IMPLICATIONS OF LOW INTEREST RATES FOR THE DESIGN OF TAX POLICY

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Interest rates on government debt have been falling in many countries for the last several decades, with markets indicating that rates may stay low well into the future. The recent economic crisis precipitated by the coronavirus only accentuates these trends. As discussed by several authors, sustained low interest rates fundamentally change the nature of long-run fiscal policy choices[2].

In this paper, we examine a related issue: the implications of sustained low interest rates for the structure of tax policy. Several significant issues in tax policy are affected by the presence of sustained low interest rates. We show that low interest rates (a) reduce the differences between consumption and income taxes; (b) make wealth taxes less efficient relative to capital income taxes, at given rates of tax; (c) generally mute the value of traditional tax preferences for business investment, retirement saving, and capital gains, and (d) substantially raise the valuation of benefits of carbon abatement policies relative to their costs.

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[2] Elmendorf and Sheiner (2017); Blanchard (2019); Furman and Summers (2019); Auerbach, Gale, and Krupkin (2019); and Gale (2019).

INTEREST RATE TRENDS

At the outset, it is important to distinguish two phenomena: a reduction in all rates of return, and a reduction in yield on government debt relative to other assets. Tax incentives and rules may have different effects on private decisions in scenarios where the private return to capital is low than when the private return to capital remains high, but government debt yields are low.

In fact, the rates of return on all assets have declined and safe asset returns have declined relative to returns on risky assets. The fall in return on all assets is commonly attributed to a glut of global saving, due to changing demographics and increased concentration of income and wealth, that has outpaced investment demand and a decline in investment, due possibly to the increased role of imperfect competition and market power among firms. The fall in return on safe assets relative to risky assets is typically attributed to an investor "flight to safety" and a relative worldwide shortage of safe assets.

Figure 1 shows that both real and nominal interest rates on U.S. government debt have been in decline since the mid-1980s. Figure 2 shows similar results for Treasury Inflation-Protected Securities (TIPS). Despite inflationary concerns that emerged earlier this year, as of mid-August nominal rates on Treasury debt remain very low and projected real yields are negative.

Falling interest rates are not simply an American phenomenon. A composite, global long-term interest rate (formed as the GDP-weighted average of 10-year government interest rates using 18 OECD countries) has steadily declined from a high of roughly 8% around 1995 to less than 1 percent recently. Indeed, several European governments including Switzerland, Denmark, Austria, and Germany have paid negative nominal interest rates in recent years.

Most projections expect interest rates to remain lower in the future than they were in the 1980s and 1990s. Federal Reserve officials have noted that they expect to leave interest rates near zero for the near future. Forecasts by major investment banks such as Goldman Sachs project low interest rates for the foreseeable future. Additionally, the Congressional Budget Office (CBO)'s projections show continued low interest rates under current law for the next ten years, with rates rising somewhat in the future as public debt rises and the economy grows.

IMPLICATIONS FOR TAX POLICY

Consumption Taxes

One of the longest standing debates in tax policy addresses the relative merits of using consumption versus income as a tax base. Consumption taxes can be implemented in many forms, with some of the options allowing for progressive rates. Here, we abstract from the differences in design across various consumption tax options and focus on the differences between a consumption tax and an income tax.

At the risk of oversimplifying, income taxes generally burden capital more heavily and are more progressive than consumption taxes. For example, a pure income tax would burden labor income and all forms of capital income (the normal or "safe" return—the return to waiting—the return to risk, and excess returns from things like luck, skill, and imperfect competition). Consumption taxes burden all the same sources of income except the normal return to capital.

Low interest rates reduce the importance of the differences between the two taxes. Abstracting from differences in the timing of tax collections, as the safe return goes to zero, the differences between the two taxes go to zero. We show that the fact that consumption taxes impose a one-time lump sum tax on existing wealth complicates the analysis but does not change the fundamental result.

Wealth Taxes

Recent years have seen increased attention to wealth taxes. The comparison of wealth taxes with income taxes requires some adjustments. Wealth taxes impose annual taxes on a stock (of wealth). As a result, they need to be specified in terms of a rate per unit of time. In contrast, income taxes are imposed on flows (of income). Thus, a 5 percent wealth tax per year would tax (about) 50 percent of initial wealth over a decade, whereas a 5 percent income tax per year would 5 percent of income over a decade (Viard 2019).

