Optimal Taxation with Optimal Tax Complexity: The Case of Estate Taxation

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Abstract. This paper constructs a model of optimal taxation with optimal tax complexity, applied to the estate tax. Taxpayers can minimize their effective tax rates by engaging in complex tax avoidance activities, which require costly resources. The extent to which these activities lower effective tax rates below statutory rates, along with the resources needed to achieve this reduction, are chosen by the government. Under the estate tax, there are two types of taxpayers, benevolent savers and precautionary savers. The latter leave only accidental bequests, whereas the former plan to leave bequests. The government seeks to tax precautionary savers at a higher rate than benevolent savers, because precautionary savers have relatively low bequest elasticities. To do so, the government chooses the costs of tax avoidance so that only the benevolent savers engage in avoidance activities. In other words, there is an optimal level of tax complexity. This model of estate taxation is then embedded into a model of optimal nonlinear wage income taxation, and similar results are obtained. Extensions are discussed, including methods for causing avoidance costs to differ across types of taxpayers in desirable ways.

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1. Introduction

The estate tax has been viewed as a "voluntary tax", because there typically exist many ways to largely avoid paying it.[1] Moreover, it is surprisingly unpopular, given that it is largely paid only by high-wealth individuals. Yet, the high level of progressivity of this tax would seem to justify its inclusion in a country's optimal tax system. Previous academic studies would seem to rule out estate taxes by showing that capital should not be taxed (Chamley (1985) and Judd (1986)). But recent contributions point to limitations in the previous models of capital taxation, providing further justification for estate taxation. See Kopczuk (2013) for a recent review of the normative and positive aspects of estate taxation.[2] Noteworthy recent contributions on the normative side include Farhi and Werning (2010), Kopczuk (2013) and Piketty and Saez (2013).

The current paper departs from the literature by highlighting a special feature of estate taxation that has the potential to increase its attractiveness as a revenue-raising device. We start from the observation that the savers that leave bequests have heterogeneous motives for doing so. Whereas much of the normative literature has focused on benevolent parents, who benefit from leaving bequests for their children, there is also a precautionary motive for saving, which may result in accidental bequests: individuals over-safe to insure against running out of money if they live too long. Both motives appear to be important. Use of micro data sets to empirically estimate the importance of bequest motives have come to widely varying conclusion on the relative importance of these two motives. For example, Hurd (1987) claims to have found a trivial bequest motive, while Kopczuk and Lupton (2007) find the bequest motive present for three quarters of the elderly single population. In a recent paper by Lee and Tan (2016), the

[1] See Caron and Repetti (2009) for a detailed appraisal of this claim.
[2] The volume edited by Gale et al. (2001) contains several other studies.

authors “decompose savings into precautionary versus bequest motives and find that bequest motives explain 40% of left bequests.” Thus, the current evidence appears to be that both motives are important. For our purposes however, we only require heterogeneity in the intent to bequeath, and that taxpayers respond to “tax complexity” by revealing their intentions.

If the government could somehow identify those individuals who save primarily for precautionary saving motives and impose relatively high taxes on their bequests, then it would be able to use the bequest tax to raise revenue at very little cost in terms of excess burden. The reason is that pure precautionary savers do not care about the estate tax, because their lack of benevolence motives leaves them unconcerned about how much the estate tax reduces their bequests. On the other hand, the government faces the problem of distinguishing between benevolent and precautionary savers.

This problem is solved by relying on the tax avoidance activities that make the estate tax a “voluntary tax.” In particular, we construct a model of optimal estate taxation where the government not only chooses the tax rates for estate taxation, but also the tax avoidance opportunities available to taxpayers. These opportunities include both the possible reduction in effective estate tax rates below their statutory rates, but also the cost of achieving these reductions. This cost may be interpreted as a “tax complexity” variable, since it is the cost of following the rules needed to achieve the minimum legal tax payment. Thus, the government is choosing tax complexity, and for a sufficiently high level of complexity, individuals who save primarily for precautionary saving motives will choose not to engage in tax avoidance activities. But if this complexity cost is not too high, benevolent savers will undertake the required avoidance activities, thereby reducing the effective rate of estate taxation closer to the level that is optimal, given their higher bequest elasticities.

