Government Debt and Deficits

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Abstract: This article is a review of government debt and deficits from both biblical and economic perspectives. Biblical teaching regarding debt is considered, with implications for public policy. A recent history of deficits and debt in both the United States and around the world is presented to provide context. The economic effects of both internal and external debt are reviewed, with an emphasis on the distortions created due to future tax increases. Questions of optimal debt, Ricardian Equivalence, and other issues are also considered. JEL: H62, H21, F34, E62. Keywords: debt, deficit, taxation, optimal debt, Ricardian equivalence, debt neutrality, fiscal policy, fiscal sustainability, forgiveness, justice.

1. Introduction

Economic effects of debt have been a contentious issue going back at least as far as Ricardo (1817). But, issues of government debt and deficits are not merely historical intellectual debates. They are at the heart of current policy deliberations. In the United States recent federal deficits have been at unprecedented highs and policymakers wrangle over increases in the debt ceiling. The latest long-term budget outlook produced by the Congressional Budget Office (CBO) (2013) states forthrightly that the debt situation is unsustainable. At the same time, European Union (EU) member states have been wrestling over bailouts for nations in fiscal peril, with political fissures that threaten the European Monetary Union (EMU) and the fundamental basis of the Union.

Political perspectives on government debt are fairly predictable. Conservatives believe that government debt is harmful and that governments should, therefore, minimize borrowing. Liberals take a

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Keynesian view that debt is simply a practical tool of economic policy which should be rationally employed whenever it is economically advantageous. In the United States recent debates over federal government spending and borrowing have heated up considerably as a polarized government has struggled with fiscal policy challenges. The focal point of the debate has at several times been the need to raise the official debt ceiling. The debt ceiling is a global limit on the federal government’s ability to borrow. In the past, increases in the debt ceiling have been relatively uncontroversial. In recent years, however, conservatives have taken the opportunity posed by the necessity to raise the debt ceiling to push for more vigorous federal spending restraint. Political impasses over the debt ceiling have resulted in various forms of brinksmanship over potential and real federal government shut-downs.

Christian voices in the public square generally warn against the potential damages from too much debt. For example, the Center for Public Justice (CPJ) has issued a call for intergenerational justice in which the core concept is that, “Intergenerational justice demands that one generation must not benefit or suffer unfairly at the cost of another” (2013). The call begins with an assessment of the current situation:

For a generation and more, we Americans have been living beyond our means. Our growing national debt now puts us on a path towards economic disaster. If unchanged, our current culture of debt threatens to bankrupt us both economically and morally. The biblical call to stewardship demands that we pass on an economic order in which our children and their children can flourish.

In the CPJ call, however, there is also a strong plea to avoid reductions in government programs that benefit the poor. Jordan Ballor (2011) critiques the CPJ call on the Acton Institute blog. His criticism calls for a comprehensive and principled evaluation of debt reduction policies, saying

So what we’re missing here is a really principled and vigorous view of what the government’s legitimate role is in the world and in relationship to a variety of concerns: defense, social welfare, international development, and so on. Once we’ve decided what government is for you can start to make some principled decisions about funding priorities…things closest to the
core mission of government should get the highest priority, and so on.

While Christians in policy arena often speak against too much government debt, they disagree on how best to reduce that debt and deal with the long-term sustainability of the nation’s fiscal system. The balance between increased taxes and reduced government spending is the typical crux of the issue.

*Christianity Today* (2011) has chronicled the differences of opinion that exist among American Christians about the national debt. Citing Jim Wallis representing the Circle of Protection and representatives of Christians for a Sustainable Economy (CASE), differences of opinion regarding the need to cut federal government spending and raise taxes are presented. None of the analysis in that article focuses on the precise size of the federal government debt and how it may differ from some optimal level, the long-term economic impacts of debt on growth, or specific issues of intergenerational economic impacts. Effectively, the article presents a simplistic picture of liberal and conservative economic views on the size and role of government, with a thin veneer of Christian concern. Sadly, this type of analysis is broadly characteristic of thinking within the church. Thoughtful reflection on national debt informed by solid economic theory is lacking. This review article is a modest attempt to bring both perspectives together.

At a popular level the debate within the evangelical world even receives coverage in *USA Today*. In the 2011 *USA Today* article, “The Evangelical Debate on Debt,” the newspaper cites positions taken by prominent evangelicals and organizations. Views on the morality of government debt are contrasted, with politically conservative evangelicals making strong statements against debt accumulation and politically liberal evangelicals agreeing that debt is a moral issue but pointing out that other policy issues such as poverty and war are equally compelling moral issues.

The causes of debt accumulation in modern western economies are many, but two primary causes deserve attention. First, the Congressional Budget Office (2013) long term budget outlook includes an historical debt view for the United States that graphically illustrates the effects of debt financing of major wars. The typical pattern is that the nation’s debt to GDP ratio rises during the war effort, but falls back slowly thereafter and in many cases never reaches the prewar level. Second, the budgetary impact of growing entitlement programs has increased dramatically as the economy has matured along with an aging population. Demographer
Eberstadt (2012) has chronicled these trends, pointing out that in 1960 entitlement spending amounted to less than one-third of the federal budget, but that has grown to two-thirds currently. He develops the argument, supported by a wide range of social science data, that a fundamental shift in thinking about entitlements has taken place, with citizens increasingly interested in taking from rather than contributing to the economy. While there are certainly many causes of the debt consequences that go beyond the scope of this review, these are two causes worthy of consideration in a moral context.

2. Biblical Principles Related to Debt

One hermeneutic approach to use in discerning biblical principles related to government debt is to view scripture as replete with types and figures, where earlier events, concepts, and persons represent, “type,” or “figure” later ones. In the language of Genesis, Christians are called to image God to the world around them, making Him apparent. It is useful to examine how scripture often uses debt to figure, or be the image of, other things. Christians are called to figure the way God works, hence Christian views and actions regarding debt should also figure God. We will take this approach to discern biblical principles regarding debt. This approach is consistent with the recommendation of Beed and Beed (2012) who make the case for applying normative biblical teaching to present circumstances via a process of principalizing, i.e. by discernment of universal biblical principles and application of those principles to contemporary economic life.

