Policy Uncertainty and Rent Seeking by Firms and CEOs: Implications for Efficiency and Optimal Tax Rates

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Abstract

We posit that rent seeking is a largely neglected cost of policy uncertainty. We build on the insights of William Baumol (1990), who contends that entrepreneurship can be not only productive, but also unproductive or even destructive. We argue that policy uncertainty increases the expected returns from rent seeking and thus yields more of this unproductive or destructive entrepreneurship. We develop a model and empirically test the hypothesis that CEOs, and the firms that they manage, respond to tax policy uncertainty by increasing their political contributions and lobbying expenditures. We view uncertainty as a signal that politicians are receptive to policy changes. With little policy uncertainty, higher returns may be sought from investing in productive activities. However, when government is receptive to policy changes, the returns from rent seeking (through lobbying, Political Action Committees, etc.) may be more appealing.

Our work also has implications for tax policy. Piketty, Saez and Stantcheva (forthcoming) show that optimal tax rates depend heavily on both the responsiveness of top incomes to taxes *and* to the avenues by which they respond. We look at the implications of uncertainty and rent seeking on optimal tax rates. We ague that, to the extent that rent seeking targets tax preferences, higher marginal tax rates will raise incentives for rent seeking, increasing the excess burden from taxation. However, to the extent that rent seeking targets government policies not tied to taxes, our results are in line with the Piketty, Saez and Stantcheva bargaining model, which shows that a higher optimal top tax rate discourages rent seeking. Thus, the responsiveness of rent seeking to policy uncertainty, as well as the relative responsiveness of rent seeking targeting tax versus non-tax policies, independent of uncertainty, both have important implications for optimal taxation.

1. Introduction

Over the past decade, the issue of policy uncertainty has garnered increased attention in US policy circles. Recent research (e.g., Baker, Bloom and Davis, 2013, Gomes, Kotlikoff and Viceira, 2011, and Baker and Bloom, 2013) suggests that this policy uncertainty may be severely hampering the economy. Researchers have proposed a number of channels through which policy uncertainty inflicts harm.[1] However, one channel that has received very little attention is the effect of policy uncertainty on rent seeking. We posit that rent seeking is yet another cost of policy uncertainty. We build on the insights of William Baumol (1990), who contends that entrepreneurship can be not only productive, but also unproductive or even destructive. We argue that policy uncertainty increases the expected returns from rent seeking and thus yields more of this unproductive or destructive entrepreneurship.

Baumol chronicles great innovations made over wide swaths of history. However, in many cases, he notes that these innovations did little to improve the lots of most individuals. And, little effort was made to disseminate these inventions to the masses or to gear inventions towards increasing productivity. Baumol argues that political and cultural institutions play a key role in whether innovations are geared toward improved productivity and economic growth. In many of the pre-industrial societies, the path to wealth was through rulers and not the marketplace. This fostered entrepreneurial rent seeking, which retarded economic growth. An important insight from Baumol is that it is not just the degree of entrepreneurship that is central to economic growth, but also the allocation of entrepreneurship between constructive and destructive activities.

Murphy, Shleifer and Vishny (1991) report evidence supporting Baumol's conception of unproductive entrepreneurship. They look at career decisions across different countries. They argue that occupational choice is influenced by the relative returns in different sectors of the economy. In environments where rent seeking is a dominant, they posit that relatively more individuals will be drawn into law. In societies where the dominant path to wealth is through the marketplace, fields such as engineering will be relatively more attractive. Indeed, they find that nations with more law students grow more slowly than nations with more engineering students. They suggest that the slowdown in economic growth over the past 40 years in the US may be in part due to a shift in the allocation of human capital towards disciplines that are more likely to be involved in rent seeking or other nonproductive activities.

Our hypothesis is that policy uncertainty is one of Baumol's institutional features that fosters unproductive entrepreneurship. We develop a model and empirically test the hypothesis that CEOs, and the firms that they manage, respond to tax policy uncertainty by increasing their political contributions and their lobbying expenditures. We view uncertainty as a signal that politicians are receptive to policy changes. With little policy uncertainty, higher returns may be sought from investing in productive activities. However, when government is receptive to policy changes, the returns from rent seeking (through lobbying, Political Action Committees, etc.) may be more appealing. When policy uncertainty does not otherwise exist, politicians sometimes manufacture it. For example, legislators sometimes propose "milker bills." These bills are not intended to actually become law, but rather to extort or "milk" rents from interested parties in exchanged for killing the proposal. Thus, even a period with stable policies may contain

[1] See Giertz and Feldman (2013) for a review of some of these channels.

substantial policy uncertainty and concomitant losses to the economy from rent seeking and destructive entrepreneurship.

In addition to policy uncertainty, our work also dovetails with another major issue garnering great attention over the past decade: the increase in income inequality, in particular, manifested by a disproportionate growth in incomes for those within the top one percent of the income distribution (Piketty and Saez, 2003). This divergence is also evident when focusing on executives (Frydman and Saks, 2010, and Giertz and Mortenson, 2013). This phenomenon has lead some, based on optimal tax models, to suggest substantial increases in tax rates on top incomes (Diamond and Saez, 2011, and Piketty, Saez and Stantcheva, forthcoming).