The plan of this paper is as follows. The next section describes the model, and then Section 3 derives the optimal estate tax system in the case where effective tax rates do not vary across types of individuals. Section 4 derives the optimal estate tax when the government can costlessly distinguish between precautionary and benevolent savers. Then Section 5 analyzes the use of costly tax complexity to confront these two savers with different effective tax rates. Section 6 provides further discussion of tax avoidance costs, including how and why these costs differ across taxpayers. Section 7 analyzes an expanded optimal tax model, where distortionary taxes are levied on wage income and bequests. Section 8 concludes.

2. The Model

The economy contains two types of individuals, precautionary savers *P* and benevolent savers *B*. Type-h savers earn income I^h during an initial period. This income is used to finance consumption X^h and saving S^h. Savings finance retirement consumption and a bequest. But the length of retirement is uncertain. Individuals may die at the start of retirement, denoted time i', or they may die at any time afterwards, up to time i''. Retirement consumption is Y_i^h at time i for a person who has lived up to and including time i. Retirement time is continuous, and lifetime utility for a type-h saver is

$$W^h = U(X^h) + \int_{i'}^{i''} p_i V\left(Y_i^h\right) di + \beta^h Z^h, \tag{1}$$

where p_i is the probability of living at time i, Z^h is the expected net value of bequests. Let t denote the tax on this net value, so that gross bequests are $(1+t)Z^h$. The functions U and V are strictly concave. For simplicity, we assume lifetime utility is linear in bequest. This assumption allows us to ignore the well-known insurance aspect of taxes: the government can reduce risks by using taxes to take a share of random earnings.

Saving is chosen in the initial period of work to maximize expected lifetime utility. Let $S^h(I, t)$ denote this optimal saving. Once retirement is reached, consumption is re-optimized at each point in time, using the new information that the individual has not yet died. Benevolent savers place more weight on bequests than precautionary savers: $\beta^B > \beta^P$. In particular, a central case will be where β^P is close to or equal to zero. Without loss of generality, we also assume a zero interest rate.

For utility maximization, we can work backwards, starting with the choice between bequests and consumption at time i''. Assume first that optimal bequests are positive for an individual who survives to i''. Under utility maximization, this individual then equates the marginal utility of consumption at each retirement time to the after-tax marginal utility of bequests:

$$V'\left(Y_{i''}^h\right) = \beta^h/(1+t). \qquad (2)$$

The basic idea is that when the individual lives for another time increment, *di*, he or she takes money away from bequests to finance the additional consumption, until the marginal utility of consumption equals the marginal utility of bequests. Note that the increasing probability of death does not act like a discount rate here, because the individual is continuously re-optimizing as time evolves. Simply stated in terms of discrete time, if the individual is deciding whether to reduce consumption by a dollar today to have another dollar tomorrow, the individual knows that the extra dollar will generate $\beta^h/(1+t)$ units of additional utility from bequests if the individual dies tomorrow, but will generate the same additional utility from consumption if the individual survives. So the additional utility from saving another dollar is certain.

Alternatively, β^h may be so low that the individual will leave a bequest only if he or she dies before the final point in time, i''. We assume that this is the case for precautionary savers. The individual plans to totally deplete savings if he or she lives to time i''. In this case, $V'\left(Y_i^h\right)(1+t)$ exceeds β^h at each time i until i''. Moreover, $V'\left(Y_i^h\right)$ falls with i. The individual recognizes that saving another dollar for tomorrow generates a random increase in utility, which is higher if the individual survives tomorrow rather than leaving a bequest. To offset this risk so that the individual is indifferent about leaving another dollar (a requirement for an equilibrium), the individual's marginal utility of consumption tomorrow must be greater than it is today.

Although all bequests are essentially "accidental" in this case of a low β^h, the individual's initial saving decision still depends on t, as described by the saving function, $S^h(I^h, t)$. The reason is that the expected return on saving reflects the bequest tax. But for low values of β^h, changes in t have only a small effect on this expected return. Consequently, the responsiveness of expected bequests to the tax rate becomes relatively low.