Under simplifying assumptions, a wealth tax can be re-written as an equivalent tax on capital income. For example, if the rate of return, *r*, is 6 percent, a 2 percent wealth tax is equivalent to a 33 percent tax on capital income. If *r* =2 percent, a 2 percent wealth tax is equivalent to a 100 percent tax on capital income. That is, a wealth tax of a given magnitude is the equivalent of a more distortionary capital income tax as rates of return fall.

When investors hold assets that vary in return and riskiness, developing the implied income tax rate from a given wealth tax rate may look more complicated than specified above. However, investors are presumably balancing risk and return in their portfolios and on the margin hold both safe and risky assets. Since the wealth tax, if it existed, would be a certain flow, it makes sense to compare the wealth tax rate to the return on safe assets to generate an effective income tax rate (Auerbach 1991 and Viard 2019).

A related point is that, among those with the same wealth, a wealth tax does not differently tax those with high returns and those with low returns. That is, the wealth tax imposes burdens on the normal return to capital. If excess returns are due to entrepreneurial effort, this feature provides a positive incentive effect (Guvenen et al. 2019) but also makes the wealth tax less effective than an equivalent income tax in capturing labor income disguised as business income. If excess returns are due to rents, this feature is less than optimal (Auerbach and Hassett 2015, Rothschild and Scheuer 2016). Of course, a wealth tax collects revenue even if the current return to capital is zero (Scheuer and Slemrod 2021).

Tax Preferences for Investment, Capital Gains, Saving

Policy makers have often used tax incentives to attempt to boost firm investment, either on a cyclical or long-term basis. These incentives have included lower statutory tax rates, accelerated depreciation allowances, and investment tax credits. When firms invest, they can recover investment costs before determining taxable income. Typically, firms must spread those depreciation deductions over time. In contrast, under an expensing regime (or a fractional expensing regime, such as bonus depreciation), firms may claim some or all their depreciation deductions in the year the investment was made. Thus, with a positive discount rate, the present value of the deductions allowed under expensing exceeds the present value of the deductions allowed under standard depreciation regimes. So, as this discount rate goes to zero, the difference in the present value of deductions between the two approaches goes to zero as well.

Using a user-cost-of-capital framework, we obtain four results. First, a lower interest rate attenuates the impact of the corporate tax rate on investment. Second, the impact of an investment tax credit on the cost of capital would decline in absolute value as interest rates fell.

Third, assuming that a lower government interest rate will reduce the rate at which firms discount depreciation deductions, lower interest rates will reduce the impact of moving from depreciation to expensing or enacting accelerated depreciation allowances.[3]

[3] This result depends on the discount rate used for depreciation allowances falling with other interest rates. The findings of Zwick and Mahon (2017) suggest that immediate expensing of investment, introduced in recent decades in the U.S. in the form of "bonus" depreciation, stimulates investment because of the immediate deduction, rather than because of the associated increase in the present value of depreciation allowances.

A major focus of potential tax reform has been the treatment of capital gains, given their tax-favored status, their high concentration among the very wealthy, and the distortions that the current method of taxation causes. In the U.S. tax system, capital gains are only taxed when they are "realized" – that is, when the asset is sold. Taxation upon realization, rather than taxing gains as they accrue, creates a "lock-in" effect, through which investors can obtain higher post-tax returns from continuing to hold an asset even though the pre-tax return for doing so would be less than for an alternative investment. With very low interest rates, the deferral advantage loses much of its relevance, and this can make relatively simple reforms (such as taxing capital gains at death) achieve results very similar to more complicated schemes (such as taxing capital gains on accrual, even when not realized).

Similar considerations indicate that the advantage of investing in a tax-preferred saving account (e.g., a Roth or traditional IRA or 401(k) plan) is diminished as interest rates decline.

