wealth, it may actually reduce wealth. I conclude that the best way to address the baby boom retirement problem is to pursue policies designed to *stimulate investment not saving*. Moreover, we should consider policies to assure that the ownership of assets resulting from investment is broadly distributed among individuals of all income classes.

I. Wealth and Saving

We think of people as wealthy when they hold title to things of value. These things include financial assets such as currency, bonds, and stocks and they also include tangible assets such as automobiles and real estate. The source of "value" in these assets is the fact that others will offer goods and services in exchange for title to them. Some real assets are valuable, at least in part, because they directly provide satisfaction (or what economists call "consumption services"). For example, you can live in a house and drive a car. Other assets are valuable today because they generate monetary returns that can be used to buy goods and services. Examples include interest-bearing bonds or a profitable business. Assets are also valuable because people expect that they can be sold for money used to buy goods and services at some future date.[2]

[2] In this broad sense, the ability to work and earn future income that can be exchanged for goods and services can be viewed as wealth. Economists call this kind of wealth "human capital." But this is not our interest here and we will focus on non-human wealth.

No doubt, part of the motivation for people to accumulate wealth involves the desire for power and control that in our society comes from wealth. But the focus here is narrower. People with wealth that can be exchanged for money can consume goods and services without working. Such an opportunity is desirable at any point in life, but it is particularly relevant to individuals' desire to retire. When people give up consumption during their working years to save for retirement, they see themselves as providing the means to consume what they want later in life when they will no longer earn labor income. We must recognize, however, that this perception is correct in only an indirect sense. People do not literally provide goods and services for their retirement by saving during their working years. They do not stockpile cans of food or consumer durables while they are working to enjoy in their golden years. People want to consume the *production of the future economy* when they retire. They hope to do this by amassing assets now that can be sold in the future and then to use the proceeds from asset sales (or the future income flows generated by the ownership of assets) to buy part of the economy's future output of goods and services.

The mere act of saving does not by itself, therefore, guarantee access to future consumption. The ability of one's saving to provide future consumption requires that this saving take the form of an asset that people who produce future consumption goods, that is, future workers, will be willing to purchase in return for the command their income gives them on the output of the future economy.

Let us consider some simple examples of how this process works. Suppose a person saves today by lending part of her current income to another person who uses it to take a vacation. The borrower promises to pay the loan back, possibly with interest, at

some future date. The lender correctly perceives that her wealth has risen through this transaction. But even though the lender has "saved," future consumption possibilities have not increased for society *as a whole*. Whatever the lender is able to consume above her future labor income when the loan is paid back is offset by the consumption the borrower must sacrifice (again relative to his future income) to pay off the loan. The lender's asset created by this transaction is an example of what economist call "inside" assets. Inside assets are offset by corresponding liabilities. They do not represent net social wealth and they do not change net consumption possibilities in the future. The baby boom, as a group, will not be able to finance its retirement with inside assets. Indeed, the act of saving by the lender would not even be counted in the aggregate saving statistics because it is offset by a private act of borrowing.

Many financial assets are part of the inside asset category. For example, the analysis above is identical in all important respects if, rather than a direct loan between consumers, the lender deposits money in her bank account and the bank lends the money to another consumer who uses the loan to finance a vacation or any other consumption activity. Saving in this form will not create wealth for society as a whole.

How can net social wealth be created by a fresh act of saving? The examples above suggest the answer. One person's saving must not be used to finance another person's consumption. Rather, the saving must be used to purchase valuable assets, it must raise the society's "net worth." The most obvious way for this to happen is for people to use some of their income to directly create new tangible assets. For example, a person might take fewer vacations and use the income "saved" to build a house. In this example a tangible asset has been created that has future value. The person may live in

the house for a while, but when he wants to sell it later in life (possibly in retirement), he can use the proceeds of the sale to buy consumption goods that are the product of the future economy. Because he has something valuable to offer future income earners (the house), they will be willing to transfer some of the future consumption goods and services they produce to the homeowner in return for title to his valuable asset. Again, it makes little difference whether the house is financed directly by the homeowner's income or whether he borrows from a financial institution to finance the house. In either case, the construction of a new house raises social net worth and aggregate wealth.[3]