3. Optimal Uniform Estate Taxation

We start by analyzing a bequest tax that applies to both benevolent and precautionary savers. The government's optimal tax rate depends on the social values that the government places on bequests and tax revenue. Let μ denote this social marginal value of government revenue. Following Farhi and Werning (2010), we may assume that the government values a unit of bequests more than the donors value it, because the government takes into account the utilities of the recipients. Let γ denote this excess value. Then social welfare is given by:[3]

$$\textstyle\sum_h W^h + (\mu t + \gamma)Z, \tag{3}$$

where Z is total net bequests, summed over all individuals.

To state the rule for the optimal bequest tax, note first that if we differentiate social welfare with respect to *t*, we obtain terms involving the demand derivative $\partial Z/\partial t$. This derivative depends on the effect of the estate tax on saving, since the tax lowers the expected return on saving.

Differentiating social welfare with respect to *t* gives the following first-order condition:

$$(\mu t + \gamma)\frac{\partial Z}{\partial t} = \textstyle\sum_h [\beta^h - \mu]\, Z^h. \tag{4}$$

Note that a marginal rise in t creates an income effect $\frac{\partial Z^h}{\partial I} Z^h$. Using the Slutsky equation, we can the rewrite the first-order condition using a compensated demand derivative, identified with a tilde:

$$(\mu t + \gamma)\frac{\partial \tilde{Z}}{\partial t} = \textstyle\sum_h \left[\left(\beta^h + (\mu t + \gamma)\frac{\partial Z^h}{\partial I}\right) - \mu\right] Z^h. \tag{5}$$

Then (5) becomes

$$\frac{t^A}{1+t^A} = \frac{\zeta}{E^A}; \qquad \zeta = \frac{\sum_h\left[\mu - \left(\beta^h + (\mu t+\gamma)\frac{\partial Z^h}{\partial I}\right)\right] Z^h}{(\mu t+\gamma)Z}; \tag{6}$$

[3] For notational simplicity, assume that there is one representative individual of each type.

where E^A is the elasticity of aggregate net bequests with respect to the price, $1+t$, measured positively, and t^A denotes the optimal tax rate

We shall focus on the case where the marginal value of government revenue (μ) is high enough to produce a positive optimal estate tax, but similar results hold for negative bequests. A high bequest elasticity implies that the cost of raising additional revenue is high, in terms of increased excess burden. As a result the optimal tax rate is inversely related to the bequest elasticity.

4. Discriminatory Estate Taxation

Looking at rule (6), we see that a major shortcoming of the estate tax is that it treats precautionary and benevolent savers equally. Raising the tax on savers reduces their bequests, creating an excess burden that is positively related to their bequest elasticities. But for low values of β^P, the bequests made by precautionary savers are relatively insensitive to the estate tax. Thus, the preferable way to go would be to tax precautionary savers at a higher rate.

If the government could distinguish between benevolent and precautionary savers, then it could impose separate tax rates on their bequests, and the optimal tax rates would satisfy

$$\frac{t^h}{1+t^h} = \frac{\zeta^h}{E^h}; \quad \zeta^h = \frac{\mu - \left(\beta^h + (\mu t+\gamma)\frac{\partial z^h}{\partial I}\right)}{\mu t+\gamma}; \quad h = B, P. \tag{7}$$

Given the assumption that β^P is substantially below β^B, we may make the corresponding assumption that $E^P < E^B$. It then follows that $t^P > t^B$, and t^A is between these two tax rates.[4]

[4] This assumes that that the difference in β^P and β^B determines the sign of the difference in the social marginal utilities of income, $\beta^P + (\mu t + \gamma)\frac{\partial z^P}{\partial I}$ and $\beta^B + (\mu t + \gamma)\frac{\partial z^B}{\partial I}$. In fact, we also expect $\frac{\partial z^P}{\partial I}$ to be less than $\frac{\partial z^B}{\partial I}$.