The implications for top tax rates depend heavily on both the responsiveness of top incomes to taxes *and* to the avenues by which they respond. For example, Piketty, Saez and Stantcheva (henceforth, PSS) examine the avenues through which top income groups respond to tax rate changes. They conclude that a substantial share of responses represent bargaining costs (i.e., a form of rent seeking). They contend that when tax rates are lower, taxpayers respond by exerting more resources to capture a larger share of a fixed pie. It thus follows that raising tax rates reduces the return to this socially wastefully activity. Therefore, the reduction in rent seeking from higher tax rates should be weighed against welfare losses from supply-side responses. They estimate that bargaining costs are large for executives and that accounting for them raises their optimal top tax rate calculation by 26 percentage points (from 57 to 83 percent).

However, the implications for top tax rates may be very different, if rent seeking centers on tax preferences from government, as opposed to gaining a larger share of firm income. To the extent that rent seeking targets tax preferences, higher marginal tax rates will not reduce incentives for rent seeking, but will increase rent seeking, since the benefits from exemptions, deductions, etc. will increase with the tax rate. Under this scenario, rent seeking implies lower, rather than higher, optimal top tax rates. On the other hand, rent seeking targeting government policies not tied to taxes has implications similar to the PSS bargaining model, implying a higher optimal top tax rate. Thus, the relative responsiveness of rent seeking targeting tax versus non-tax policies, independent of uncertainty, has important implications for optimal taxation.

2. Tax policy uncertainty and corporate political activities

In recent years, there has been renewed academic interest in the adverse consequences of policy uncertainty for the aggregate economy.[2] Baker, Bloom and Davis (2013) construct a new index of economic policy uncertainty, and estimate that the increase in uncertainty experienced by the American economy from 2006 to 2011 is associated with a decline of about 2.5 percent in industrial production and 2.3 million in unemployment. This measure of policy uncertainty is also associated with reductions in corporate investment at the firm level (Baker, Bloom and Davis, 2013; Gulen and Ion, 2013), and it affects asset returns and their volatility (Pastor and Veronesi, 2011; Broggard and Detzel, 2012).[3]

[2] An older literature also focused on the effects of uncertainty on the economy; see, among others, Rodrik, 1991; Higgs, 1997; and Hassett and Metcalf, 1999.

[3] Corporate investment also appears to be sensitive to electoral uncertainty. For example, Julio and Yook (2012) find that firms reduce capital expenditures by about 4.8 percent in election years relative to non-election years.

Despite the growing evidence on the detrimental effects of uncertainty on economic growth, there is less understanding of the mechanisms for this relationship. One possibility is that increases in policy uncertainty leads firms to be more conservative, increasing their precautionary savings at the expense of capital investments, employment, or capital disbursements. Consistent with this view, Hassett and Metcalf (1999) and McGrattan (2012) find that increases in tax policy uncertainty (particularly those related to investment tax credits) can affect the timing of corporate investments. A channel that has received less attention is that policy uncertainty may increase firms' rent seeking activities. Specifically, firms and their managers may be more likely to devote more time and monetary resources trying to influence policy at times of heightened uncertainty.

Firms have two main direct mechanisms to try to influence the political process: lobbying, and campaign contributions. In the US, the Lobbying Disclosure Act of 1995 regulates the registration and reporting requirements of those seeking to influence government policies or the implementation of Federal programs. Although firms have to disclose their expenditures in lobbying activities (regardless of whether these are done in-house or through external lobbyists), there are no legal limits to the amounts spent on lobbying. Thus, it is not surprising that lobbying expenditures account for a large fraction of the monetary resources spent by firms to influence policy. For example, de Figueiredo and Richter (2013) show that organized interests spent $3.5 billion in 2012 lobbying the federal government, of which corporations account for about 84 percent.

Perhaps because the Federal Election Commission (FEC) regulates the form and amounts in which individuals and organizations can contribute to politicians and parties, corporate-related resources spent on contributions tend to be significantly lower than those spent on lobbying. Campaign contributions can be made in "hard money," meaning that the resources are directly allocated to a party or politician, or as "soft money" contributions, which are non-candidate specific donations that can be used for party-building activities. Corporations were able to make unlimited soft money contributions until 2002, when they were banned. Firms then switched their direct contributions to 527 groups, organizations that raise money for voter mobilization and issue advocacy. The ban on soft-money contributions was lifted in 2010. Since then, corporations and other interest groups have been able to donate without any legal limit on donation size to Super Political Action Committees (Super PAC).

Although Super PACs can favor a candidate through financing advertising campaigns and other expenditures, they cannot contribute directly to a candidate. In contrast, PACs can make direct donations to specific candidates and parties. Although firms are not allowed to contribute directly to a PAC, they can establish PAC connected to the firm and raise money from firm members, such as managers and shareholders. The FEC does limit the amounts that PACs can contribute per election and calendar year. Overall, the estimated contributions of PACs, super PACs, and 527 organizations was about $1.55 billion for the 2011-2012 electoral cycle, substantially lower than the resources spent on lobbying activities.

But the portion donated by PACs only accounts for a relatively small fraction of all contributions. Individuals' personal contributions to parties and candidates represent more than

90 percent of total campaign contributions. Individuals can contribute to a candidate, a party or a PAC. While they can control which party or politician is the recipient of their direct contributions, a third party makes that decision when they contribute to a PAC. CEOs and other top corporate executives often contribute directly. Although the amounts that individuals can contribute are also capped by the FEC, donations by top executives may be particularly important. A growing literature documents that personal connections to politicians are valuable to firms (Roberts, 1990; Fisman; 2001; Jayachandran, 2006; Acemoglu et al, 2013). Because top executives are the leaders of the firm, their personal contributions may help open doors in addition to the corporate-linked PAC donations.[4] Indeed, Ansolabehere, Snyder and Tripathi (2003) show that campaign contributions and lobbying are positively correlated, consistent with a view that campaign contributions are a way for interest groups to buy access to politicians.