Another, likely more important, path to the creation of social net wealth is investment in valuable productive assets (plant and equipment). Capital goods produce over time goods and services that can be sold to generate future income flows. The owners of these assets obtain title to these income flows which makes the assets valuable. When firms plow earnings back into new plant and equipment they are saving in a way that creates wealth. When firms borrow from others to finance capital investment, the saving of the lenders is transformed into social wealth.[4]

The conclusion of this analysis and these examples is that *saving creates wealth only to the extent that it generates investment*. Investment in this context is broadly

[3] There are two important technicalities that make this example work. First, it is necessary for the prospective homeowner to *build* a house, simply buying an existing home will not raise social wealth. The purchase of existing assets is simply a transfer payment. Second, the argument implicitly assumes that the home retains its value. If a new home is constructed, but nobody is willing to buy it in the future, the saving used to construct the home is ineffective, it does not create net social wealth.

[4] The amount of wealth created by these activities depends on a number of factors; it is not necessarily equivalent to the amount of money used to finance the investment activity. Because of uncertainly, the present value of the income flows generated by the investment may be greater or less than the cost of the investment project, depending on market conditions, the future state of the business cycle, political considerations, etc. Also, capital goods depreciate over time due to wear and tear as well as obsolescence. Some of investment is necessary just to replace depreciation. The addition to wealth created by investment, therefore, is more properly identified with net investment rather than the gross investment figures that are components of GDP.

defined. It includes the typical purchases of plant and equipment by firms, and it includes residential construction. It also includes activities that are not usually counted as investment in aggregate statistics but nonetheless create assets with value in the future. An obvious example is an effective research and development program that generates future profit flows and adds value to a company that become part of the owners' wealth.[5]

This conclusion is uncontroversial. Economists from virtually any perspective will agree that for a higher desire to save to create social wealth, the saving must be transformed into investment in the broad sense defined above. For the current generation, therefore, to mitigate the problems of providing consumption during retirement by saving more now, that saving must lead to investment. Where economists part company, however, is in their beliefs about how effectively the economic system makes this transformation. "Classical" economists believe that capital markets assure that new saving will necessarily find its way to new investment. "Keynesian" economists, however, argue that a higher desire to save may weaken the economy, possibly *reducing* investment.[6] An understanding of this debate is crucial for evaluating the effect of saving in our economic system and to evaluate the impact of public policy designed to alter saving behavior.

[5] In this sense, one can think of capital gains generated by a rise in a firm's profitability as a kind of "saving." These gains add to net wealth. Of course the opposite is true when corporate values fall.

[6] Labeling schools of economic thought can be confusing. In his 1936 *General Theory* Keynes criticized contemporary economists' views that higher saving automatically increased investment and labeled this school of thought "classical." The term "neoclassical" refers to most of modern mainstream economics, possibly including some macroeconomists who are sympathetic to Keynesian views. The term "new classical" is usually associated with modern economists who largely reject the Keynesian paradigm.

II. The Classical View of Saving and Investment: The "Loanable Funds" Market

Some economists might argue that saving *is* investment. This view may be correct in some limited contexts. Consider, for example, a tribal economy that engages in subsistence agriculture. A decision by the tribe to forego consumption of some of the fall's harvest to provide more seed in the spring is, at the same time, an act of saving and investment. The tribe saves in terms of grain not consumed and it invests in a seed stock, which is wealth that raises future consumption opportunities. In a more modern context, the decisions by entrepreneurs to plow back earnings directly into their own firms' plant and equipment spending are simultaneously saving and investment. But in a modern monetary economy, the link between "personal" saving and investment is not obvious. A person's decision to save more, for example, to provide for retirement or send a child to college is not directly linked to any firm's decision to invest in a specific tangible asset.[7] In what has come to be known as the "classical" model of saving and investment, however, there is a natural market mechanism that indirectly links all acts of new saving with equivalent increases in tangible investment. According to this model, a higher desire to save necessarily results in higher investment, and therefore greater aggregate wealth. For example, in a discussion of how Social Security reform might raise saving, the *Wall Street Journal* editorial writers state "[o]ne way to help build a larger economy would be to reform Social Security to allow individuals to keep part of their payroll taxes in investment accounts; their savings would translate into more investment and faster

[7] Keynes (1936, page 210) makes a similar point: "An act of individual saving means—so to speak—a decision not to have dinner today. But it does *not* necessitate a decision to have dinner or to buy a pair of boots a week hence or a year hence or to consume any specified thing at any specified date.

growth."[8] The use of the subjunctive "would" here applies only to the fact that the reform discussed is uncertain to be enacted. There is no qualification to the view that higher intended saving automatically translates into "more investment" which creates more wealth, as asserted by the classical model.