5. Optimal Estate Taxation with Tax Avoidance

Assume that the government cannot distinguish between benevolent and precautionary savers. By introducing costly tax avoidance activities, however, the government can cause the *effective* tax rates to differ between the benevolent and precautionary savers. The basic idea is that precautionary savers will never incur the cost needed to reduce the burden of the estate tax, because they are not sufficiently burdened. Thus, they will pay the full statutory rate, t^s. On the other hand, benevolent savers will incur the costs of tax avoidance activities, which can be used to reduce the effective tax rate below t^s.

In particular, suppose that the estate tax is designed so that tax avoidance activities can be used to reduce the effective tax per dollar from the statutory rate t^s to a lower rate t^e. In practice, tax avoidance involves both a fixed component and a variable component that depends on the amount of avoidance. In the case of the estate tax, the fixed component includes not only monetary costs, but also non-monetary costs, including the cost of devoting time to learning enough about the estate tax to be able to at least hire estate tax lawyers and evaluate their recommendations. There are then the costs of choosing an appropriate avoidance strategy. Particular strategies, such as setting up an irrevocable trust for beneficiaries also involve fixed costs, though moving assets into the trust over time and monitoring them may involve some variable costs.

Let us assume that the government has control over a fixed cost C needed to avoid taxes. Higher levels of C can be interpreted as implying higher "tax complexity," in the sense that a more complicated tax system requires greater resources to minimize tax burdens. For example, more skilled legal talent is required. Given the choices of t^s and t^e, the choice of the optimal C is therefore a choice of optimal tax complexity. For now, assume that this cost is the same between the two types of savers.

With this setup, the government's optimal tax problem is to choose *C,* t^s and t^e to maximize social welfare, subject to an incentive-compatibility constraint. The basic goal is to induce benevolent savers to spend *C* on tax avoidance activities, thereby reducing their tax rate to t^e, whereas precautionary savers choose not to spend *C*.

As a special case, suppose first that $\beta^P = 0.$ In this case, bequests are independent of the tax rate for precautionary savers, and so t^P should be set at 100 percent in the previous optimization problem for t^P. But a 100 percent tax would greatly reduce incentives for benevolent savers to leave bequests; these bequests would effectively become accidental. However, the government could design its estate tax so that spending *C* would reduce the effective tax rate to $t^e = t^B$, thereby replicating the optimal discriminatory estate taxes. Whether doing so is optimal will depend on the required value of *C*. In particular, *C* is a social cost that enters the welfare function as follows:

$$\sum_h W^h + (\mu t + \gamma)Z - \lambda^B C, \tag{8}$$

where λ^B is the marginal value of income for benevolent savers. With $\beta^P = 0,$ precautionary savers are not willing to spend anything on tax avoidance. As a result, *C* can be set negligibly small, to induce benevolent savers to reduce their tax rate to t^P.

More generally, if $W^P(t)$ denotes lifetime utility for precautionary savers, then the relevant incentive-compatibility condition is:

$$W^P(t^P) - C \leq W^P(t^B). \tag{9}$$

Given $t^P > t^B$, the minimum C that satisfies this condition goes to zero as β^P goes to zero. It is then optimal to replicate the optimal discriminatory tax system for sufficiently low β^P. To summarize:

Proposition. *For a sufficiently low β^P, the optimal estate tax with optimal tax complexity replicates the optimal discriminatory tax system.*

As β^P rises towards β^B, the IC constraint will start to bind, requiring C to be set at least equal to some positive level to replicate the optimal discriminatory tax system. At such a level, however, a rise in C causes a first-order welfare loss, whereas varying the tax rates from the discriminatory optimum causes only second-order welfare losses. So it will become advantageous to depart from these tax rates, though some discrimination remains optimal. For β^P sufficiently close to β^B, however, the benefit of discriminating between the taxes on benevolent and precautionary savers will no longer offset the first-order welfare loss from the complexity cost C required to achieve this discrimination.