A substantial literature has analyzed the returns to political contributions and lobbying for a variety of policies, including the effect of contributions on firms' effective tax rates (Richter, Samphantharak, and Timmons, 2009), regulatory oversight (Lux, Crook, and Woehr, 2011), and procurement of government contracts (Goldman, So, and Rocholl, 2012). Less is known about the determinants of corporate political activities. Fremeth et al (2013) and Aggarwal et al. (2012) correlate donations with firm and CEO characteristics; Bombardini (2008) and Adelino and Dinc (2013) find evidence for more lobbying among larger firms and those with weaker financial health. We add to this literature by studying the effect of policy uncertainty on political contributions made by chief executives, either directly or through PACs. (In the future, we hope to incorporate evidence on firms' lobbying activities to the analysis, as well as the contributions of corporate-connected PACs).

Economic agents may face uncertainty about different types of government policies. Baker, Bloom and Davis (2013) find that newspapers most frequently mention uncertainty about taxes, spending, monetary policy, and regulatory policy. Among these various sources of uncertainty, tax policy deserves particular attention. First, tax policy, along with spending and policies related to health care benefits and other entitlements, has been one of the major drivers of the increase in the level and growth rate of overall uncertainty since the 1980s. Moreover, both case studies and empirical analysis suggest that firms' political activities may be quite successful at influencing tax policy, and that the economic benefits of affecting tax policy may be substantial.[5] Thus, we separately analyze the effect of tax policy uncertainty on managers' political contributions.

[4] Fremeth et al (2013) find that individuals increase their contributions when are CEOs of S&P 500 firms even after controlling for their income, which they interpret as evidence of a "leadership effect."

[5] McIntyre and Nguyen (2000, 2004) discuss various examples in which firms obtained tax benefits, for example by lobbying for narrow research and development credits and tax depreciation schedules tailored to specific types of capital equipment. Forman (1989) finds a positive correlation between firms' contributions to PACs during the 1985-1986 electoral cycle and these corporations' effective tax rates in 1987, suggesting that corporate donations may have resulted in favorable tax treatment from the Tax Reform Act of 1986. Richter et al (2009) show that an increase in a 1 percent in lobbying expenditures is correlated with a decline in effective tax rates ranging between 0.5 to 1.6 percentage points. Finally, Alexander, Mazza and Scholz (2009) document a return of $220 per $1 spent in lobbying for the reduction in tax rates for repatriated earnings that was introduced in the American Jobs Creation Act of 2004.

3. Theoretical Considerations

Given that policy uncertainty and rent seeking are harmful to the economy, institutional reforms should be considered to reduce uncertainty and incentives for rent seeking. However, even if broader institutional forms were successful, policy uncertainty and rent seeking will always remain, to some degree.[6] Thus, understanding the implications of uncertainty and rent seeking for economic policy is important. One approach for assessing such policy implications is through optimal tax theory. In recent years, research in optimal taxation has grown to address whether (or under what circumstances) policies such as the EITC, minimum wage and estate taxation are consistent with optimal taxation. The literature has grown to address issues such as migration and recently, rent seeking. For a critical review of these recent developments, see Piketty and Saez (2013). Here we consider how policy uncertainty and marginal tax rates influence rent seeking.

Background

Under the Mirrleesian (1971) approach to optimal taxation, a social planner constructs a nonlinear tax schedule in order to maximize a social welfare function. Income is determined by ability and luck, which are exogenous. Gains to social welfare can be achieved through redistribution from high- to low-income individuals (since the marginal utility of income is assumed to decrease with income and preferences are generally assumed to be homogeneous with respect to consumption). However, while ability is exogenous and not observed, it is assumed that income is observed, but endogenous. Thus, gains to social welfare from redistribution, achieved through progressive taxation, must be weighed against increases in excess burden since income is endogenous.

The baseline optimal tax model generally begins with a social welfare function (*SWF*), where utility, *u*, is an increasing in consumption, *c*, and decreasing in work effort used to generate income, z, taking the form

$$SWF = \int G(u_i)dw(i)$$

subject to

$$\int T(z^i)dw(i) \geq T_0$$

$G(.)$ is an increasing and concave function of u and $w(i)$ represents the density function for individuals of type i. The *SWF* is maximized subject to a budget constraint, where T_0 represents government expenditures aside from redistribution, which is incorporated into individual tax liabilities, $T(z^i)$, which can be positive or negative.

Under the baseline case, where responses to taxation only affect real output, consumption takes the form $c = 1 - T(z)$. Assuming quasilinear utility of the form $u_i(c, z) = c - h_i(z)$, it is well known (Piketty and Saez, 2013) that the optimal top tax rate can be represented by

[6] While much policy uncertainty in the US is self-inflicted, an improved policy regime would not eliminate exogenous shocks. And, from time to time, major reforms of some functions of government should be on the table (for example, tax, healthcare or military reform), even if the reform process necessitates some increased uncertainty.

$$TOP^* = \frac{1-\bar{g}}{1-\bar{g}+a\epsilon}$$

where $\bar{g}$ is the average *SWF* for those in the top tax bracket and ϵ is the average income-weighted ETI within the top bracket. a is a key parameter in Pareto distribution, which measures the thickness of the upper tail of the income distribution. Saez (2001) and Diamond and Saez (2011) show that this parameter is approximately 1.5 for the US and is stable for top income groups. Note that, it is common practice in the literature to adopt a Benthamite (or utilitarian) form of the *SWF*. This applies equal Pareto weights to each individual.[7] Social welfare weights are the product of the Pareto weight and $\bar{g}$, where $\bar{g}$ represents the average marginal utility of consumption within the top bracket.