Let us explore the key ideas that lie behind this classical theory. For clarity, think of all saving as flowing into a large group of financial institutions called the "loanable funds" market. People give up some of the command their incomes gives them over currently produced goods (current purchasing power) by depositing their funds in the loanable funds market in return for a promise to gain command over goods produced in the future (future purchasing power) when they withdraw their funds. Borrowers go to the loanable funds market to obtain more current purchasing power, and they pay for this privilege with a promise to sacrifice future purchasing power when they repay their loans with interest.

Suppose a baby boom couple decides to save an additional $5,000 to send their children to college. Rather than spending the $5,000, the couple "deposits" these funds in the loanable funds market, in a bank for example. At the instant of the deposit, there is no act of investment corresponding to this saving. But the bank that receives the couple's deposit does not want to simply hold the funds. It makes its profit by lending out (most) of its deposits. If there are no borrowers willing to take an additional $5,000 loan, the bank will have to sweeten its lending terms, that is, it will lower the interest rate on loans until someone borrows the excess funds. The lower interest rate reduces the cost of capital for firms and encourages them to invest more. Interest rates continue to adjust in

[8] "Debt Delusion," *The Wall Street Journal*, March 9, 1999, page A22.

the loanable funds market until there is just enough new investment to absorb the increase in private saving. Through this market process, the classical theory implies that higher saving induces higher investment that creates wealth.[9] As Keynes (1936, p. 177) writes in his summary of the classical theory that "whenever an individual performs an act of saving he has done something which automatically brings down the rate of interest, that this automatically stimulates the output of capital, and that the fall in the rate of interest is just so much as is necessary to stimulate the output of capital to an extent which is equal to the increment of saving." Individual "acts of saving" do not necessarily, by themselves, raise aggregate wealth in society, but the classical theory implies a very similar result: higher desired saving by individuals initiates a market phenomenon (lower interest rates) that raises investment and therefore augments social wealth.

This theory of the loanable funds market constitutes the economic foundation for the conventional view of the link between saving and aggregate wealth. If this theory is correct, saving also enhances the productive capacity of the economy. Higher investment induced by lower interest rates and a reduced cost of capital raises the nation's capital stock. The economy can thereby produce more output and its labor will be more productive. From this perspective, today's baby boom generation can enhance the ability of the future economy to produce the goods and services they want to consume in retirement by saving today, inducing more capital investment, and increasing the capacity of the future economy to produce. Not only will the future economy be more productive,

[9] The decline in interest rates may also reduce the desire of other households to save, or it may cause another household, rather than an investing firm, to borrow more for consumption. To the extent that such phenomena occur, they will reduce the wealth accumulation initiated by an initial increase in saving, even within the context of the classical view. The main implication of the classical model still holds, however: if there is an increase in the net household desire to save, there will be an increase in business investment to match the higher saving, once the interest rate has adjusted to establish equilibrium in the loanable funds market.

but today's savers will "own" a larger portion of that production because of their saving gave them ownership of the fruits of the higher capital stock.[10]

III. The Paradox of Thrift

The classical view is intuitive and appealing. It predicts social effects of saving that correspond to what seems obvious to individuals when they observe the effect of their own saving. People who save more obviously get wealthier; and according to the classical model, the same thing happens for the economy as a whole. But the study of macroeconomics has been motivated from its birth by "fallacies of composition:" what appears obvious for individuals may not hold for the aggregate economy. Such a fallacy of composition arises in the analysis of saving, and it is at the heart of the argument of this paper.

Let us return to the example of the baby boom couple that had been spending all of their income, but decided at some point to begin accumulating some funds for their children's education. When they raise their saving by $5,000, they obviously reduce their spending by an equivalent amount. This act lowers the sales *and income* of merchants that had sold goods and services to the couple previously. It is not the couple's intention to lower anyone's income, but this is the inevitable result of their decision to save more than they had in the past.