Carbon Taxes

The climate change induced by carbon emissions has been described as the biggest externality or market failure the world has ever seen.[4] Resolving this problem raises an inordinately large number of issues. We focus here on one aspect of that resolution – how lower interest rates impact estimates of the optimal price to impose on carbon emissions, potentially through a carbon tax.[5]

A key concept in climate change is the social cost of carbon (SCC), the economic damage from a one-ton increase in carbon emissions. The Environmental Protection Agency (EPA) defines the SCC as a "comprehensive estimate of climate change damage and includes change in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs."

Policies that address climate change – such as a tax on carbon emissions – induce a stream of future costs (taxes or regulations, for example) and a stream of benefits (a healthier environment and long-term economy). But the benefits are "back loaded" (i.e., postponed) relative to the costs, extending over many generations.

Weighing this tradeoff involves many considerations. There is, in fact, a major debate about whether to discount future benefits at all.[6] Assuming, however, that future benefits and costs are discounted, the interest rate used has an enormous effect on the net benefits. As interest rates fall, the benefits of a carbon tax rise relative to the costs. Moreover, because the difference in timing between when people incur the costs and when they receive the benefits is so large, even small differences in how people value the future compared to the present can dramatically alter the estimated SCC. For example, almost all the differences between analyses by Stern (2006), who argues in favor of near-term massive climate change mitigation measures, and Nordhaus (2008), who argues in favor of a small, slowly growing response to climate change (a "policy ramp"), boil down to differences in the discount rate employed.[7]

Nordhaus (2018) provides quantitative estimates of the substantial difference that discount rates make. For example, in 2020, a reduction in the discount rate from 5 percent to 2.5 percent causes the SCC (and hence the prescribed price of carbon per ton) to rise from 21.7 to 133.4 (both in 2010 dollars). Bauer and Rudebusch (2020) find that the SCC (in

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[4] Stern (2007).

[5] We are abstracting from the facts that policy makers could address climate change via many mechanisms – carbon taxes, cap-and-trade systems, command-and-control regulations, trade policies, clean energy subsidies, etc., and that these policies will differ in the timing and magnitude of their effects (Acemoglu et al. 2016).

[6] Stern (2007), Nordhaus (2008), and Weisbach and Sunstein (2009).

[7] The timing difference between costs and benefits and the associated large impact of low interest rates on the desirability of policies applies to a broader range of government activities, notably government investment decisions. See, e.g., Elmendorf and Sheiner (2017). Note that this is the case for many other environmental policies as well and for interventions relating, for example, to human capital investment.

1989 dollars) based on projections using data through 1990 is 31.8, whereas interest rate projections based on data through 2019 yield a constant-dollar SCC of 68.7. Finally, Carlton and Greenstone (2021) note that reducing the discount rate from 3 percent to 2 percent raises a standard estimate of the SCC used by the Obama Administration from $50 to $125.[8]

CONCLUSION

It is by now generally recognized that the presence of low interest rates – sustained over time and across countries – has important implications for the fiscal stance of the federal government. In this paper, we argue that if low interest rates are expected to persist, there are important implications for the design of tax policy as well.

In general, our results reflect three main themes: in the presence of low interest rates,

subsidies to saving and investment are less potent; the wealth tax is bigger and more distortionary relative to an income tax, for given tax rates; and investments with back-loaded benefits (most prominently carbon taxes) are more valuable. This last implication is likely important in other cases we have not yet considered, particularly human capital investment, where expenditures of money and time when young provide benefits possibly decades later. However, another factor to consider in this case, and perhaps others as well, is that lower interest rates may also be associated with lower rates of productivity growth, which might also reduce the future returns to investment. In addition, the implications of low interest rates for government discounting could be affected by the irreversibility of certain policy decisions, which could provide an option value to waiting for the resolution of uncertainty and effectively increase the appropriate discount rate (Dixit and Pindyck 1994). If, as discussed above, lower market interest rates may be due in part to higher uncertainty, this could partially offset the impact of lower interest rates through an increase in option value.

Of course, the future path of interest rates is unknown, so it is not at all certain that rates will remain low. But to the extent that beliefs run toward continued low interest rates, the implications for tax policy design are significant.