This formula holds if the efficiency implications from behavioral responses to taxation are independent of the margin by which people respond, as in Feldstein (1999). More recent work shows that, in the presence of fiscal externalities, efficiency implications can depend on the margin through which the response occurs. See Chetty, 2009 and Saez, Slemrod and Giertz, 2012.

Tax reform debates often center upon responses to taxation, which the ETI is designed to capture. The ETI is the percent change in taxable income associated with a one percent increase in the net-of-tax rate, where the net-of-tax rate equals $(1-\tau)$ or the share of the next dollar of income that the taxpayer keeps. The ETI can be presented such that

$$\epsilon = \frac{dz}{d(1-\tau)}\frac{(1-\tau)}{z}.$$

The ETI is central to the calculation of optimal top tax rates and measures of excess burden from taxation. Under standard assumptions, the excess burden (or loss to the economy from taxation) from a tax equals the difference between the mechanical change in revenue less the change in revenue due to behavioral responses (Saez, Slemrod and Giertz). Thus, the ETI also determines the Laffer (or revenue maximizing) tax rate. At the Laffer rate, the marginal excess burden per dollar of revenue reaches ∞.[8] The Laffer rate is especially important because recent optimal tax theory tends to completely discount welfare gains or losses from taxation borne by the top of the income distribution (e.g., see Diamond and Saez, 2011). The justification for this is that, as z approaches ∞, the marginal utility of consumption approaches 0. With convex utility functions, it is argued that incomes at the far right tail of the income distribution are sufficiently large that the marginal utility of consumption is effectively 0,[9] simplifying the formula for the top tax rate to

[7] Pareto weights, which are unrelated to the Pareto distribution, are not presented in equation (xx). With equal weights, this term can be dropped (or set to 1) without impacting any subsequent analysis.

[8] For implication of the ETI on Laffer rates and excess burden implications from an across the board tax increase, see Giertz (2009).

[9] While this result has intuitive appeal (especially with homogeneous utility functions), it does pose a puzzle: If the marginal utility of income is truly 0, marginal work effort should be driven solely by nonpecuniary factors – and real behavioral responses to marginal tax rates should be 0, since no value is placed on marginal income. This puzzle may not apply to some forms of avoidance, since tax avoidance can be achieved through pecuniary means (e.g., hiring financial planners etc.).

$$TOP^* = \frac{1}{1 + a\epsilon}$$

While optimal tax theory is a major component of modern public finance, some prominent economists question some of the assumptions that underlie the theory.[10] For those sympathetic to these arguments, the ETI remains a central parameter for tax policy because of its implications for excess burden. For some economists, losses from efficiency are of great importance, independent of whom in the economy bears the burden of such losses. For example, Feldstein (2012) argues that the much-acclaimed *Mirrlees Review* (2011), which examines issues central to tax system design, should have included explicit estimates of the excess burden associated with redistribution, including the marginal excess burden from raising another dollar of revenue.

Incorporating Other Responses into Optimal Top Tax Rates

PSS examine the implications of three categories of behavioral responses, focusing on top incomes: (1) real responses; (2) avoidance; and, (3) bargaining.[11] They assume that utility is quasilinear and takes the form $u_i(c, z) = c - h_i(z) - d_i(x) - k(\eta)$, where consumption can be represented such that $c = (1 - \tau)y - (\tau - t)x + (\eta - 1)(1 - \tau)y + R = (1 - \tau)\eta y - (\tau - t)x + R$. y represents real income (if individuals are paid their marginal product) and x represents income outside of the tax base, z. R is virtual income. Income from bargaining is defined such that $b = (\eta - 1) \cdot y$, where η is the fraction of the marginal product paid to the individual. When $\eta = 1$, individuals are paid the value of their marginal product. In this more complex world, PSS show that the optimal top tax rate takes the form

$$TOP^* = \frac{1 - \bar{g} + t \cdot a \cdot \epsilon_2 + a \cdot \epsilon_3}{1 - \bar{g} + a \cdot \epsilon}.$$

As with the baseline case, the ETI remains central to determining optimal tax rates. In this more complex setting, the total elasticity $\epsilon = \left(\frac{y}{z}\right) \cdot \epsilon_1 + \epsilon_2 + \epsilon_3$, where $\epsilon_1 = \frac{dy}{d(1-\tau)}\frac{(1-\tau)}{y}$, $\epsilon_2 = \frac{dx}{d(\tau-t)}\frac{(1-\tau)}{z}$ and $\epsilon_3 = \frac{db}{d(1-\tau)}\frac{(1-\tau)}{z}$. The real response is weighted by $\left(\frac{y}{z}\right)$, since only a fraction of real responses reflect changes in taxable income, z. In the case of avoidance, income may be shifted or reclassified so as to avoid all tax bases (in which case $t = 0$) or it may be shifted so that it is still taxed but under an alternative base or at a more favorable tax rate (i.e., $\tau > t > 0$).

The intuition in this setting is that, as before, the higher the overall ETI, in the denominator, the greater the excess burden from taxation implying lower optimal tax rates. However, as tax avoidance may be associated with fiscal externalities, the efficiency implications from avoidance

[10] For example, see Mankiw and Weinzierl (2010) and Slemrod and Gillitzer (2013). Also, see Buchanan (1979: 1968) who recommends that economists "throw out the whole social welfare function apparatus, which only confuses the issues, and to see what the full implications of the Pareto criterion might be. If we are willing to use the Pareto criterion where it is applicable and simply to admit our inability, as scientists, to say anything where the criterion cannot be applied, some worthwhile content remains in welfare economics."