[10] It is often claimed that higher saving raises a nation's *rate of growth*, but this conclusion can be problematic. Of course if higher saving raises a country's output over some time horizon, the economy will grow faster as it adjusts to the higher *level* of output. In conventional models of economic growth, however, higher saving does not *permanently* raise the rate of growth. New models of "endogenous" growth raise the possibility that higher saving may permanently increase the economy's growth rate. There is little evidence, however, in favor of these models. See Jones (1995) for a coherent discussion of this literature.

Those agents who receive less income will *save less*. Suppose that the merchants who suffered the $5,000 decline of income keep their spending exactly the same after their income drop as they did before. Then, by definition, their saving must fall by $5,000. Total saving in society will therefore not increase at all, even though the baby boom couple saves $5,000 more. The couple's voluntary choice to save more forced involuntary adjustments on other agents that reduced their saving by an offsetting amount. Of course, the merchants who suffered the income reduction may not absorb the entire reduction of their with lower saving. They may also reduce their spending to adjust to lower income. But this action just spreads the problem as it will reduce the incomes of yet another group of agents. The economy will not reach equilibrium between saving and spending until one or more agents in the economy have cut saving in an amount just equal to the initial $5,000 increase in saving. This is the essence of the famous "paradox of thrift:" Total saving in the economy cannot be increased by individual decisions to save.[11]

What makes this phenomenon a "paradox" is that it seems counterintuitive. An extreme example helps build intuition for the logic behind it. Imagine that all agents in the economy, households, firms and government, at a particular moment in time decided to save everything they earned. Saving would be, for an instant, at a maximum. But spending would be zero. If there is no spending, there can be no income. And if there is no income, *there can be no saving*. The paradox of thrift represents this basic economic

[11] A technical qualification is in order here. If the demand for goods falls (as opposed to services), the goods sellers may accumulate undesired inventories. Such accumulation would be counted as investment in the national accounts. So, in a statistical sense, saving leads to an "automatic" increase in investment. But this undesired and unplanned inventory accumulation is contractionary. It will likely lead firms to cut back production of output as they try to adjust inventories to desired levels. Furthermore, to the extent that higher inventories are an unplanned source of investment, they absorb the additional saving that created them. There is no "excess supply" of saving available to lower interest rates and raise the capital stock.

truth. Spending and income are two sides of the same activity. One cannot logically analyze higher desired saving, and therefore a reduction in desired spending, without at the same time recognizing the consequent destruction of income.[12] An alternative way to see the same point is to recognize that no individual can raise aggregate saving by increasing her own saving. An individual act of higher saving without a corresponding increase of investment only redistributes saving among agents, as demonstrated in the example discussed above.

An increased desire to save in the economy has another, more troubling, effect. To the extent that lower consumption demand lowers sales (and therefore profits), firms will cut production and likely lay off workers. Firms will not produce output they cannot sell and will not indefinitely employ workers whose production is not necessary to meet demand. Perhaps the greatest irony of the Keynesian analysis of saving, *vis-a-vie* the classical theory, is that firms that sell less and earn less will also likely *invest less*. From this perspective, a greater desire to save lowers production, reduces the incentive to invest, lowers the capital stock, and reduces the incentive to engage in research and development.[13] Recall from the discussion above that aggregate wealth can rise only if tangible assets are created. If a greater desire of individuals to save reduces investment, it *diminishes wealth and weakens the economy* the opposite of the classical view and the conventional wisdom. A "penny saved" is decidedly not, in the aggregate, a "penny earned."

[12] This idea is explained in detail in Keynes (1936), chapter 14.

[13] To the extent that a higher aggregate desire to save lowers aggregate income, it will likely reduce the demand for new housing and therefore depress residential investment along with investment in plant, equipment, and R&D.

IV. Confronting the Theoretical Conflict: The Role of Wage and Price Adjustment

The classical loanable funds theory and the Keynesian paradox of thrift predict the opposite effects of an increased desire to save. They cannot both be correct in identical contexts. This section compares the theories and explores the conditions under which each one is the right approach for practical analysis.

As presented in section II above, the simple classical theory of the loanable funds market has a fundamental logical flaw. The theory is not macroeconomic, that is, it does not adequately incorporate the full system response to higher desired saving, because it assumes that aggregate income is unchanged when aggregate saving increases. As the paradox-of-thrift argument in the previous section makes clear, this assumption is wrong. This critique, however, is certainly not new to economists. It has been widely known since Keynes's *General Theory* in 1936 and similar ideas were expressed much earlier.[14] The fact that the classical theory has not only survived, but has become the dominant paradigm for economic analysis of saving, at least over a long horizon, suggests that economic theory has found a way to overcome the simple but forceful critique of the loanable funds theory expressed in the paradox of thrift.

