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In the United States, gross public debt has steadily increased in the past decade. Debt outstanding has risen by approximately \$500 billion every fiscal year since 2003. The Congressional Budget Office projects this year's public debt at 67.3% of Gross Domestic Product (GDP)¹ and our 2011 budget deficit at 8.5% of GDP. The nation's debt has inflated, of course, due to the economy's expansion, but its growth has been particularly acute over the last three years. Total government spending at all levels is almost 40% of GDP; Federal spending is just below 24%. National (public + private) net saving has dipped to persistently negative levels since 2008, despite higher levels of private saving after the financial crisis. The Budget Control Act of 2011 implemented procedures to ensure spending cuts of at least \$1.2 trillion over ten years. The resolution assuaged short-term debt anxiety, yet the anticipated contraction of government contributions to aggregate demand has led to slow growth and lowered growth projections through 2012. And so, with pressure for deficit control until 2021, policymakers now have the task of stimulating, in the face of a \$1.2 trillion in spending cuts, a stagnant economy that threatens to yield above 8% unemployment until at least 2013. Negligible real GDP growth – revised down to 1% from 1.3% for the second quarter – and high unemployment make it even harder to shake off the debt burden. At the core of the worsening economic climate is the unsustainable fiscal structure put in place in the developed world, where there exists a political bias toward deficit spending. Economic models display the adverse effects of high, sustained debt on growth.

¹ According to the U.S. Treasury, as of August 31, 2011 debt held by the public totaled \$10.02 trillion. Intragovernmental holdings totaled \$4.7 trillion. The sum represents about 98% of GDP.

We are now also seeing that in the short term sovereign insolvency threatens to make everyone worse off.

Most economists agree that a sustainable debt-to-GDP ratio is approximately 60 percent. A study by Carmen Reinhart and Kenneth Rogoff shows that, historically, debt leads to large reductions in growth once it exceeds 90 percent of GDP.² The IMF has reported that from 1880 to 2009 the fastest growing countries have had the lowest debt to GDP ratios while the slowest growing have had the largest debt ratios.³ Given such evidence, one cannot deny that the United States is projected toward unsustainable levels of debt, regardless of the baseline used to measure future revenue/spending. High debt- and deficit-to-GDP ratios threaten to inhibit long-term economic growth, by far the greatest influence of a society's well-being. Macroeconomic models do show that debt financing can, under particular circumstances, mitigate undesirable short-term fluctuations in the economy, yet when deficit spending starts to span multiple periods and begins to expand, government borrowing puts a drag on the rest of the economy.

Positive Uses of Deficit Spending

When can debt financing be constructive? When there is immediate stress within a period, well-timed fiscal and monetary stimulus can prevent a large-scale drop off in aggregate demand. Many economists argue the 2008-2009 period was precisely one of those time. Some of such stimulus occurs naturally: *automatic stabilizers* will take effect in a recession when the government, without any concerted policy decisions, starts to make more transfer payments to a now larger unemployed constituency and collects less tax revenue from a now smaller working population whose income has suffered. Additional purchases by the government (construction projects, stimulus packages, etc.) can further support real GDP when those purchases, assuming they are appropriately targeted and implemented, fill a hole in aggregate demand. Indeed, Michael Woodford has estimated that, during Depression-like circumstances, the "Keynesian Multiplier" can reach 1.0 and above – at which point real GDP would grow dollar-for-dollar with additional government purchases.^{4 5} The generation of GDP growth "out of nowhere" relies on the supposition that the government utilizes inputs that are, for

² Rogoff, Kenneth and Reinhart, Carmen, "This Time is Different: A Panoramic View of Eight Centuries of Financial Crises" (2008)

³ IMF Working Paper, "A Historical Public Debt Database" (2010)

⁴ It should be noted, however, that the "multiplier" is inversely correlated with a country's "marginal propensity to import," which is the amount of additional *import* consumption with a given rise in income. In the U.S., the MPI is quite high, likely driving down our "multiplier."

⁵ Michael Woodford, *Simple Analytics of the Government Expenditure Multiplier*, June 13, 2010.



lack of demand, not already producing output. That is, putting unemployed workers and underutilized materials to work. On the other hand, Robert Barro shows that at full employment, the “Multiplier” is essentially zero and can be negative, because the government would be removing inputs that were previously adding value to the private sector. Negative multiplication also occurs as a result of the adverse growth consequences that debt imposes on the private sector.⁶ In such a way, policymakers often misinterpret Keynesian economics.