Three possibilities for the way scripture figures debt are that debt is to be avoided, debt is to be repaid, and debt is to be forgiven. Each of these actions has a context that must be appreciated and each figures spiritual truth. Debt avoidance figures debt as sin. Debt repayment figures the reality that sin requires judgment that someone has to pay. For sin, it is the Messiah who pays the price. For debt we will examine the economic cost that must be paid by someone. Debt forgiveness figures the substitutionary sacrifice of Christ for sin.

*Debt is to be Avoided*

If debt is figured in scripture as sin, it is to be avoided. In this context we can consider the principle that national indebtedness may be the result of a judgment of God.
In Psalm 109 David calls for God to take action against his enemies, saying, “may the creditor seize all that he has; may strangers plunder the first fruits of his toil.” In this case, the action of a creditor seizing assets is part of the judgment of God against the enemies of his people. Furthermore, in Deuteronomy 15:6-7 God’s blessing is associated with lending to other nations whereas in Deuteronomy 28:43-44 God’s judgment is associated with borrowing and being indebted to other nations. While we have previously made the case that this judgment came within the specific context of the covenant of Mt. Sinai, applying particularly to the nation of Israel at that time, we can see that debt is figured in scripture in various places as a potential means of God’s judgment against rebellious nations.

Some Christian commentators maintain that indebtedness is viewed as a judgment of God on rebellious nations in the Old Testament. They point to Old Testament promises to the nation of Israel, such as Deuteronomy 15:6-7 and Deuteronomy 28:43-44, in which national lending is associated with God’s blessing and national debt is threatened as a judgment. Of course, we must be careful not to misapply these scripture verses. The context of the threatened judgment is provided in Deuteronomy 28:45 and following verses as part of the covenant established at Sinai, where the Israelites promised, “All that the Lord has spoken we will do” (Exodus 19:8). They are told, “All these curses shall come upon you and pursue you and overtake you till you are destroyed because you did not obey the voice of the Lord your God, to keep his commandments and his statues that he commanded you.” In the context of that conditional covenant, which required obedience for blessing and promised curses for disobedience, we have the admonition regarding debt. The context of the specific teaching regarding debt is the covenant between God and Israel at Mt. Sinai in which national debt is a form of judgment. Yet, this text figures spiritual truth with an intrinsically relevant message (c.f. 2 Timothy 3:16-17). Debt can be a judgment of God.

Debt is to be Repaid
Debt repayment figures the spiritual reality that sin requires judgment and that someone has to pay sin’s penalty. For sin, the Messiah pays the price. This is one side of the Great Exchange: the righteousness of Christ is exchanged for the sin of humans. For government debt, there are economic costs that must be paid by someone in the economy.
In the parable of the talents describing an aspect of the kingdom of God, Matthew 25:14-30 and Luke 19:12-28, we have the situation where a nobleman entrusts productive wealth with his servants, purposely indenting them to him, and then departs. When the master returns, the servants are held responsible for repaying the debt—with an expected return. The amounts entrusted to the servants are both large and proportional to the nobleman’s assessment of each servant’s ability. The first two servants both put the entrusted assets to work and earned a 100 percent return. Both heard the same response from the master, “Well done, good and faithful servant.” The third servant feared the nobleman and simply buried the wealth to keep it safe, earning no return. France (1985) indicates that the third servant, “…failed to recognize his master’s intention, and substituted security for service.” This servant heard the harsh response from the master, “You wicked and slothful servant...” The master concludes, “For to everyone who has will more be given, and he will have abundance. But from the one who has not, even what he has will be taken away.” The point of the parable, reflecting a truth regarding the kingdom of God, is summarized in verse 29, as well as in Matthew 13:12, and indicates that those who have productive assets and use them wisely will be given more while those that do use productive assets wisely will have their assets confiscated. Ultimately, the parable is not about asset returns and the distribution of wealth in a capitalist system. Rather, the spiritual truth communicated is that the kingdom of God will be given to those with spiritual insight, and who understand the intention of the master, while those who do not understand the master’s intention will not be allowed to participate in the kingdom. The point is not about debt, assets, and their use, but rather about understanding the master and obeying his wishes. Nevertheless, the parable explicitly uses the concept of debt to make this spiritual point. In the process, we are lead to understand that wise use of debt for productive purposes and its repayment can be likened to God’s intentions with regard to his kingdom.

Subsequent sections of this article identify the specific economic costs of government debt and suggest who must pay, ultimately.

Debt is to be Forgiven
Debt forgiveness figures the substitutionary sacrifice of Christ for sin. This spiritual truth is found in the Lord’s Prayer where we have the famous petition—forgive us our debts as we forgive our debtors.
Matthew 6 and Luke 11 provide two accounts of the Lord’s Prayer. In the more complete Matthew version verse 12 gives the classic petition, “And forgive us our debts, as we also have forgiven our debtors.” While the clear intention of the use of the word “debts” is in regard to moral debts, nonetheless France (1985) notes that the word debts is the regular Aramaic term for sin which literally indicates a monetary debt. Luke uses a more common term for sins in his rendering of the Lord’s Prayer, but he maintains the concept of a debt in the second clause of the prayer (forgive everyone who is indebted to us). The force of the petition for forgiveness of a debt in Matthew 6 is the inconsistency of praying for forgiveness if one is not himself willing to forgive. This is made plain in verses 14 and 15. The Matthew 6 account of the Lord’s Prayer and the following verses (vv. 14-15) provides a clear indication that forgiveness is essential to those who have been forgiven. In this regard, Stott (1978, p. 149) says that our Father

...will forgive us if we forgive others but will not forgive us if we refuse to forgive others. This certainly does not mean that our forgiveness of others earns us the right to be forgiven. It is rather that God forgives only the penitent and that one of the chief evidences of true penitence is a forgiving spirit.