[11] PSS describe bargaining as a form of rent seeking. We simply refer to it as bargaining to distinguish it from a different type of rent seeking behavior that we examine.

may be smaller than in the standard case, which is reflected by $t \cdot \epsilon_2 \cdot a$ in the numerator. Bargaining responses are captured by ϵ_3. Successful bargaining allows individuals to capture a greater share of a fixed level of income (e.g., within the firm); thus, bargaining has distributive consequences, resulting in some people being paid more than the value of their marginal product (represented by y) and others less. Since bargaining is costly and yields no output, it is pure waste.[12] And, assuming gains from bargain accrue to taxable income, z, then the tax rate, τ, not only discourages productive activity, but also discourages unproductive bargaining. Thus, reductions in bargaining resulting from an increase in τ enter in the numerator of optimal tax calculations (as $a \cdot \epsilon_3$).

Rent Seeking, Policy Uncertainty and Preferential Tax Treatment

While bargaining is one type of rent seeking behavior another involves lobbying and political payments in exchange for benefits from government. Benefits can take the form of spending or regulatory policy, as well as tax policy. The implications of rent seeking for optimal taxation depend on the policies that are targeted. Thus, instead of relating overall lobbying to τ, we decompose responses into those targeting tax policy and those targeting other benefits from government. Thus, elasticities relating tax rates to lobbying take the form

$$\epsilon_4 = \frac{dr}{d(1-\tau)}\frac{(1-\tau)}{z} \geq 0 \text{ and } \epsilon_5 = \frac{dx_2}{d(\tau-t)}\frac{(1-\tau)}{z} \geq 0\,,$$

where r represents rents (or returns from lobbying) that are not a function of tax rates, but which are a component of taxable income. x_2 represents income that escapes taxation, not by shifting income (as with x_1), but by altering the definitions of what is taxable. In the PSS model, $x_2 = 0$. Here, $x_2 \geq 0$, so total avoidance is represented by $x = x_1 + x_2$.

Total spending on political influence is such that $l = l_{nontax} + l_{tax}$. l_{nontax} represents resources expended in pursuit of r; l_{tax} represents resources expended in pursuit of x_2. In a competitive market (and ignoring riskiness of returns), expenditures on rent seeking should equal the payoff, such that $l_{nontax} = \theta_1(1-\tau)\gamma \cdot y$ and $l_{tax} = \theta_2(\tau - t)x_2$, where γ equals the proportional gain in y from rent seeking in pursuit of r. θ is a measure of policy uncertainty with range $[0, 1]$. Policy uncertainty, θ, manifests itself through frictions or transaction costs in exchange with government and can vary between nontax (θ_1) and tax (θ_2) policies. Full uncertainty, $\theta = 1$, implies no transaction costs and maximum rent seeking. Full certainty, $\theta = 0$, implies that policies are immutable, and thus rent seeking equals 0.

In this model, executives, sometimes acting through their firms, lobby government for policies more favorable to their firms and themselves. Incentives between executives and shareholders may or may not be misaligned. When incentives are misaligned, executives seek policies that benefit themselves at the expense of the firm – or at least provide smaller returns to shareholders than had the same resources been put toward an alternative use. In the case were incentives are properly aligned, executives seek policies that benefit shareholders and are reward by the firm

[12] PSS use the example of an academic who expends resources in order to obtain job offers for the sole purpose of extracting a higher salary from her current employer (where she intends to remain independent of the outcome from the job search).

based on their level of success. When incentives are aligned, rent seeking is sound policy from the standpoint of the firm, but is still damaging to society at large.

Rent seeking that targets policies unrelated to taxes is analogous to bargaining (measured by ϵ_3 in equation xxx), and thus r is inversely related to τ. However, much rent seeking is aimed at preferential tax treatment and thus the benefits from tax preferences maybe directly related to τ or $(\tau - t)$. In this case, rent seeking is more akin to avoidance behavior (measured by ϵ_2 in equation xxx). The distinction between this type of rent seeking and avoidance in the PSS model is that, in their case, resources are used to shift income from the tax base (or to a form that is taxed more favorably), whereas with x_2, resources are expended in order to change the rules that determine the tax treatment of different sources or uses of income. Incorporating lobbying into the formula for the top optimal tax rate yields

$$TOP^* = \frac{1 - \bar{g} + t \cdot a \cdot (\epsilon_2 + \epsilon_5) + a \cdot (\epsilon_3 + \epsilon_4)}{1 - \bar{g} + a \cdot \epsilon}.$$

Here the overall elasticity becomes $\epsilon = \left(\frac{y}{z}\right) \cdot \epsilon_1 + \epsilon_2 + \epsilon_3 + \epsilon_4 + \epsilon_5$ and $c = (1-\tau)y - (\tau - t)(x_1 + x_2) + (\gamma + \eta - 1)(1-\tau)y + R = (1-\tau)(\eta + \gamma)y - (\tau - t)x + R$

There is good reason to believe that a large share of rent seeking is focused on tax policy. Estimates for tax expenditures for 2012 amount to $1.3 trillion (www.urban.org/publications/1001602.html) and over the next ten years tax expenditures are projected to equal 5.8 percent of GDP (CBO, www.cbo.gov/publication/42919). Tax expenditures are often akin to government spending and represent tax revenues foregone because of things like tax credits, exclusions and deductions. For more than a decade, on the tax side, considerable uncertainty has surrounded the corporate and individual Alternative Minimum Tax, individual income tax rates, as well as tax rates for capital gains, dividends, and carried interest. Uncertainty has also surrounded the estate tax. On top of this, a hodgepodge of 80 or so tax extenders is enacted for a short period of time (often for one year) and thus are a continual sources of uncertainty. CBO (relying on analysis from JCT) projects that a ten-year extension of these tax extenders would lower revenues by $839 billion, excluding additional debt service.[13]