[8] Although not related to changes in discount rate assumptions, even higher values of the SCC may apply once one accounts for the deadweight loss incurred from additional future government spending (and taxes) required to deal with climate change. Barrage (2020) estimates that this adjustment can raise conventional estimates by up to one-third.

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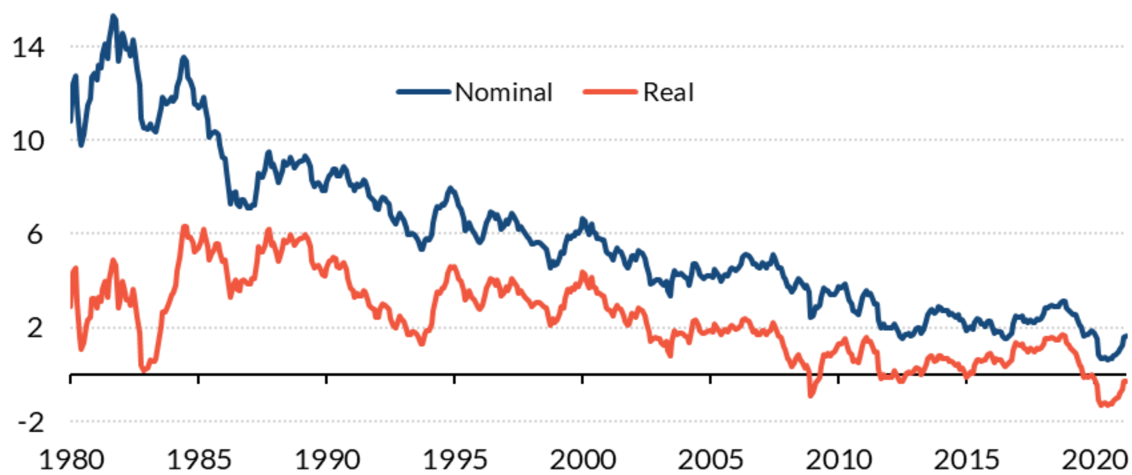
APPENDIX

FIGURE 1

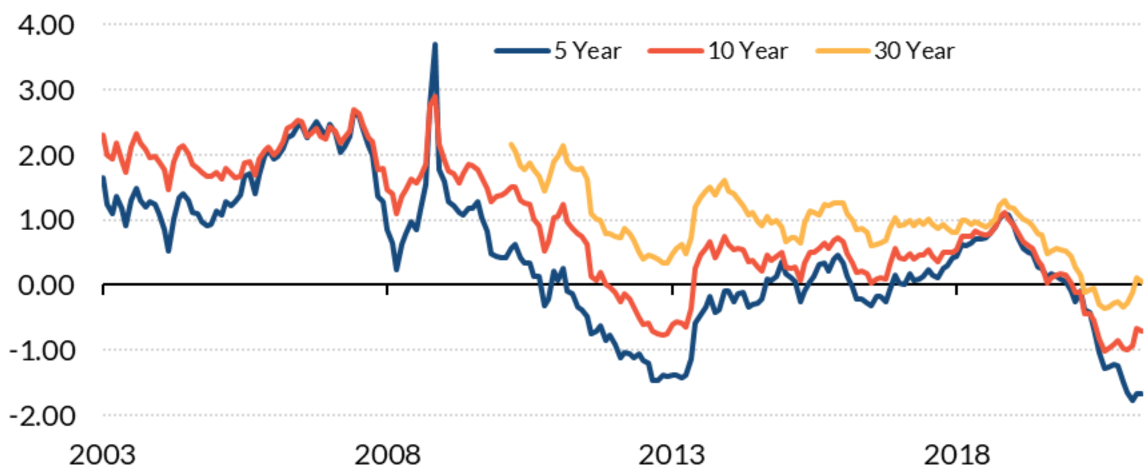
Real and Nominal 10 Year Treasury Yields



Source: Board of Governors of the Federal Reserve System (2021), Bureau of Labor Statistics (2021).
Note: Real yield is calculated using a five-year lagged moving average of CPI-U.

FIGURE 2

Treasury Inflation Protected Securities Yield, Constant Maturity



Source: Board of Governors of the Federal Reserve System (2021).

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