Even in times of normal GDP growth, “Multiplier” or no, strict maintenance of a balanced budget can inhibit the state from financing worthwhile investments that pass rigorous cost-benefit analysis; assuming such projects cannot be completed more efficiently in the private sector. The U.S. Budget Office, though, does not distinguish between spending on current consumption and spending on investment. Consequently, public investment has shrunk in the past few decades and a larger proportion of the budget is devoted to current consumption – entitlements, and other transfer payments.⁷ On the revenue side, government borrowing can allow for more stable tax rates during periods of one-time, extraordinary spending. When federal spending spiked in World War II, for example, tax revenues funded 1/3 of the war effort and jumped from 9.8% of GDP to 21% of GDP. To fund the entire war effort, tax revenue would have had to reach a staggering 43.6% of GDP.⁸ The desirability of fiscal stimulus must be weighed against the costs, keeping in mind the effects of policy change on the present and future behavior of all economic agents (consumers, investors, firms, government institutions, etc.).

Cost of Borrowing

All economic institutions evaluate investment projects through the use of cost-benefit analysis. For a government considering debt financing, the cost is future taxation and its real incidence on members of society. Borrowing allows policymakers the easy political decision of lower tax burdens or more public services or both in the current period. When the government borrows, however, the value of new debt signifies the present value of future taxes that, in the next period, must be implemented to cover debt service, even if the

⁶ Robert Barro, “Government Spending is No Free Lunch,” Wall Street Journal, January 22, 2009.

<http://online.wsj.com/article/SB123258618204604599.html>

⁷ Sherle R. Schwenninger, *A Capital Budget for Public Investment*

⁸ Michael J. Boskin, 6/9/2011



debt principle gets rolled over temporarily.⁹ It is important to recognize that debt automatically puts an added burden on a future generation which has not been represented upon the addition of the new liability to the government's balance sheet. Deficit spending, therefore, is essentially a transfer payment from young/unborn generations to the current generation, which receives the benefits of public spending and tax cuts that have been financed with debt without paying for them later with taxes. The current working generation has no net change in overall welfare as it receives the benefits of spending during the initial period and expects to pay for them in the next period (when they are retired). The younger generation, which did not receive the benefits of lower taxes or public projects in the initial period, joins the labor force next period and may face a larger tax burden in order to pay for spending in the previous period.⁵ The younger generations, confronting a higher tax burden, can choose to pass the disutility to the next unborn generation with more borrowing, yet economic evidence and models demonstrate that sustained spending growth above GDP growth has numerous harmful effects, to be discussed shortly. It should be noted that if worker productivity increases between periods, austerity related tax increases do not necessarily result in a higher real tax burden. Since the new working generation will have been earning more per hour of labor supplied, the *real* excess tax burden on the younger generation would not increase at the same rate as the nominal tax increases. However, contemporary economic models of growth reveal that sustained debt constricts productivity growth, due to inflation and lower capital accumulation.

Persistent U.S. Treasury issuance may cause alterations in the money supply. When the Federal Reserve has to monetize the debt by buying Treasuries on the open market, as has occurred with the policy of "Quantitative Easing," the money supply expands. When the supply of money increases more rapidly than the production of goods and services, the value of each unit of currency goes down. One can see through the *quantity equation of money* – $MV=PY$ ¹⁰ – that higher money growth, without corresponding real GDP growth or money velocity growth, implies higher growth of the GDP deflator (i.e. higher inflation). A discussion of the particular outcomes of inflation exceeds the scope of this essay; nevertheless, it is most important to note that high inflation begets capital flight, as lenders liquidate their financial holdings for other stores of wealth and avoid the losses from the declining purchasing power of

⁹ Historical evidence shows that a government primarily taxes or borrows more to meet spending commitments. The governments that have printed money sparked hyperinflation and economic turmoil.