The idea is that once we grasp the enormity of our offence against a holy and sovereign God, the injustices we experience at the hands of others are placed in proper perspective as trivial.

There is also a clear principle in scripture that debt forgiveness for the poor in society is appropriate, indeed required, in some circumstances (e.g. Year of Jubilee in Leviticus 25) as a means to assure access to productive assets in a society. In this context, debt forgiveness figures the restoration of life. In the contemporary economy, however, most debt is commercial and it is taken on by economic agents who are able to use their human capital to generate income from which to repay the debt. Any requirement that banks or other institutions making such loans must forgive debt ultimately hurts both the poor and the non-poor. The moral status of forgiveness in this context is less than compelling. See Anderson (2005) on Jubilee property provisions and Schaefer and Noell (2005) on Old Testament welfare provisions, including discussion of Jubilee, moral hazard, contract theory, and distributive justice.

This principle is reinforced in Matthew 18 where we have the parable of the unforgiving servant figuring the same spiritual truth. Those who understand deeply the debt they have been forgiven in Christ
should then forgive others. The relative sizes and the disparity between the debts in this parable is the key point (one ten thousandth—see the note in the Reformation Study Bible). We have been forgiven much and therefore must be willing to forgive the small debts we are owed. In this parable, there is a direct analogy between forgiveness of debts and forgiveness of sins. In a very real sense, sin indebts us to God. And it is only by the work of our redeemer that the penalty of that sin-debt is paid.

Johnson (2012) reviews the view of debt in Sedlacek (2011), that, “Forgiveness (of debts, sins) is the key feature of Christianity, which makes it unique among the major religions.” He also points to the similar foundational view reflected in the economic anthropological work of Graeber (2001).

The force of these biblical passages on debt is primarily directed toward debt forgiveness for the poor. For that reason, much of Christian teaching on the issue of financial debt has a similar focus. In particular, Christian voices have been vocal in a number of international debt forgiveness initiatives. See, for example, the 1999 Jubilee Call for Debt Forgiveness by the United States Conference of Catholic Bishops. That statement makes the impassioned plea, “[Debt] is about how children live and die half a world away. It is about poverty and people. It is about what kind of world we live in. Debt must become a call to action, an opportunity to stand up for the least of these, a chance to make a difference.”

3. Deficits and Debt in the United States and Around the World

Debt in the United States

For U.S. historical context, consider Figure 1 which illustrates federal government receipts and outlays over the period 1946-2012. Over that time period receipts averaged 17.7 percent of GDP while outlays averaged 19.8 percent of GDP. The difference—an average of 2.2 percent of GDP—represents the average deficit. From the mid-1970s through the mid-1990s the deficits were typically larger. For a brief period from 1998 through 2001 the budget was in surplus, but that experience proved to be an anomaly as deficits returned in 2002 and thereafter. The deficit shrank to 1.2 percent of GDP by 2007, but exploded thereafter with the onslaught of the financial market crisis and the onset of the Great Recession of 2008-09. The deficit reached a historic high of 10.1 percent of GDP in 2010, surpassing the 1946 deficit of 7.1 percent of GDP. Currently, the deficit is shrinking from that peak,
but the most recent CBO 2013 long range budget outlook forecasts a
brief period of shrinking deficits followed by a growing deficit trend
through the forecast period to 2038.

Figure 2 illustrates federal government debt held by the public as a
percent of GDP. The debt was at an historic high at the end of the
Second World War—exceeding 100 percent of GDP—and generally fell
until the mid-1970s. Then, from the mid-1970s through the mid-1990s

Figure 1 Federal Government Receipts and Outlays as a Percent of
GDP, United States 1946-2012

the debt grew, reflecting the higher deficits of that time period. From
1995 through 2000 the debt fell as a result of the surpluses experienced
those years. Starting in 2008 the debt exploded as a result of the
unprecedented deficits associated with the Great Recession and its
aftermath.

Have deficits proven to really be a problem? The U.S. economy
each of these circumstances the concern over crowding out (federal government borrowing pushing up interest rates and thereby crowding out private investment) was not a serious concern. Expansionary fiscal policy to fight the recessions was an appropriate action in each case. But it is also true that in each case crowding out became a serious concern as the economy recovered and moved toward full employment. At that point in the business cycle, budgets should move toward balance and even into surplus. What happened in the 1980s and 2000s, however, was that the structural deficit actually rose.

How was it that the U.S. federal budget actually experienced a surplus in the 1990s? This result occurred through a combination of higher taxes and reduced spending during a period of time when the macro-economy was very strong. The 1990 budget agreement, 1993 deficit-reduction package, and a budget deal in 1997 were all partly responsible. So, too, was the effect of an unprecedented run of years during the decade with strong economic performance.

Given current battles over raising the U.S. debt ceiling, it is useful to recall the origin and history of that legislation. Austin (2008) explains how prior to 1917 the U.S. Congress was generally required to approve individual issuances of long-term debt by the Treasury. The concept of a statutory debt ceiling was debated and approved in 1917 as part of the Second Liberty Bond Act which enabled financing of U.S. participation in World War I. The Act provided the Treasury with a global limit on the amount of debt that could be issued, but give flexibility in debt management within that constraint. Importantly, the Act permitted issuance of long-term bonds, expanding the Treasury’s offerings beyond the then typical short-term debt instruments. Hence, Congress was relieved of the requirement to approve individual issuances of long-term debt, and the borrowing cost of debt was reduced.

International Debt Statistics
A brief view of international debt comparisons is also instructive. Recent economic and policy debates in the European Union (EU), in particular, have highlighted the debt problems of several countries. Figure 3 illustrates government debt as a percent of GDP for EU member states in the first quarter of 2013. That figure clearly reflects the debt problems of several EU countries with debt to GDP ratios in excess of 100 percent, including Greece, Italy, Portugal, Ireland, and Belgium. The second tier of EU countries with debt to GDP ratios between 80 and 100 percent includes Spain, France, Cyprus, Hungary, and the United
Kingdom. The global financial crisis and following recessions have worsened the debt situations of many countries, including important EU member states.