6. Tax Avoidance Costs

We have assumed that tax avoidance involves a fixed cost *C*. In practice, there are also variable costs. For example, setting up a trust and designing an investment strategy for the investments within the trust involves an initial fixed cost, but managing the investments involves some variable costs. For our purposes, the variable costs serve no useful role; while they may discourage precautionary savers from utilizing tax avoidance activities, they also raise the marginal costs of bequests for benevolent savers, thereby discouraging bequests. Thus, our analysis suggests that the government should design its tax rules to raise the fixed costs associated with tax avoidance, while lowering the variable costs.

As discussed above, the avoidance cost C includes both money and time costs. Given the government's tax rules, these time costs can be expected to depend on the attributes of the taxpayer. In particular, these costs will obviously be lower if the taxpayer works in an occupation related to tax avoidance. For example, a common method of avoiding estate taxation is to set up an irrevocable trust for the beneficiaries, and transfer undervalued assets to it. Doing so is easier if the donor owns a family business that is not publicly traded, or works for a private equity firm that funds startups. For example, Mitt Romney, the former U.S. Presidential candidate, was a partner of Bain Capital, giving him the opportunity to obtain ownership shares in private companies, which could then be transferred to a trust or IRA and later brought public at substantially higher values (Bloomberg.com, 2012).

In terms of the current model, we can introduce saver-specific avoidance costs, C^B and C^P. To the extent that benevolent taxpayers are interpreted as higher income individuals with occupations more complementary to tax avoidance activities, we will then have $C^B < C^P$. For the optimization problem, the government influences both time and money costs of avoidance activities, denoted T and M, as represented by the cost functions, $C^B(T, M) < C^P(T, M)$. The assumption then is that varying T and M cause $C^B(T, M)$ and $C^P(T, M)$ to vary between zero and infinity, and also allows $C^P(T, M) - C^B(T, M)$ to be increased. For welfare maximization, the government will naturally desire this difference to be expanded, since it wants to discourage the use of avoidance opportunities by precautionary savers, while encouraging avoidance activities undertaken by benevolent savers.

The government's ability to design its tax laws so that tax avoidance cost $C^P(T, M)$ exceeds $C^B(T, M)$ provides advantages over a tax system where a lower effective marginal tax rate can be obtained simply by simply paying a fixed tax. Note also that the long time it takes to implement tax avoidance strategies also favors benevolent taxpayers. In particular, these strategies must be put in place well before the time of death. For example, parents can remove wealth from their taxable estates by giving annual gifts to children, with a limit on the size of each gift. The long time period needed to implement avoidance strategies presumably favor benevolent savers, who may start to become aware of estate tax issues while their children our young.

7. Tax Complexity in an Optimal Income Tax Model

This section sketches a model that imbeds our model of bequest taxation into a model of optimal income taxation. In the usual Mirrlees model, individuals differ in labor productivities. To start, consider the 2-type version of this model, where there are two labor productivities. This extension can be added to our lifetime utility function by modifying first-period utility to include the disutility of earning labor income I: $U^j(X^j, I^j)$, where j = 1, 2; and type-2 workers have the lower disutility of earning labor income. More precisely, indifference curves satisfy the standard single-crossing property, implying that $I^2 > I^1$ in equilibrium.

To stay within the 2-type setup, assume that workers learn whether they are benevolent or accidental savers only after they have chosen their labor supplies. In other words, there are two ex ante types. Ex post, there are four types, however.

Equation (1) is modified to express total lifetime utility as follows:

$$W^j = U^j(X^j, I^j) + E_{i'}\left(\int_{i'}^{i''} p_i V^j(Y_i^{jh}) di + \beta^h Z^{jh}\right), \tag{10}$$

where the expectation $E_{i'}$ accounts for not only the random retirement consumption levels but also the random type β^h, which is learned after the worker's labor supply is chosen. We allow the function V^j to depend on the labor type. In calculating expected utilities, we are assuming that each worker optimally allocates his or her after-tax income between present consumption and saving after learning the saving type, and allocates saving between own consumption and bequests at each time i in retirement.

Turning to government policy, assume first that only a nonlinear tax on wage income is used, and assume for now that bequests create no external benefit. Then we can set up the problem in the usual way by maximizing social welfare, subject to a resource constraint and an incentive-compatibility constraint for the high-wage type. The control variables are each type's before-tax income and after-tax income. The IC constraint for the high-wage type requires that this worker's expected utility is at least as great as the expected utility that the same worker would receive if he or she picked the before- and after-tax incomes assigned to the low-wage type.