Each tax preference has a constituency that supports and lobbies for it. There may be sound economic rationale for some tax expenditures and many of the benefits are not targeted at the top of the income distribution. However, benefits from many provisions do directly affect top incomes. Thus, an important question is the role that policy uncertainty plays in rent seeking. Our hypothesis is that policy uncertainty is a signal that politicians are open to policy changes; thus the returns from rent seeking (either to push for a policy change or to maintain the status quo) are directly related with policy uncertainty, θ. This question is closely related to understanding what share of rent seeking targets tax policies versus those targeting non-tax policies – and, do higher tax rates, on balance, induce more or less rent seeking?

[13] See page 21 of *The Budget and Economic Outlook: Fiscal Years 2012 to 2022*, January 2012 (Washington, DC: Congressional Budget Office), http://www.cbo.gov/sites/default/files/cbofiles /attachments/01-31-2012_Outlook.pdf.

4. Data and Methodology

This paper utilizes data on individual political contributions, executive compensation, firm characteristics, and economic and tax policy uncertainty from three primary sources. Our base dataset is compiled by Fremeth et al. (2013). They match political contribution information for individuals from the Federal Election Commission (FEC) with data on CEOs of S&P 500 firms from the Compustat Executive Compensation Database (ExecuComp).[14] The political contribution data are broken out by type of recipients: political action committees (PACs), candidates, and political parties. While the ExecuComp only includes each firm's five highest paid executives (ranked by salary and bonus) by year, the FEC information is available for every individual on a bi-annual basis for every two-year election cycle between 1991 and 2008. (We intend to add firm-level data on lobbying to our dataset in the future.)

We augment these data with executive compensation and firm financial data from Compustat and measures of economic policy uncertainty from Baker, Bloom, and Davis (2013). Baker et al.'s three policy uncertainty indices are measured using newspaper archives, expiration dates of federal tax code provisions, and surveys of economic forecasters conducted by the Philadelphia Federal Reserve Bank. These three separate indices are aggregated to create an overall economic policy uncertainty measure.[15] For the purposes of this paper, we do not make use of the measures of uncertainty constructed using the forecast surveys or news archives (beyond the extent to which they contribute to the overall measure).

Tables 1a and 1b present summary statistics for contribution levels, Compustat/ExecuComp variables, and uncertainty indices. Table 1a is produced using the full sample and Table 1b using the sub-sample of observations that are top executives. The full sample includes observations when an individual is a CEO (34%), top executive (53%), or neither (47%).

An important shortcoming of the BBD uncertainty data, for our purposes, is the lack of cross-sectional variation (for example across industries and across states). We are working on indices that would capture such heterogeneity and plan to incorporate these into a future version of this paper.

Estimation Strategy

We investigate the extent to which the political contributions of corporate executives are correlated with measures of economic policy uncertainty. This correlation will be positive, to the extent that uncertainty reflects a reduction in the cost of rent seeking and executives respond to this reduction in costs with increased rent seeking, seeking either benefits for their firms (i.e., shareholders) or for themselves, potentially at the expense of shareholders.

An obstacle to identifying a causal relationship between uncertainty and rent seeking is the fact that both phenomena are determined simultaneously. That is, uncertainty causes rent seeking (at least, that is our hypothesis); however, rent-seeking activities also likely contribute to uncertainty. All else equal, increased rent seeking increases the likelihood of a policy change –

[14] See http://wrds-web.wharton.upenn.edu/wrds/support/Additional%20Support/WRDS%20Presentations/_000user2007/executive_compensation.pdf.

[15] See Baker, Bloom, and Davis (2013) for a detailed discussion of the indices' construction.

although rent seeking could also be aimed at maintaining the status quo. Thus, in addition to controlling for other factors, identification requires an instrument (or some alternative technique) to overcome the fact that uncertainty is endogenous. This is an important issue that we are still grappling with. Since we have not included such an instrument, we are careful to note that our results should only be interpreted as correlations and not causation. Our ultimate goal is to isolate causal relationships, which we will address in future versions of this paper.

Our empirical strategy builds on that of Fremeth et al. with several important differences. First, we shift the focus from solely CEOs to any observation that is matched to the Compustat data. We also include an interaction term between policy uncertainty and being a top executive in some specifications. This tests whether executives respond differently to policy uncertainty than do non-executives. Finally, we include one of three measures of economic policy uncertainty as independent variables: tax uncertainty, news based uncertainty, and a composite measure of overall uncertainty.[16] We normalize these uncertainty measures by their standard deviations. Our base specification models political contributions of type *k* as a function of election cycle and individual fixed effects, economic policy uncertainty measure *j* in election cycle *t*, being a top executive in cycle *t*, and a vector of control variables from Compustat:

$$Y_{ikt} = \alpha_i + \gamma_t + \pi \cdot Policy\ Uncertainty_{jt} + \tau \cdot Top\ Five\ Executive_t + X_{it}\beta + \varepsilon_{ii}$$

All of our specifications account for individual fixed effects, and most include linear, square, or cubic time trends. Some of our specifications are run on the sub-sample of active executives, while others opt for the inclusion of a "current executive, policy uncertainty" interaction term. Those regressions run on the sub-sample of active executives utilize Compustat information on firm size, executive compensation, and the executive's share of common stock owned as control variables. Dollar amounts are deflated by CPI-U to base year 2000 levels.
As discussed in our theory section, we are also interested in the relationship between tax rates and rent seeking and the allocation of rent seeking activities between those targeting tax preferences and those targeting nontax rewards. We have more work to do before we will have a dataset that can provide insight into these other questions.