Figure 2  Debt Held by the Public as a Percent of GDP in the United States, 1946-2012

4. Conventional Economic Wisdom on Deficits and Debt

*Structural Deficits and the Debt*

Economists make use of a definition of the deficit that takes into account the employment level of the economy. The so-called structural deficit is the deficit that would be realized with current fiscal policies in place if the economy were performing at full employment. This distinction is helpful in decomposing a given deficit into its two key components: the part of the deficit due to fiscal policy imbalance, and the part of the deficit due to the economy operating at less than full employment. For example, The Concord Coalition (2012) reported that in 2011 the total deficit peaked at $1.3 trillion, of which cyclical factors accounted for $367 billion, leaving a structural deficit of $928 billion. While the weak economic recovery was responsible for a portion of that deficit, the major part was due to the structural imbalance.
Is the national debt a burden? The answer to this basic question has undergone a transition in the post-war era as the U.S. economy has become more open. At a time when the economy was largely closed, the common answer to the question was that the federal debt was not a burden to the economy as a whole. The reason was that the debt caused one group of citizens to pay taxes to pay the interest on the debt to another group of citizens who owned the debt, resulting in a net zero transfer and no national burden. This idea is captured in the old bromide that the national debt simply involves the left hand owing the right hand. Of course, that simple answer does not take into account the fact that the higher future taxes needed to make the interest payments on the debt also have the result of reducing the efficiency of the economy—an important caveat. Even internal debt can have negative efficiency effects. More recently, concern over the burden of the debt recognizes that in a more open economy, with a large fraction of the debt held by foreigners, future
interest payments to those foreigners create a burden that must be borne by U.S. taxpayers. Hence, there is current concern over the large fraction of U.S. debt held by the Chinese, in particular.

A key issue to keep in mind is that nations that borrow in their own currency have a distinct advantage over those that must borrow in forms of debt denominated in the currency of another nation. The United States borrows in dollar-denominated forms of debt (Treasuries). Default need never occur in such a situation because the central government can simply print the currency needed to make the needed debt payments. Of course, there are other economic implications of such a strategy but, fundamentally, default can be avoided. A nation that borrows in forms of debt denominated in another country’s currency cannot do this. Countries in the European Monetary Union (EMU) are currently struggling with this reality. Having lost control over their own national monetary policy, avoiding debt default is more difficult. Nations that monetize their debt invariably create significant inflation and exchange rate problems for themselves that are highly destructive.

The primary economic argument against large national debt is that it inhibits capital formation and thereby slows long-term economic growth. Future potential GDP is diminished and thereby places a burden on future generations, relative to the level of economic welfare that could have been enjoyed. Much more will be said in examining this issue later in this review.

Recent Disputes over the Impacts of Debt

The economics profession has recently been focused on a high profile controversy over the policy question on whether debt matters for growth. Reinhart and Rogoff (2010, p. 577) examined the experience of 44 countries over two centuries and found that, “…across both advanced countries and emerging markets, high debt/GDP levels (90 percent and above) are associated with notably lower growth outcomes.” This conclusion was then taken as a guiding principle for appropriate and sustainable fiscal policy advocated by the World Bank, IMF, and the European Union.

Subsequently, Herndon, Ash, and Pollin (2013) criticized the Reinhart and Rogoff (2010) findings based on finding an error in the RR data spreadsheet. They corrected the RR data error and produced alternative estimates that show somewhat smaller reduction in growth rates for economies with debt/GDP ratios in excess of 90 percent. They conclude, “The fact that RR’s findings are wrong should therefore lead
us to reassess the austerity agenda itself in both Europe and the United States.” The RR response, in part, is that even with the correction reducing the growth differential, “It is utterly misleading to speak of a 1 percent growth differential that lasts 10-25 years as small.” This view, of course, takes into account the powerful compounding effect.

5. Burden of the Debt

The primary way in which the national debt creates a burden for a nation is in the form of slower future economic growth. If current deficits are taking place in the context of a high-employment economy, there is likely to be crowding out effect with higher interest rates forcing out some private borrowing and reducing the long-run capital stock. A smaller long-run capital stock has the consequence of reducing economic growth. See, for example, Mankiw and Weinzierl (2006) which provides important results on the dynamic effects of taxes.

Diamond (1965) is the classic starting point to consider the role of national debt in the context of a neoclassical growth model. The Diamond model indicates that in the “normal” case external debt has the effect of reducing the long-run equilibrium utility level of a consumer, thus making her worse off. A surprising result of the Diamond model is that internal debt has an even larger effect in reducing consumer utility. External debt in that model has two effects: (1) increased taxes required to finance the interest payments on debt reduce the available lifetime consumption, and (2) with the reduction in disposable income, taxes also reduce savings and thereby reduce the capital stock in the economy. Internal debt has both of those effects plus an additional effect: there is a further reduction in the capital stock of the economy due to the substitution of government debt for physical capital in consumers’ portfolios. Hence, the canonical Diamond model indicates that national debt, both internally and externally held, has a negative effect on the aggregate economy.

Consequently, economic theory indicates that a sanguine view of debt may not be justified. Debt can have real consequences resulting in smaller capital stock and slower economic growth.

**External vs. internal debt**

External debt is debt owed to agents that are located outside the country issuing the debt. The interest that must be paid on external debt requires
financing via either further borrowing or taxing. The important feature of external debt is that it is not competing with physical capital as a savings instrument for consumers in the domestic economy, but the interest payments on the debt result in a flow of resources out of the domestic economy.

Internal debt is debt that is held by residents of the economy where the debt is issued. With this type of debt, the government borrows from a set of its own citizens by selling them bonds. Those bonds compete with private capital. Private savings must then be divided between the two alternative financial investment instruments. In the absence of risk, bonds and capital are perfect substitutes and in equilibrium they must pay the same rate of return. As with external debt, the cost of financing must be covered with either more borrowing or taxing. In this case, there is no flow of resources transferred out of the domestic economy, however.