Under the common assumption that utilities are separable between labor and other commodities, the Atkinson-Stiglitz (1976) theorem tells us that only the nonlinear wage tax should be used. In this model, it would then not be optimal to tax savings or bequests. But this separability assumption does not hold in the current setup.

Saez (2002) argues for a particular violation of the separability assumption that justifies taxing saving: "…empirical studies have shown that savings rates are correlated with education even controlling for income…Therefore, there is a strong presumption that higher income individuals save more not only because they have more income to save but also because they might have a better financial education and be more aware of the need to save for retirement." In terms of the incentive-compatibility constraints for a 2-type worker, this difference in savings levels means that we can discourage high-skilled workers from "mimicking" low-skilled workers by taxing savings. Similarly, we expect high-skilled mimickers to have more bequests, justifying the desirability of a bequest tax.

To set up the problem formally, let A^j denote after-tax wage income for a type-j worker. Income tax payments are then $I^j - A^j$. Through the income tax, the government controls A^j and I^j, subject to a budget constraint and incentive-compatibility constraint. Utility maximization yields an expected bequest function, $Z^j(t, A, I)$, and an expected lifetime utility function, $W^j(t, A, I)$, where *t* is the tax rate on all bequests and we initially assume no complexity costs. Following Piketty and Saez (2013), we are again assuming a linear bequest tax.

The government's objective function is the sum of utilities, $\sum_j N^j W^j\left(t, A^j, I^j\right)$, where N^j is the number of type-j workers. The government chooses A^j, I^j, and *t*, subject to incentive-compatibility constraints and a government budget constraint, written

$$\sum_j N^j \left(\left(I^j - A^j\right) + tZ^j\left(t, A^j, I^j\right)\right) \quad = R, \tag{11}$$

where *R* is required revenue. We assume that only the type-2 worker's IC constraint binds. It is written

$$W^2(t, A^2, I^2) \geq W^2(t, A^1, I^1). \tag{12}$$

Note again that the assumption that lifetime utility is linear in bequests, so total expected bequests matter.

The first-order conditions for this problem yield an equation for the optimal bequest tax, known as the Edwards-Keen-Tuomala Theorem:[5]

$$t = \frac{\varphi \widehat{W}_Z^2 (Z_1 - \hat{Z}_2)}{\mu\left(N_1 \frac{\partial Z_1^c}{\partial t} + N_2 \frac{\partial Z_2^c}{\partial t}\right)}, \tag{13}$$

where φ and μ are the Lagrange multipliers on the IC and government budget constraints, Z_1 is a type-1 worker's expected bequest level, $\hat{Z}_2$ is the bequest level for a type-2 worker that mimics a type-1 worker by choosing the same I and A, $\widehat{W}_Z^2$ is the derivative a mimicker's utility with respect to bequests, and the derivatives in the denominator are compensated demand derivatives.

This equation tells us that the optimal bequest tax is positive if a type-2 worker chooses a higher bequest level when mimicking a type-1 worker. The basic argument is that the tax rate can be increased to reduce the utility of a mimicker, while the income tax is adjusted to keep the actual utilities of type-1 and type-2 workers unchanged. In this way, the tax increase loosens the IC constraint, allowing for a welfare-improving change in the income tax.

But welfare-improving increases in *t* are limited by the deadweight loss created by these increases. Moreover, this deadweight loss depends on the bequest elasticities, which are low for precautionary savers. We therefore come back to the issue of how to reduce this bequest elasticity, and our previous analysis becomes directly relevant. Once workers learn whether they are the benevolent or precautionary saver type, their bequest elasticities diverge, and the government can introduce tax avoidance possibilities that allow the high-elasticity savers to reduce their effective tax rates.

[5] See Edwards, Keen and Tuomala (1994) and Jacobs and Boadway (2014).