The key mechanism is a favorite of economists: price (and wage) adjustment. It works as follows. Suppose that the economy begins in a state of full employment of labor, but then higher saving by some individuals reduces sales, which, as explained above, lowers production and reduces employment. Labor and productive capacity are no longer fully utilized. If wages are flexible, unemployment should lead to lower

[14] In particular, Thomas Malthus expressed similar concerns.

wages. Won't lower wages encourage firms to hire more people and, if the wage reduction is great enough, cure the problem of unemployment? Not necessarily. The problem that creates unemployment in this context is not that labor is too expensive but rather that sales are inadequate due to insufficient demand. If wages fall, firms will benefit from reduced costs, but they still have no incentive to produce goods that will not be sold.[15] There is no reason to believe that lower wages will raise aggregate demand in any *direct* way.[16] Wage adjustment itself cannot "cure" unemployment. The problem is macroeconomic, and it cannot be adequately understood through the labor market alone.

Economists have therefore proposed a macroeconomic process through which lower wages *indirectly* raise aggregate demand. Competition (not necessarily "perfect" competition) induces firms to lower prices when unemployment reduces their labor costs. Lower prices raise the purchasing power of assets that have a given nominal value (such as a twenty-dollar bill). The increase in this "real value of money" is argued to raise aggregate demand through two channels. First, holders of assets with fixed nominal values become wealthier, in terms of purchasing power, when prices fall and they may therefore increase their purchase of real goods and services. Second, the rise in the real purchasing power of money reduces the "price of money," that is, the interest rate. Lower interest rates stimulate spending on consumption and investment goods. If wages

[15] One might argue that lower wages relative to the cost of other factors of production, machinery for example, would induce firms to substitute toward labor, even for a given amount of sales and output. This effect has two problems. First, it is unlikely to work effectively in the short run because firms' production technology is not sufficiently flexible to allow quick changes in the ratio of labor to other productive inputs. Second, to the extent substitution occurs, it increases the utilization of one factor of production by shifting the "unemployment" to other factors.

[16] Indeed, it may seem obvious that lower wages would reduce aggregate demand, as lower wages are associated with lower income and less consumption. But for given sales, lower wages imply higher profit margins which may increase spending out of profits. Nonetheless, aggregate demand may still fall when wages decline because the proportion of wage income spent is higher than the proportion of profits spent.

and prices continue to fall and boost aggregate demand through these indirect channels as long as sales are insufficient to justify full utilization of resources, this adjustment process can restore the economy automatically to full employment and potential output.

Let us summarize this rather complex economic argument at this point. If desired saving rises, aggregate demand and sales fall, creating unemployment. But unemployment lowers wages, which lowers prices and increases the real quantity of money in the economy. Higher real money balances raises wealth and restores some demand through higher consumption. Higher real money balances also reduce interest rates inducing even more expenditure. This process continues until the slack resources induced by higher saving are again fully utilized. At the end of this adjustment process, the economy has higher saving, lower interest rates, and higher investment. The problem of insufficient aggregate demand has been solved by wage and price adjustment. The paradox of thrift no longer appears to hold.

There are two problems with this response to the possible Keynesian dilemma of insufficient demand caused by higher saving. First, the adjustment process may take a substantial amount of time. Second, and more fundamentally, the process relies on a rather large number of fragile economic assumptions. While the presence of an automatic adjustment process to overcome the negative effects of higher saving on demand is a logical possibility, there is little evidence that it is effective in the real world, and a number of practical reasons to doubt that it works at all.

A moderate critique of the classical position that wage and price flexibility solve the problem of insufficient aggregate demand focuses on the time required for wages and prices to decline in the face of reduced demand. Economists of the so-called “New

Keynesian" school have explored theoretical reasons why wages and prices are "sticky" and have compiled empirical evidence to support the hypothesis that many prices are indeed slow to adjust.[17] According to this view, the paradox of thrift exists, but it is a temporary problem, lasting only as long as it takes wages and prices to fully adjust to restore classical equilibrium, perhaps a few quarters to a few years. A higher desire to save can be expected to weaken the economy in the "short run." But a high-saving economy will be stronger in the "long run" when wages and prices have fully adjusted. From this perspective, it is often argued that a temporarily weak economy is the price the U.S. must pay to overcome the disease of over-consumption and achieve the long-term benefits of greater thrift.