External Debt
External debt has impacts on the domestic economy through the taxes that are required to finance the interest cost of the debt. Those effects can be analyzed in the framework of Diamond (1965). The steady state of the economy is characterized with two equations for a fixed stock of debt and the implications for changes in the amount of debt can be viewed via those equations in either mathematical or graphical contexts.

The quantity of external debt in period $t$ can be written as $D^1_t$ and the debt per young consumer is given by the ratio, $d^1_t = \frac{D^1_t}{H_t}$. Assuming that the ratio remains constant, the growth of the absolute stock of debt follows the equation,

$$D^1_{t+1} = [1 + n]D^1_t$$

where $n$ is the population growth rate. Interest payments on the debt in the amount $r_tD^1_t$ are financed with either new borrowing $nD^1_t$ or taxing. The difference between interest payments and new borrowing is the amount that must be financed via taxation, $[r_t - n]D^1_t$. If the tax employed is a lump-sum tax on the young, the amount of tax required of each taxpayer is given by,

$$T_t = [r_t - n]d^1_t = [r_t - n]d^1_t.$$
The consumer born in period $t$ thus has a budget constraint requiring that the present value of lifetime consumption equal the present value of lifetime income, given by the expression,

$$x_t^t + \frac{x_{t+1}^t}{1+r_t} = w_t - [r_t - n]d_t^t.$$  

Note that the notation $x_t^t$ used on the left-hand-side refers to the consumption of the private good $x$ in period $t$ by a household born at time $t$. The right-hand-side of this expression is the person’s full income, $\bar{M}_t = w_t - [r_t - n]d_t^t$ where $w_t$ is the wage in period $t$.

Maximization of utility $U = U(x_t^t, x_{t+1}^t)$ subject to the income constraint yields the savings function for a person in generation $t$,

$$s_t = s_t(\bar{M}_t, r_{t+1}) = w_t - [r_t - n]d_t^t - x_t^t(\bar{M}_t, r_{t+1}).$$

Equilibrium in the capital market requires the capital/labor ratio to be related to the level of savings, given by,

$$[1 + n]k_{t+1} = s_t(\bar{M}_t, r_{t+1}).$$

Consequently, the interest rate must satisfy the condition,

$$r_{t+1} = f'(\frac{s_t(\bar{M}_t, r_{t+1})}{1+n}) = f'(\frac{s_t(w_t - [r_t - n]d_t^t, r_{t+1})}{1+n}).$$

This expression implicitly determines the relationship between $w_t$ and $r_{t+1}$ and describes equilibrium combinations of wage and interest rates. We can write the equilibrium requirement that the demand for capital equal the supply of capital as, $r_{t+1} = \psi(w_t, r_t, d_t^t)$. Notice that the equilibrium depends upon the level of internal debt as it affects the level of savings.

Firms are assumed to be competitive and maximize profits. The result is that, $w_t = f(k_t) - k_t f'(k_t)$, where $k_t$ is the capital-labor ratio, and $r_t = f''(k_t)$. These two conditions imply the factor price frontier $w_t = \varphi(r_t)$, where $\varphi'(r_t) = -k_t < 0$, and $\varphi''(r_t) = -\frac{1}{r''} > 0$. Notice that $\varphi(r_t)$ does not depend on the level of external debt.
The economy’s steady state is defined by the situation where \( r_t = r \) for all \( t \), indicated by the simultaneous satisfaction of the conditions, \( r = \psi(w, r, d^1) \) and \( w = \varphi(r) \). Notice that \( d^1 \) is the constant stock of external debt. If an equilibrium exists, it can be shown that the steady state solution is stable as long as the \( \psi \) curve is steeper in absolute value than the \( \varphi \) curve, as illustrated in Figure 4. If the economy begins in a position with the interest rate above \( r^* \), then it will move toward the equilibrium with a reduction in \( r \) and an increase in \( w \).

The effect of a change in external debt is to rotate the \( \psi \) curve in a counter clockwise manner around the point where \( r = n \). Using the Diamond model framework Myles (1995) has proven the following summary results:

1. If \( r > n \), a differential increase in external debt raises \( r \), reduces \( w \), and reduces utility.
2. If \( r < n \), a differential increase in external debt reduces \( r \), raises \( w \), and may increase utility.
3. If \( r = n \), a differential increase in external debt has no effect.
Diamond characterizes the “normal” case as that where the competitive financial and labor market solutions are efficient, resulting in the effect that external debt reduces the utility of an individual living in long-run equilibrium. If the competitive solution is inefficient, however, Diamond indicates that debt has ambiguous effects.

**Internal Debt**

With internal debt, the government is borrowing from its own citizens. As a consequence, there is competition between government-issued debt and physical capital for consumer savings. An increase in internal debt has two effects: it requires taxes to pay back the debt and it has an impact on the capital market.

We can denote the ratio of internal debt to the number of young consumers in the economy at time $t$ using the notation, $d_t^2$. The corresponding savings function is then,

$$ s_t = s_t(w_t - [r_t - n]d_t^2, r_{t+1}). $$

In this expression, the term $[r_t - n]d_t^2$ is the tax payment required for debt service. Considering the supply side of the capital market, there are now both private capital and government bonds to consider. In the aggregate, saving must equal the total stock of capital and debt in order to achieve equilibrium. That requires,

$$ S_t = H_t s_t = K_{t+1} + D_{t+1}^2, $$

which in generation $t+1$ per person terms is,

$$ \frac{s_t}{1+n} = k_{t+1} + d_t^2. $$

In this case it can be shown, as in Myles (1995), that an increase in internal debt causes the $\psi$ curve to shift outward to the right. That causes the wage to fall, and the interest rate to increase. When $r > n$, increased debt raises the interest rate moving the equilibrium point away from the optima; point where $r = n$. That reduces welfare. When $r < n$, the opposite occurs. Myles (1995) has proven the following summary effects of an increase in internal debt:

(1) If $r > n$, a differential increase in internal debt decreases utility
(2) If \( r < n \), a differential increase in internal debt increases utility
(3) If \( r = n \), a differential increase in internal debt has no effect

Table 1 provides a summary of the effects of both external and internal debt on the interest rate, wages, and utility. Three cases are reported depending on the relationship between the interest rate \( r \) and the rate of population growth \( n \).