¹⁰ Where M=money supply, V=velocity, P=GDP deflator, and Y=real GDP. Taking logs of both sides restates the quantity equation to give growth rates. The growth rate of the GDP deflator equals inflation.



currency. Every recession in the U.S. has been preceded by an increased rate of inflation. In contrast with historical evidence, many policymakers end up favoring policies that incur higher long-term inflation in exchange for short-term growth. In the “gain-the-pain” scenario, government borrowing and subsequent debt monetization stimulate a short-term boost in aggregate demand. With real GDP larger than GDP potential, firms and investors see greater business and unemployment declines.¹¹ This is an attractive situation for politicians seeking reelection, as evidenced by accounts from the Bureau of Economic Analysis: BEA data show that, historically, spending/GDP in the U.S. decreases only when no party controls Congress. In the long-term, however, economic agents respond to more liquidity by raising the prices of their goods/services. When real GDP returns to long-run potential GDP levels (after the central bank has acted according to the monetary policy rule), unemployment returns to its natural rate and all that remains is a higher rate of inflation. And although inflation may allow the government some revenue through seignorage, the real immediate effects include lower investment and purchasing power, by which all members of society are worse off.

The current monetary situation in the United States has not been one of dangerous inflation expectations, despite massive-scale Fed asset purchasing. This particular environment diverges from the model because the Fed’s U.S. Treasuries purchases have not been fully monetized. Under normal circumstances, the increase in bank reserves with which the Fed pays for its government securities generates a corresponding increase in the money supply, as banks withdraw and loan out reserves in excess of the reserve requirement. An increase in reserves, after all the new loans are created and become assets of the banks, subsequently yields a much larger expansion in deposits. This holds only when the banks take out excess reserves to make new loans. In a *credit crunch*, however, bank risk aversion makes private sector credit much harder to come by, as banks simply hold on to excess reserves or use them to improve their balance sheet with safer assets (shorter-duration government paper, for instance). Indeed, the United States has entered such a state of risk aversion; private sector credit has *declined* since 2008, despite pledges of stimulus from policymakers.¹² Due to heightened risk aversion and regulation, low interest rates and abundant liquidity have encouraged only a stronger “flight to quality.”

¹¹ John Taylor and Deepak Weerapana, *Principles of Economics*

¹² David Malpass, “Are Markets Too Fearful?” on 8/25/2011



Inflation has not risen substantially because, in this economic climate, an extremely low Fed Funds rate has led not to more M2 but to large excess reserves and holdings of safe, short-term paper or certain durable goods, like gold.

Effects on Long-Term Growth

When considering the ramifications of budget (im)balance, an important model to examine is the market for loanable funds. This gives the relationship between saving and investment. The portion of GDP that American people/Government do not consume equals national saving, which in turn equal the remaining portion of GDP: investment and net exports, or net capital outflow.¹³ When deficits expand and the government has to take on more debt, public saving decreases. The market clears with either an offsetting boost in private saving or a reduction of domestic and/or net foreign investment.¹⁴ If private saving does not grow dollar for dollar with the deficit, then either domestic investment or net capital outflow (or both) will decline. Empirical data in the Postwar U.S. show that private saving rates declined in the 1990s and stayed relatively low through 2007. In general, saving and consumption as proportions of disposable income do not fluctuate significantly between quarters, since people like to maintain their consumption preferences from year to year. Starting in 2008, notably, individuals did start to consume less of their disposable income (i.e. save more) in response to fears surrounding the economic situation; nevertheless, the switch to more private saving could not offset public dissaving – national net saving has been less than 0% of GDP since 2008. And so, knowing private saving will usually not offset extensions in government borrowing, it follows that a cut in the government saving rate yields lower domestic investment and/or a larger current account deficit. These two results – lower investment and lower net exports – will be addressed separately.

Lower investment means lower capital formation, whose repercussions weigh heavily on growth. Capital accumulates when people save for future consumption, in the meantime *investing* in some piece of capital that yields a return. Capital also accumulates when individuals and firms replace/upgrade depreciating machines, buildings, etc. When there is minimal investment, there is less capital available for future periods; the production capacity of firms shrinks, their workers earn less, and there are fewer goods and services in the economy for people to consume – growth slows. Behind technological innovation, capital accumulation (which comes

¹³ The Balance of Payments equation implies net exports always equals net capital flows. The value of a country's exports less imports equals the net amount invested abroad by domestic citizens (when $NX > 0$) or the net amount invested by foreigners in the domestic country (when $NX < 0$)

¹⁴ A reduction in net foreign investment is a worsening of the trade balance. Imports increase while exports decline, implying that more foreigners are investing in the country while domestic citizens are investing less in the rest of the world



from investment) is the most crucial means of growth. Without it, worker productivity stagnates, resulting in both lower wage growth and lower standards of living. William Baumol wrote, "It can be said without exaggeration that in the long run probably nothing is as important for economic welfare as the rate of productivity growth."¹⁵ And in order for workers to grow continually more productive, they require newer and better machinery that facilitates their labor and allows for greater efficiency. This makes the worker more valuable – more productive – and constitutes the vehicle of wage growth. Therefore, when the economy experiences minimal investment, people earn less and standards of living worsen.