A more fundamental critique is possible, however. Keynes believed that wage and price adjustment would not restore the economy to full employment and potential output. In fact, he argued in chapter 19 of his *General Theory* that more flexible wages and prices would likely make the problems of insufficient aggregate demand *worse, not better*, in direct contrast to the views of the New Keynesians (also see Tobin, 1993). These conclusions recognize that lower prices *could* improve aggregate demand by raising the real quantity of money in the economy. There are, however, other contractionary effects of deflation or disinflation. In particular, lower prices increase the real burden of debt for households and firms, or, equivalently, lower prices reduce the nominal cash flows available to service debt. This problem will lead to lower expenditure as agents "tighten their belts" to remain solvent and as lenders impose stricter credit standards on a more indebted economy. Lower prices or inflation rates also

[17] Examples of research along these lines includes Blanchard and Kiyotaki (1987), Blinder, et al. (1998) and Kashyap (1995).

distribute wealth away from debtors toward creditors, that is, away from spenders toward savers, likely reducing aggregate demand. Lower prices may lead to lower *expected* prices that encourage agents to postpone spending until prices fall further. Lower expected inflation rates will *raise* real interest rates, again choking off spending, especially on assets typically financed over long periods of time, such as capital investment and residential housing.[18] These contractionary effects of lower prices and inflation rates could overwhelm any benefits obtained by increasing the real quantity of money.

From a theoretical perspective, the effect of falling wage and price inflation on aggregate spending is ambiguous. The channels usually emphasized in mainstream analysis imply that lower inflation raises demand, but other channels imply the opposite. Whether the adjustment of wage and price inflation will actually restore the economy to full employment after a decline in aggregate demand is ultimately an empirical question. Unfortunately, very few studies have tackled this crucial question. While mainstream analysis usually simply *assumes* that wage and price flexibility will do the job, there are reasons for serious doubts. In the Great Depression, wages and prices fell dramatically, but the result was not an orderly recovery back to potential output. Rather, the effect of dramatic deflation in the early 1930s appeared to be bank failures, a collapse of investment, and a deeper downturn. Caskey and Fazzari (1993) construct a macroeconomic model to assess the strength of the various channels through which disinflation affects macroeconomic performance in the modern U.S. economy. We find that the conventional channels are swamped by destabilizing effects of wage and price

[18] These issues have been explored in a variety of modern studies. See Fazzari, Ferri, and Greenberg (1998) for a more extensive summary and many references.

adjustment: greater responsiveness of wage and price flexibility to the gap between actual and potential output seems to push the economy *away* from full employment after a decline in aggregate demand.[19]

We simply do not have the evidence, therefore, that wage and price flexibility will take care of the slack resources created when higher saving reduces incomes. This conclusion significantly weakens the classical theoretical view and it raises serious doubts about the conventional wisdom that a higher desire to save or greater policy inducements to raise saving will improve economic performance.[20]

V. Conclusion: Implications of Saving at the Individual and Aggregate Levels

The macroeconomic and microeconomic effects of saving appear inconsistent. As we have seen from a macro perspective, an increase in saving for the economy as a whole lowers aggregate demand and initially reduces output, income, and probably investment. In the absence of speedy wage and price adjustment and, more importantly, an effective process to translate wage and price adjustment into higher aggregate demand,

[19] Our overall conclusion in Caskey and Fazzari (1993) is that changes in wage and price inflation have little effect on aggregate demand. That is, disinflation when the economy operates below potential output neither much improves nor much hurts employment and output. With our benchmark parameter estimatess, however, greater wage and price flexibility is destabilizing, contradicting the conventional wisdom.