**Table 1  Differential Debt Increase Effects**

<table>
<thead>
<tr>
<th></th>
<th>( r &gt; n )</th>
<th>( r &lt; n )</th>
<th>( r = n )</th>
</tr>
</thead>
<tbody>
<tr>
<td>External debt</td>
<td>( r \uparrow, w \downarrow, U \downarrow )</td>
<td>( r \downarrow, w \uparrow, U \uparrow )</td>
<td>no effect</td>
</tr>
<tr>
<td>Internal debt</td>
<td>( U \downarrow )</td>
<td>( U \uparrow )</td>
<td>no effect</td>
</tr>
</tbody>
</table>

In the case where the interest rate exceeds the population growth rate, \( r > n \), Diamond’s “normal” case, the effect of an increase in external debt is to increase the interest rate, reduce wages, and reduce utility. If the interest rate is less than the rate of population growth an increase in external debt has opposite effects, lowering the interest rate, raising the wage, and increasing utility. In the case where the interest rate and the rate of population growth are identical, external debt has no effect. The impact of an increase in internal debt is to lower utility when the interest rate exceeds the rate of population growth, and to raise utility in the opposite case. Once again, when the interest rate and the rate of population growth are identical, internal debt has no effect.

This evidence indicates that debt, both external and internal, typically has harmful effects. But we must reject the notion that debt is always harmful because there are circumstances under which it can be beneficial. External debt is harmful in the case where the interest rate exceeds the rate of population growth. Internal debt is harmful in that same case. Otherwise, debt can be either neutral or beneficial.

*Optimal Debt*

There may well be public finance situations in which it makes more sense from an economic point of view to borrow rather than tax. In such a case, however, there is still a question of the optimal amount of debt to incur.

Barro (1994) suggests that the question of how much debt to incur (relative to taxes) be considered in three stages:
• If we have lump-sum taxes that are non-distortionary and the conditions of Ricardian Equivalence are satisfied, then the allocation of financing between borrowing and taxing does not matter.
• If taxes are distorting due to excess burdens, then the timing of taxes matters. It is advantageous to smooth tax rates over time in order to minimize excess burden.
• If future real interest rates, GDP, or government expenditures are uncertain, then the correspondence between tax rates and economic conditions matters. The kind of debt issued matters. The government may want to structure the maturity of outstanding debt to protect its cost of financing from changes in real interest rates.

Upon reflection, it is clear that the first case listed above will not obtain. Taxes in a modern economy are distortionary (not lump-sum), so the conditions of Ricardian Equivalence are not satisfied and the allocation of financing between borrowing and taxing does matter. Given that reality, then by the second point above the timing of taxes also matters and smoothing of tax rates overt time to minimize excess burdens is advisable. Myles (1995, p. 485) concludes that, “The employment of both debt and taxation as instruments of government policy will affect the dynamic evolution of the economy and the eventual steady state.”

Fundamentally, the choice between taxation and debt in public finance, as it is often framed, is a false dichotomy. If the choice is debt, that requires future taxation. So, the choice is ultimately between taxation today and taxation tomorrow. Furthermore, from an ethical point of view that considers debt as a moral issue, it follows that future taxation to finance debt is also a moral issue.

6. Debt Neutrality (Ricardian Equivalence)

The concept of debt neutrality, otherwise known as Ricardian Equivalence, goes back to Ricardo (1817). Central to this concept is the insight that under certain circumstances the real economy is not affected by the government’s choice of raising revenue through taxation or debt issuance. At first glance one might think that there is always a difference. Taxes reduce wealth whereas debt appears to leave the wealth of households intact, suggesting that there may be a difference in their impacts on the economy. But this appearance is not correct as debt
issuance requires future tax liabilities. Those future tax liabilities in present value terms are equivalent to current taxation. Hence, taxation and debt have equivalent effects on the economy. Hence, there is said to be debt neutrality.

Barro (1974) demonstrated the debt neutrality result in two special cases where the government gives an equal number of bonds to each identical individual. Debt neutrality is said to hold if the individuals do not perceive their wealth to have increased with the receipt of the bonds.

The present value of wealth is given as,

$$\Omega^1 = \Omega^0 + D - DTL$$

Barro uses two different assumptions regarding the bond repayment mechanism to demonstrate neutrality. In the first case we assume that the bond is paid off with interest paid to the bond holder in the year after the bond was acquired. Further, assume that the same set of individuals is alive in both periods. Under this set of assumptions, with an interest rate $r$, the discounted tax liability can be written,

$$DTL = \frac{(1+r)D}{(1+r)} = D.$$ 

Hence, there is no effect on wealth for the bond holders and as a consequence no impact on their economic behavior.

The second case is one where we assume that the bond is never redeemed but it pays interest in perpetuity. Bondholders are also assumed to have infinite lifespans. In this case the discounted tax liability must equal the discounted stream of interest payments $rD$ per period:

$$DTL = \int_0^\infty rDe^{-rt} dt.$$ 

The result is that $DTL = D$ once again, so bond financing has no effect on wealth.

7. Intergenerational Altruism

Christian concerns regarding intergenerational justice can be considered using standard economic models. In an overlapping generations context,
the pure Ricardian equivalence result would appear to only hold in very special circumstances. The reason, of course, is that the set of living consumers is changing over time. Barro (1974) showed, however, that with intergenerational altruism the neutrality result can still hold.