The other potential consequence of public borrowing is a worsening of the trade balance. Since all of national saving goes into domestic loans or into claims abroad, if national savings shrink and private domestic investment remains unchanged, then net foreign lending must decrease, thus deteriorating the trade balance. In the case of the United States, national saving is smaller than domestic investment indicating that some investment is being financed by capital from abroad. So, along with the budget deficit in the U.S. we are also running a capital account surplus, by which foreigners own more domestic assets than domestic citizens own foreign assets. When the capital account increases (trade deficits increase), domestic citizens own fewer claims on foreign assets, and their capital income in future periods falls while consumption of imports in the current period rises. A positive capital account, by which foreigners have net claims on United States assets, effectively dissipates the wealth of domestic citizens. Trade deficits also carry speculative risk. Were the U.S. to encounter a speculative attack, capital would rush out of the country, putting large downward pressure on the dollar and upward pressure on interest rates. Not only would growth stagnate due to low purchasing power and high borrowing costs, but with sizeable budget deficits at the same time, the U.S. would risk sovereign insolvency. This situation is not so unimaginable in the short-term, as the ballooning cost of entitlement programs make fiscal restructuring very difficult. With respect to "twin deficits," as Fed Governor Ed Gramlich said in 2004, "Fiscal austerity measures...correct budget deficits directly, they reduce trade deficits indirectly, and the implied higher level of national saving also permits more funds to flow into capital formation and long-term productivity enhancements."¹⁶

¹⁵ William Baumol et al., *Productivity and American Leadership*

¹⁶ Governor Ed Gramlich, "Remarks at the Isenberg School of Management," May 14, 2004.



Growth slows until *after* the state has decided to retire debt. Saving, investment and, hence, capital accumulation are all negatively affected by the taxes required to lower debt levels. Thus, the interim growth rate of the economy suffers not just during years of deficit, but also during the period in which tax hikes are needed to reduce the debt burden. This is because tax burdens on individuals and firms constrict the ability of consumption/GDP and investment/GDP to make up for less government-spending/GDP. A drag exists while inputs – resources and workers – switch sectors.¹⁷ Taxes on inputs discourage firms from hiring or leasing new equipment, thus inhibiting the efficient re-allocation of resources from the public sector. All tax hikes, direct or indirect, create price distortions and cause this inefficient “excess burden,” by which goods and services that would have otherwise been available to society are lost. Excess burden rises with the square of the tax rate; and so with more debt accumulation come exponential future excess burdens. Payroll taxes distort away from hours of work and investment in human capital (higher education) – the extent of this distortion depends on the elasticity of the labor supply curve. Taxes on corporate income and capital gains distort away from saving - a consequence of a lower after-tax return to capital. And as mentioned before, lower capital stock reduces the productivity of workers and, as a result, real per capita income falls.

Ricardian Equivalence and Policy in the 21st Century

Under some circumstances, it can be argued that additions to government leverage have no impact on the economy. In a “forward looking consumption model,” private saving naturally increases along with government debt, as people recognize that future tax increases (used to eventually retire the debt) will constrict future income. When individuals’ habits for consumption/saving take into account their *permanent*, not current, income expectations, a one-time increase or decrease to personal income from government borrowing or saving will not influence personal expenditures. Consumption and saving, therefore, remain unchanged over multiple periods, regardless of changes to the government’s balance sheet.¹⁸ This model, also known as Ricardian Equivalence, only holds under some major assumptions: that the government does not increase spending between periods, that there are no constraints to

¹⁷ Rosen, Harvey S., and Ted Gayer. Public finance. 8. ed. New York: McGraw-Hill, 2008

¹⁸ David Ricardo, "Essay on the Funding System" in The Works of David Ricardo. London: John Murray, 1888



borrowing, and that consumers are not myopic, in which case consumption would change depending on short-term fluctuations in current income.