[20] An alternative to the classical wage and price adjustment mechanism is an enlightened monetary policy that keeps the economy at full employment even after negative aggregate demand shocks. According to this view, higher desired saving plus a wise central bank ultimately leads to more capital accumulation without relying on wage and price flexibility. There are at least two responses to this argument. First, the adjustment of the economy through this mechanism is not automatic; it requires policy intervention. Second, the process through which monetary policy actually affects aggregate demand are not well understood empirically. (See Bernanke and Gertler, 1995, who critique standard ideas about the "monetary transmission mechanism." They argue for an alternative "credit channel" for monetary policy. But the empirical support for this view is also not overwhelming). We can therefore not be sure either that monetary policy will respond appropriately to a higher desire to save or that the response will be effective. Japan is a recent example of the impotence of monetary policy to cure stagnation.

these effects persist. In this case they are not confined to the "short run" as much economic analysis assumes. Therefore, an increase in aggregate saving can diminish the economy's wealth. But, at the micro, individual level, clearly no person can accumulate wealth without saving in some form.[21] A person that consumes all his income will build up no wealth. If the economy is the sum of individuals, how can this paradox be resolved?

The key is to recognize that aggregate wealth accumulation occurs because of investment, but the *share* of that wealth appropriated by any individual depends on that individual's saving behavior. Suppose a person increases her saving but investment remains constant (at least initially). Her extra saving will give her title to some part of the wealth created by investment, now or in the past. But no *new* wealth has been created by the saving. Where, then, does the new saver's increased wealth come from? The answer is that it comes from a "forced" transfer from the wealth of another individual. This transfer is not obvious. It occurs because the increase in one person's saving destroys someone else's income, as explained previously.

To increase aggregate wealth agents must invest more. As the analysis here shows, these are two very different economic phenomena. Consider the implications of this result for the problem of providing resources to finance the consumption of the baby-boomers during their retirement. If this consumption is not to be the result of transfer payments (such as social security), the retiring baby-boom generation must have something to sell to future workers that they will exchange for claims on future production. This goal implies the need to raise the accumulation of valuable assets now.

[21] It may seem that wealth could simply be bestowed on an individual, as, for example, when someone wins a major lottery prize. But to accumulate such a "windfall" as wealth, the individual must "save" the

But attempts by individuals to save more, other things equal, will likely have the opposite of the desired effect. The challenge is to raise investment. The paradox of saving and wealth may be stated in very personal terms: higher saving will raise *my* wealth, but higher saving need not raise *our* wealth, where "our" is defined as the collective wealth of the country.[22]

What are the practical implications of these ideas? First, the key to wealth *creation* (as opposed to the re-distribution of existing wealth) is investment not saving. It is crucial that our understanding of the economy and the design of policy be designed with this principle in mind. Consider the following advice from McKenzie and Lee (1998): "How can an ordinary American (with a modest annual income) become rich? One surefire method is to live modestly (if not close to poverty), that is, to save a substantial portion of earned income, until the savings pile up." In a narrow sense, the analysis here provides support for this advice. Individuals can make *themselves* richer by saving more. But the message of this paper is that this narrow perspective is fundamentally misleading for understanding how the aggregate economy operates. If all Americans took this advice to heart, the implications for the U.S. economy could be

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proceeds, rather than spending them immediately. The same logic applies to capital gains.

[22] One criticism of this conclusion is that the analysis that supports it has been undertaken in a closed economy context. With modern international markets, international capital flows have important macroeconomics implications. A full analysis of this issue is beyond the scope of this paper. I note, however, that much of the discussion above about the paradox of thrift when viewed at the aggregate economy level as opposed to the individual level extends naturally to the world economy by replacing individual people with individual countries and the aggregate national economy with the aggregate world economy. Again, higher saving without higher investment will not help the world economy, although it could make some nations wealthier at the expense of others. Furthermore, from the U.S. perspective, higher saving might improve our current account balance by slowing our economy, reducing national income, and choking off the demand for imports. This hardly seems desirable. Similar points are made in somewhat more detail in Fazzari (1994). Finally, while high saving rates in Japan were widely praised in the 1980s, things have turned around dramatically in the 1990s. From the perspective of this paper, Japan was successful in the 1980s not because of its high saving, but in spite of it. The weak domestic demand created by high saving in Japan came home to roost in the 1990s.

disastrous, reducing rather than raising national wealth, because a higher desire to save need not create investment.