5. Results

Table 2 includes regression results with individual fixed effects and linear, square, and cubic time trends run on the entire sample of individual-cycle combinations, some 19,700 observations. Column (1) is an approximate replication of the base results of Fremeth et al.: being a top executive at an S&P 500 firm is associated with an increase in total political contributions of $3,357. This magnitude, which is deflated to base year 2000 dollars, is comparable to their results.

Columns (2) through (5) present coefficient estimates for regressions that include overall uncertainty and an interaction term between being a top executive and the uncertainty measure. The dependent variables in Columns (2) through (5) are total contributions, contributions to candidates, contributions to PACs, and contributions to political parties, respectively. The

[16] See www.policyuncertainty.com for details on how these uncertainty measures are constructed. We also allow individuals who entered the sample as an executive to remain in the sample. Fremeth et al. exclude these individuals as they are primarily concerned with the event of becoming a CEO.

estimated coefficients on the overall uncertainty measure are small and negative, suggesting little relationship between uncertainty and political contributions for non-executives. Turning to the interaction terms, we find large positive and statistically different from zero at the five percent significant level for total contributions, candidate contributions, and PAC contributions.[17] A one standard deviation increase in overall uncertainty is associated with an increase in total contributions by executives of roughly $1,000.

The correlations between tax uncertainty measures and contributions – displayed in Columns (6) through (9) – are similar to those in Columns (2) through (5). The interaction variables are once again positive, and suggest that executives increase total contributions by as much as $2,186 (or by $2,157 more than non-executives) in response to a one standard deviation increase in tax uncertainty. As a caveat, we want to reiterate that we are measuring correlations and we have not addressed the potential correlation between uncertainty and the error term.

Table 3 contains results of regressions run on the sub-sample of the data that includes observations for those who are top executives (in the survey year). This reduces the number of observations to 9,168. The natural log of an individual's executive compensation, the percentage of the common stock held by the executive (excluding options), and the natural log of a firm's total assets are included as control variables.[18] We suspect higher paid executives, those executives with greater direct financial exposure to their firm's share price, and executives at larger firms will donate more than otherwise similar individuals.[19]

The first four columns include overall uncertainty measures as independent variables, while the last four include tax policy uncertainty measures. The coefficients associated with tax uncertainty variables are larger and have stronger statistical relationships than do the overall uncertainty measures. A one standard deviation increase in tax policy uncertainty is associated with an increase in candidate contributions of $682, PAC contributions of $196, and total contributions of $1,428 (all significant at a 5 percent level, see columns 6-9). The coefficient estimates associated with executive income and firm assets are both positive, and exceed the 5 percent significance level in most cases. This suggests political contributions are normal goods for executives, and are more valuable to larger firms. The percent of common stock owned by executives produces a mixed bag of coefficient sizes and significance levels, with no discernible pattern.

Taken together, the coefficient estimates in Tables 2 and 3 suggest executives are responsive to overall and tax policy uncertainty, while non-executive observations (a potential control group)

[17] The total effect of uncertainty on contributions for executives requires adding the estimated uncertainty coefficient to the estimated coefficient on the interacted term. In general, this suggests substantial positive association between uncertainty and political contributions for CEOs. An F-test is needed to assess the combined statistical significance of the uncertainty and interacted uncertainty terms. We have not conducted such a test; however, we suspect strong statistical significance will be maintained for many of the specifications.

[18] We define total executive compensation to be the sum of salary, bonus, value of options exercised, long term incentive plan payments (LTIP), restricted stock grants, and other compensation. Due to a reporting requirement change in 2005, we modify the definition of income to include the fair value of stock awards and non-equity incentive plan payments, and drop LTIP and restricted stock grants in subsequent years.

[19] We include total executive compensation, as opposed to only salaries, because salaries comprise only 10 percent of total compensation on average in this sample.

are less responsive. This is consistent with hypotheses asserting that top executives use political contributions as an extension of corporate strategy to influence legislation.

Conclusion

To be added.

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Table 1a. Summary Statistics: Full Sample

Variable	Obs	Mean	Std. Dev.	Min	Max
Compustat Dummy	19,782	0.53	0.50	0	1
CEO Dummy	19,782	0.34	0.47	0	1
Contributions to Candidates	19,782	$ 2,567	$ 5,177	$ -	$ 59,755
Contributions to PACs	19,782	$ 1,828	$ 5,352	$ -	$ 54,023
Comntributions to Parties	19,782	$ 3,461	$ 24,915	$ -	$ 1,372,002
Total Contributions	19,782	$ 8,087	$ 29,009	$ -	$ 1,395,711
Overall Uncertainty	19,782	100	20	79	145
Tax Expiration Index	19,782	108	136	5	408