A look at fiscal and monetary policy in the past decade shows large distortions to this model, in that sustained fiscal and monetary excesses discouraged forward-looking behavior until the precipitous events of 2008 and onward.

The era of the Bush tax cuts has seen spending at the federal level steadily increase from 17.89% of GDP at the onset of the decade to 19.38% in 2007, the year before the financial crisis. The federal government's spending, as a percentage of GDP, amounted to 20.76% in 2008, 24.91% in 2009, and 23.58% in 2010.¹⁹ The decade-long swell in public spending (and the general post-war expansion in the size of the state), along with the absence of a corresponding increase on the revenue side, undoes the primary assumption of the two-period equivalence model. Monetary policy was also expansionary during the early-mid 2000s expansion. The "Taylor rule" is a monetary policy rule based on the actual Federal Reserve decisions during the period of robust economic performance known as the Great Moderation. It provides a good stipulation for the Federal funds rate, given input factors such as inflation and aggregate output. Actual Federal Reserve policy in the mid-2000s deviates notably from the Taylor rule, which indicates that rates would have been significantly higher were the Fed to take the normal macroeconomic variables into account. Persistent government spending, combined with low interest rates preserved for "a considerable period," encouraged at least some level of myopia among households as well as lenders. This contributed to the boom and eventual bust of the housing bubble (the period from 2001 to 2006, during which the Fed diverged most from the Taylor rule, was also the period of the boom in housing starts).²⁰ In the early-mid 2000s, fiscal and monetary excess covered multiple periods when economic growth could not be classified as subpar. The consequences can be seen in the current economic environment. After a dire recession and GDP slowdown, the recovery process remains impeded by sluggish growth and high unemployment. Now that Congressional budget discussions have been brought to the foreground, economic agents anticipate future austerity and regulation. Neither people nor firms are spending money because they are forward-looking. Economic agents expect looming budget measures to impact permanent income; firms, particularly those in the

¹⁹ "Time Series Chart of US Government Spending," <http://www.usgovernmentpending.com/charts?units=p>

²⁰ John Taylor and Deepak Weerapana, *Principles of Economics*



banking sector, foresee both budget measures and upcoming regulation constricting income from banking activities and returns from the asset

side of the balance sheet. For such reasons, consumer spending remains low and private sector credit remains low. Economic agents have adjusted future earnings and capital income down, considering the austerity measures that will invariably take place. Consequently, even with all the current-period stimulus of the Fed and talks of new government programs, firms will not want to hire new workers, banks will continue to restrict the size of their balance sheet, and households will consume less.

Conclusions

When budget imbalance becomes a mainstay of fiscal policy, the state faces more than just a higher risk of default. When used improperly, a dollar applied by the government for purchases contributes less than a dollar to the value of aggregate output of society; a dollar of government purchases can even subtract value from society. This is why policy makers must exercise restraint when presented with the illusory "free lunch" of borrowing for current stimulus. The long-term cost of borrowing should be covered by long-term benefit(s) to social welfare.

Expenditures destined for investment contribute more to social welfare than those destined for non-productive consumption. However, once government expenditures consist largely of consumption related payments, such as entitlements, the economic value of increased borrowing declines. Recent policy initiatives have not focused on productive investment and, therefore, expanded government debt without beneficially affecting GDP. In fact, the opposite has happened, growth figures were revised down and most economists have begun to publish grim forecasts.

If we are to maintain our massive entitlement and transfer programs, with unfavorable demographic changes and rising costs of healthcare, we need pro-growth policy reform elsewhere. Historically, periods of rapid growth following recessions have been led by private sector investment. Once again the private sector can be enlisted to lead the growth push, but policy must facilitate the process. Areas that could benefit from policy attention include: regulatory relief, comprehensive revamping of the tax code, healthcare and health insurance, research and development in energy, housing and mortgage reform, infrastructure, and public education. The next generation will be forced, as a result of the excesses of this one, to create a more forward looking state, conscious





of its current and future members. Wealth redistribution, an overt target of the current administration, occurs more comprehensively with widespread economic growth than with unproductive deficit spending, targeted taxation, and regulatory meddling.