Table 2 illustrates how the pattern of receipts and payments occurs. A one-period bond is given to the young of generation one. The bond is redeemed, paid for by taxes levied on the subsequent generation two. Without any linkage between generations, the gift of debt would raise the wealth of generation one and reduce the wealth of generation two. There would be real effects on the economy and its equilibrium.

### Table 2  Intergenerational Receipts and Payments

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>t + 1</th>
<th>t + 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation 1</td>
<td>Young (receive bond)</td>
<td>Old</td>
<td></td>
</tr>
<tr>
<td>Generation 2</td>
<td></td>
<td>Young (pay tax)</td>
<td>Old</td>
</tr>
</tbody>
</table>

The debt neutrality result requires linkages between generations. Economic models using overlapping generations do that by assuming each consumer has a number of descendants. The consumer is assumed to care about the welfare of descendants, otherwise known as intergenerational altruism. That altruism shows itself with the presence of bequests. Those bequests then provide the mechanism needed in an overlapping generations model to neutralize the effect of debt transfer. There is symmetry in these models as well, permitting a consumer to care about a forbearer, giving a gift.

Assume that each consumer of generation $t$ has $1 + n$ descendants and derives utility $U(t)$ from his own consumption as well as the consumption of his descendants. With an additively separable utility function, we have:

$$
U(t) = U(x_t^t, x_t^{t+1}) + \frac{U^*(t + 1)}{(1 + \delta)}
$$

The second term is the utility of each descendant, discounted at the rate $\delta$. Each consumer has two budget constraints,

$$
x_t^t + s_t = w_t - T_t
$$
and

\[ x_{t+1}^t + [1 + n]b_t = [1 + r_{t+1}][s_t + b_{t-1}] \]

where \( b_t \) is the bequest given or received, \( s_t \) is savings, and \( r_t \) is the tax paid to finance debt and the bequests given or received. Each consumer has \( 1 + n \) descendants, and leaves a bequest of \( b_t \). Each consumer also receives a bequest of \( b_{t-1} \) in the second period of life. That amount was bequeathed in the previous period \( t \) so it earns interest at the rate \( r \). Each consumer also pays a lump-sum tax of \( T_t \) in the first period of life.

Maximization of utility subject to these two constraints yields the first-order necessary conditions:

\[
\frac{\partial U}{\partial x_t} = 1 + r_{t+1} \\
\frac{\partial U}{\partial x_{t+1}} [1 + n] \geq \left[ \frac{1}{1 + \delta} \right] \frac{\partial U^*(t + 1)}{\partial b_t}
\]

The strict inequality holds in the second equation if there is no bequest; \( b_t = 0 \).

Myles (1995, p. 504) summarizes the results of this model, citing Barro (1974), as follows: “If the bequest motive is positive both before and after any change in the level of bonds, such a change has no effect upon either the short-run equilibrium or the steady state equilibrium.” He also proves a second result, attributed to Carmichael (1982), stating, “If the gift motive is operative, so that gifts are positive, both before and after any change in the level of bonds, such a change has no effect upon either the short-run equilibrium or the steady state equilibrium.” Tresch (2002, p. 613) acknowledges the possibility of Ricardian equivalence, but insists that, “it is extremely unlikely to hold in practice.” Furthermore, he summarizes by saying that, “Most public sector economists believe that intertemporal redistributions have real and important effects on the productivity of the economy in the long run.”

In this sense, a Christian economist concerned with the stewardship mandate of Genesis 1 and 3 would agree and have an uneasiness
regarding the likelihood of a pure Ricardian Equivalence outcome. If that is the case, then concern for intergenerational justice is justified, although this argument is far more nuanced than the typical call for intergenerational justice coming from the Christian community.

8. Intertemporal Redistributions

Within an overlapping generations (OLG) modeling framework, temporary government deficits or surpluses have intergenerational redistribution effects. A temporary government deficit results in redistribution from the younger generation to the older generation. Consider the case of a temporary tax cut. In that case the older generation gains more from the tax cut than they lose from the subsequent increase in taxes. The opposite is true for the younger generation. Hence, there is an inter-generational transfer from the young to the old. This conclusion ignores bequests, of course, which could be used by the older generation to compensate the younger generation. Typically, a temporary deficit has an effect because the older generation has a higher marginal propensity to consume (MPC) than the younger generation so the deficit increases aggregate consumption, lowers aggregate savings, investment, and the capital stock. The impact of these changes is to reduce economic growth in the long run. One need look no farther than the U.S. Social Security system for an example of just such a program and its effects. A pay-as-you-go (PAYGO) system such as this operates with deficits in the early years and requires higher taxes in later years in order to maintain benefit levels for later recipients. See Feldstein and Liebman (2002) on PAYGO systems and their financing properties with applications to social security systems. Of course, a temporary budget surplus results in redistribution from the older generation to the younger generation and has the opposite effects on long-run growth and output.

When analyzing temporary deficits and surpluses in an intertemporal framework it should be noted that annual measures of the deficit or surplus are not relevant. What matters is the long-run impact of the deficit/surplus. Long-run productivity and economic growth are determined by expenditures on public goods and the degree of intergenerational redistribution. This point is often lost in popular discussions which are fixated on annual deficits.

It is also important to note the distinction between incentives for savings and investment. Tresch (1995) points out that the distinction
matters when various vintages of capital are not perfect substitutes. Adjustment of the capital stock is costly in that case. Investment policies such as accelerated depreciation or expensing of capital costs, favor new capital over old (existing) capital. Consequently, such policies act as an implicit temporary surplus as the older generation owns the older capital. The investment incentive shifts resources from the older generation to the younger generation, reduces aggregate consumption, increases productivity, and stimulates economic growth.