The obvious implication appears to be that investment should rise, especially in light of the need to support the retirement of the baby boom generation. All investment projects, however, are not created equal. For investment to raise wealth it must create assets with value in the future.[23] Building a bunch of strip malls may raise the official measure of investment in today's National Income and Product Accounts. But if these assets are unproductive and lose their value over time, they will not provide a long-term increase in social wealth. Based on recent experience of industries such as computers and biotechnology, great wealth can arise from investment in innovative technology. The future value created from such investment can vastly exceed the expenditure on the technology's development and implementation. This observation, however, does not necessarily provide a clear guide to public policy. Countless entrepreneurs already seek projects that will turn them into the next generation's Bill Gates, independent of government initiatives. The blockbuster investment opportunities of the future will not be taken as the result of the most obvious incentives affected by government policy: changes in interest rates or tax incentives that tweak the cost of capital.[24]

Even higher investment in productive projects, however, is not enough to provide *broad-based* support for the future generation of retirees. If aggregate investment rises

[23] Even unproductive investment will initially raise aggregate demand, and it therefore may provide short-term stimulus to the economy. But unproductive investment may also lead to the creation of weak financial assets that could lead problems down the road. Furthermore, when short-term aggregate demand is strong, as it was in the U.S. through during the mid to late 1990s, short-term stimulus is not necessary.

[24] There is little evidence for substantial effects of changes in the cost of capital on investment. In a series of previous papers, I have argued that many of the recent tax policies and deficit reduction policies that may reduce interest rates have small, even negligible effects on investment. See Fazzari (1993, 1994-95), Fazzari and Herzon (1996), and Chirinko, Fazzari, and Meyer (1999).

today, the assets created will likely be owned by those who are already relatively wealthy. No doubt, innovation and entrepreneurial activity will add members to the ranks of the wealthy, but the newly rich will still likely constitute a small fraction of society. To provide assets that the future middle class can use to finance retirement consumption, ownership shares in today's investment today must be spread throughout the income distribution. The conventional approach to meet this goal is to raise the saving of the middle class. Such a policy threatens the health of today's and tomorrow's economy for the all the reasons discussed in this paper. It could easily backfire and actually reduce capital and wealth accumulation for all segments of society. Therefore, a credible commitment to a strong Social Security program is absolutely essential to most of the baby boom generation. It is entirely possible that Social Security might lower the saving of the middle class.[25] But from the perspective developed in this paper, in sharp contrast with the conventional wisdom, this low saving rate of much of American society may be the key to the economy's strength, and not just in the short term. Consumption of the middle class may be the engine of growth, profit creation, and innovation that has made the rich so much richer in recent years. The taxes that must be paid to support future Social Security may be a small price to pay for a society with robust aggregate demand that leads to the creation of spectacular wealth.[26]

[25] This argument has been made most prominently by Martin Feldstein; see his 1996 paper and Coates and Humphreys (1999) for recent discussion. Feldstein, however, also recognizes the importance of high demand, which may result from low saving. Concerning recent weakness in the Japanese economy he writes "[l]ack of demand and the low level of profits discourages business spending on new plant and equipment" and "the government could stimulate consumer spending by resolving uncertainty about Social Security benefits." ("What Next for Japan," *The Wall Street Journal*, June 17, 1999)

[26] From this perspective, the regressive financing system for Social Security that caps the income subject to the payroll tax is unjust.

Finally, an important implication of my argument is that the strength of the U.S. economy in the 1990s, especially in relation to other countries, was achieved not *in spite* of our low saving rate, but, at least in part, *because of* low saving and its inevitable complement, high consumption. A recent article claims "[t]here is … an ingrained cultural streak—call it a reckless optimism, or a willingness to take risks—that leads Americans to salt away less than, say, the Japanese." Joseph L. Jones of Cleveland is interviewed for this article because he is taking the unusual step of drawing down his IRA in his late forties. He explains his behavior: "In a lot of countries, there's fear, and fear of what happens makes you save for that proverbial rainy day. In America, there's hope—that sunshine of opportunity."[27] This kind of optimism may hurt Mr. Jones and others like him if they personally fall on hard times, and it may prevent them from personally owning a larger share of national wealth. But the arguments here imply that this attitude has been one of the engines of the modern U.S. economy, and, through our increased demand for goods produced around the world, a major force propping up the international economy. A penny saved *need not* create a penny earned. In our economy taken as a whole, it is more likely that pennies spent, many by consumers, support today's economy and stimulate the investment that creates "pennies earned" in the future.

[27] Jacob M. Schlesinger, "Americans Resist Saving Push," *The Wall Street Journal*, June 29, 1999, page A6.

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