Table 1b. Summary Statistics: Executives

Variable	Obs	Mean	Std. Dev.	Min	Max
CEO Dummy	10,388	0.64	0.48	0	1
Contributions to Candidates	10,388	$ 3,143	$ 5,445	$ -	$ 59,755
Contributions to PACs	10,388	$ 2,520	$ 5,582	$ -	$ 54,023
Comntributions to Parties	10,388	$ 4,145	$ 25,750	$ -	$ 875,670
Total Contributions	10,388	$ 9,939	$ 29,951	$ -	$ 902,129
Overall Uncertainty	10,388	98	18	79	145
Tax Expiration Index	10,388	95	131	5	408
Executive Salary	10,388	$ 688,975	$ 388,773	$ -	$ 6,677,089
Executive Income	10,371	$ 6,122,182	$ 17,733,530	$ -	$ 706,119,900
Pct of Stock Owned	9,187	1.37	4.38	0	93.41
Firm Market Value	9,955	$ 14,000,000,000	$ 32,000,000,000	$ 719,000	$ 475,000,000,000
Firm Total Assets	10,366	$ 27,200,000,000	$ 99,100,000,000	$ 58,000	$ 2,180,000,000,000

Table 2. Political Contributions and Policy Uncertainty: Full Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Contributions:	Total	Total	Candidate	PACs	Political Parties	Total	Candidate	PACs	Political Parties
Exec Dummy	3357.3***	-2177.7	-567.8*	-554.9	-423.0	1603.6***	475.0***	915.3***	678.5
	(8.70)	(-1.20)	(-2.10)	(-1.57)	(-0.25)	(3.30)	(6.62)	(9.67)	(1.48)
Overall Uncertainty (Std Dev)		-121.4	-180.3***	39.92	42.12				
		(-0.47)	(-4.64)	(0.79)	(0.17)				
Overall*Exec_Dummy		1094.3**	315.5***	400.1***	319.4				
		(3.13)	(6.05)	(5.87)	(0.97)				
Tax Uncertainty (Std Dev)						29.25	235.6***	-147.9*	-183.2
						(0.09)	(5.17)	(-2.46)	(-0.63)
Tax*Exec_Dummy						2156.5***	680.1***	681.0***	632.7
						(5.90)	(12.58)	(9.55)	(1.83)
Trend	1069.2**	1221.8***	12.63	365.2***	1316.3***	1913.0***	381.8***	474.9***	1397.7***
	(3.10)	(3.52)	(0.24)	(5.40)	(4.02)	(5.07)	(6.85)	(6.46)	(3.93)
Trend Squared	-78.75	-94.20*	3.207	-45.44***	-132.1**	-193.3***	-45.49***	-63.98***	-146.3**
	(-1.77)	(-2.10)	(0.48)	(-5.18)	(-3.12)	(-3.94)	(-6.28)	(-6.69)	(-3.16)
Trend Cubed	2.711	3.053	0.270	2.090***	3.794*	6.454***	1.767***	2.840***	4.392**
	(1.67)	(1.84)	(1.09)	(6.46)	(2.43)	(3.69)	(6.83)	(8.33)	(2.66)
Constant	1252.4	1717.6	2104.4***	-545.4	-486.2	672.4	781.9***	-285.2	-172.7
	(1.72)	(1.15)	(9.47)	(-1.88)	(-0.35)	(0.85)	(6.67)	(-1.84)	(-0.23)
N	19,782	19,782	19,782	19,782	19,782	19,782	19,782	19,782	19,782
t statistics in parentheses	* p<0.05	** p<0.01	*** p<0.001						

Table 3. Political Contributions and Policy Uncertainty: Executives

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Contriubtions:	Total	Candidate	PACs	Political Parti	Total	Candidate	PACs	Political Parties
Overall Uncertainty (Std Dev)	297.7	-43.01	252.5***	126.5				
	(1.00)	(-0.86)	(4.15)	(0.45)				
Tax Uncertainty (Std Dev)					1428.1***	682.2***	196.0**	320.4
					(4.12)	(11.84)	(2.77)	(0.99)
Log Exec Income (Thousands)	549.4	151.0**	68.44	667.1*	514.7	149.4**	46.53	654.4*
	(1.94)	(3.18)	(1.19)	(2.53)	(1.83)	(3.19)	(0.81)	(2.49)
Log Firm Assets (Thousands)	1547.9***	362.9***	330.4***	749.7	1610.6***	386.9***	345.7***	765.7
	(3.33)	(4.65)	(3.49)	(1.73)	(3.47)	(5.01)	(3.64)	(1.77)
Pct Shares Owned	149.5	-2.221	-105.7***	264.3*	161.6	4.627	-105.2***	266.7*
	(1.09)	(-0.10)	(-3.76)	(2.06)	(1.17)	(0.20)	(-3.75)	(2.08)
Trend	1207.8*	-23.00	420.3***	1272.3**	2063.1***	404.8***	515.7***	1458.0**
	(2.36)	(-0.27)	(4.02)	(2.66)	(3.72)	(4.39)	(4.56)	(2.82)
Trend Squared	-75.15	13.32	-44.12***	-128.9*	-194.5**	-43.51***	-60.71***	-155.7*
	(-1.15)	(1.22)	(-3.32)	(-2.12)	(-2.73)	(-3.67)	(-4.17)	(-2.34)
Trend Cubed	3.109	0.162	2.262***	3.820	7.022**	1.902***	2.948***	4.739*
	(1.29)	(0.40)	(4.61)	(1.70)	(2.74)	(4.47)	(5.64)	(1.98)
Constant	-27052.8***	-4682.5***	-6348.4***	-17022.2**	-27949.7***	-6074.6***	-5370.3***	-16913.0**
	(-3.85)	(-3.97)	(-4.43)	(-2.60)	(-4.06)	(-5.31)	(-3.82)	(-2.63)
N	9,168	9,168	9,168	9,168	9,168	9,168	9,168	9,168

t statistics in parentheses * p<0.05 ** p<0.01 *** p<0.001