9. Summary and Conclusions

This review provides both biblical and economic views on government debt. Numerous biblical passages, in both Old and New Testaments, address debt explicitly or use debt as a metaphor for sin. Three ways that scripture figures debt are that: debt is to be avoided, debt is to be repaid, and debt is to be forgiven. Debt avoidance figures debt as sin which is to be avoided in the life of the Christian. Debt repayment figures the reality that sin requires judgment that someone has to pay. For sin, it is the Messiah that pays the price. For government debt there are economic costs that must be paid and efficiency losses that must be borne. Debt forgiveness figures the substitutionary sacrifice of Christ for sin. Forgiveness of debt for the poor is a necessary part of the biblical call for Christians. While the Christian church has often spoken in public policy debates regarding debt forgiveness for the poor in an international context, it has been less vocal until recently regarding the economic costs of domestic government debt. That situation has changed and Christian voices are now heard more often on the moral aspects of government debt. But many of the opinions proffered from this point of view are not well informed on the basic economics of debt, and the proposed policy solutions are often biased in favor of tax increases and resistant to expenditure reductions.

The primary economic argument against large national debt is that it inhibits capital formation and slows long-term economic growth. A review of the standard economic models indicates that debt, both external and internal, typically has harmful effects. In theory, government debt is not always harmful. External debt is harmful in the so-called “normal case” where the interest rate exceeds the rate of population growth. Internal debt is also harmful in that same case as well. In other “abnormal” cases debt can be either neutral or beneficial.
So while the Christian economist cannot be doctrinaire, it is safe to say that government debt normally has a detrimental effect.

In an economy without intergenerational altruism, an increase in external debt will typically reduce welfare. In an overcapitalized economy an increase in internal debt will clearly reduce welfare. The implications of these findings must be considered along with the Ricardian Equivalence proposition that changes in debt have no real effects. While the proof of that proposition is valid, it can be shown to apply only in special circumstances. It requires a particular form of intergenerational altruism. There appear to be many situations in which the proposition does not hold. Hence, we should not expect debt to have neutral effects. The general conclusion of economic theory is that debt imposes efficiency costs on the economy. In addition, it imposes intergenerational equity problems.

The fundamental problem with government debt is that it requires future taxes that slow economic growth and reduce potential welfare. Calls for intergenerational justice capture this concept, but only imperfectly, as they do not specify the nature of what is just or lay bare the essential tax issues. While some policy analysts characterize the public financing choice as between taxes and debt, the reality is that the choice is between taxes today and taxes tomorrow—and taxation has efficiency costs that are detrimental in all but the most extreme cases (e.g. zero elasticity of supply or demand).

Christian voices on the public policy issue of government debt must be better informed on the basic economics of debt and its consequences. That requires a foundational understanding of how scripture views debt. This review has illustrated that scripture figures debt as sin which implies that debt avoidance is important. Debt acquisition is not neutral. It is not merely a practical tool of economic policy that can be rationally used whenever advantageous. Debt brings economic consequences that must be borne, and hence debt avoidance is advisable. Scripture also figures the reality that debt must be repaid. That repayment is not likely to be neutral in its economic effect, contrary to the Ricardian Equivalence result which obtains only in special circumstances. There are both efficiency and equity effects. An intertemporal impact is often ignored when annual deficits are considered. Long-run productivity and economic growth are affected by intergenerational redistribution. And finally, debt forgiveness for the poor figures the substitutionary sacrifice of Christ for sin. The Jubilee and other scriptural admonitions are aimed at assuring that the poor have productive assets. Grace has both spiritual
and economic implications, extending to the practicalities of government debt and provisions for widows and aliens.

Given that scripture figures in multiple ways the detrimental effects of debt accumulation, then debt reduction deserves more careful attention by Christian commentators. The current fiscal situation in many advanced economies (e.g. G7, for example) is unsustainable with long-term debt to GDP ratio forecasts rising to historic levels. Structural deficits must be reduced, requiring primary surpluses (revenues minus non-interest expenditures) on balance over time. Tanner (2012) presents simulations for the United States, for example, indicating that a fiscal adjustment of 4.5 percent of GDP is required to offset the next 25 years of prospective deficits. An adjustment of that size is required to stabilize the debt ratio at its 2008 level which was 44 percent of GDP.

The natural inclination is to think of debt finance as preferable to taxation, not recognizing that additional debt requires future taxation which is distortionary, generating both efficiency losses and intergenerational redistribution. Resistance to expenditure reductions when faced with structural deficits places additional pressure on a nation’s debt. While the distributional consequences of expenditure reductions are important for Christians to consider, so too are the efficiency and equity aspects of continued debt accumulation.

Several policy approaches can be considered to address a high and growing level of public debt. A debt ceiling measured in absolute dollar terms is a simple policy rule, but it has not proven to be a restraint on federal borrowing in the United States. One possible alternative is to define the debt ceiling as a percentage of federal outlays or GDP. That would allow for an amount of federal borrowing that is limited and proportionate to the size of the federal government or the size of the economy. It would avoid the problems associated with a ceiling defined in nominal dollar terms. Such a solution could also be paired with federal budget outlay and receipt limits expressed as a percentage of GDP, with the difference financed with debt. Of course, such a rule is likely to be considered naive in the context of a large complex modern economy with a comprehensive federal government. More creative short-term debt ceiling work-around proposals involving super premium bonds or platinum coin seigniorage are not only unconventional, but are also much more indirect and uncertain ways of dealing with the issue.

More sophisticated economic policy approaches worthy of attention are outlined in the fiscal sustainability literature, as recently reviewed in Tanner (2012). These approaches generally involve expenditure,
revenue, and debt smoothing over time. The key issues involved in such models include both the size of the primary surplus necessary and an objective to distribute those primary surpluses over time. An important objective often used in the literature is to minimize the deadweight loss of taxes over time, thereby satisfying an intertemporal efficiency condition. Christian economists concerned about government debt issues would do well to consider such approaches, which are well grounded in the biblical stewardship mandate, along with their biblically grounded concerns for government debt acquisition, repayment, and forgiveness.

Endnotes

1 Unless otherwise noted, all scripture quotations are from the ESV.
2 See, for example: http://explicitlychristianpolitics.com/2011/07/a-biblical-perspective-on-national-debt/

References