There is a new element to consider, however. Although we have assumed that $Z_1 < \hat{Z}_2$, levying the tax on only the bequests of precautionary savers need not lead to a higher tax rate, because we could have $Z_1^P > \hat{Z}_2^P$ in the optimal tax formula. In particular, precautionary savers should face a negative bequest tax if type-2 mimickers have lower bequest levels than type-1 workers. In this case, the deadweight loss considerations analyzed previously still imply a high magnitude of this tax, given the low bequest elasticity, but this tax is now negative. Assuming $Z_1^B < \hat{Z}_2^B$, benevolent savers should face a positive tax, in which case they should not be offered the opportunity to use tax avoidance activities to lower their tax rate. The basic idea here is that tax rate differences are sometimes determined mainly by income distribution considerations—here in the form of using bequests taxes to make redistributive income taxation more effective—rather than by deadweight loss considerations.

But if we have both $Z_1^B < \hat{Z}_2^B$ and $Z_1^P < \hat{Z}_2^P$, then it will be optimal to tax both types of bequests at positive rates, and a sufficiently low elasticity for precautionary bequests will lead to a relatively high tax rate on these bequests. In this case, costly tax avoidance possibilities again serve a useful role in lowering the effective tax rate on bequests made by benevolent savers.

This assumption about bequest levels has some empirical justification. We have already noted that highly-educated individuals tend to save more, even when they have the same incomes as less-educated individuals. The issue is whether both their benevolent and precautionary saving is higher. The model does not contain a government pension system, such as the U.S. social security system, but including such a system could be expected to significantly lower precautionary saving for less-educated individuals. Living another year generates additional pension payments, which are relatively generous for low-income individuals in the U.S., so these payments significantly reduce the incentive for these individuals to engage in precautionary saving. In contrast, this incentive stays high for high-income individuals.

Now introduce an external benefit of bequests, denoted γ, as in the previous analysis. Then (13) is modified by replacing t with $t + \gamma/\mu$ on the left side. In a first-best economy, a bequest subsidy equal to the Pigouvian level, $-\gamma$, will be desirable, but this subsidy is now modified to account for its use to favorably affect the IC constraint. But assuming the social marginal value of government revenue is sufficiently high (i.e., high μ), the impact of the tax on the IC constraint dominates, and the previous analysis remains valid.

Finally, briefly consider taxes on both bequests and saving. Both taxes can be used to favorably manipulate the IC constraint, but once again, taxing just precautionary bequests achieves this manipulation with relatively little deadweight loss.

8. Concluding Remarks

In this paper, we have argued for the role of tax complexity in allowing individuals with high demand elasticities to reduce their effective tax rates. We have considered bequest taxes, where the relevant demand elasticities for bequests differ between precautionary and benevolent savers. But an interesting question is whether the results in this paper extend to other taxes that share the same properties: one group of taxpayers has a much higher demand elasticity than the other group, and tax avoidance laws can be constructed to cause only the high-elasticity group to choose to incur the costs of tax avoidance to lower the effective rate of taxation, leaving the low-elasticity group to face relatively high effective tax rates. For future research, we hope to identify and analyze these other applications of the basic ideas in the current paper.

References

Atkinson, A.B. and J.E. Stiglitz, "The Design of Tax Structure: Direct Versus Indirect Taxation," *Journal of Public Economics* 6 (1976): 55-75.

Caron, Paul L. and James R. Repetti, "The Estate Tax Non-Gap: Why Repeal a Voluntary Tax?'," *Stanford Law and Policy Review* 20, no.1 (2009): 153-170.

Cohan, William D., "The Secret Behind Romney's Magical IRA," *Bloomberg.com,* July 15, 2012.

Chamley, C., "Optimal Taxation of Capital Income in General Equilibrium with Infinite Lives." *Econometrica*, 54 (1986): 607-622.

Edwards,Jeremy, Michael Keen and Matti Tuomala, "Income Tax, Commodity Taxes and Public Good Provision: A Brief Guide," *FananzArchiv* 51 (1994): 472-487.

Farhi E. and I. Werning, "Progressive Estate Taxation", *Quarterly Journal of Economics*, 125 (2010): 635-673.

Gale, William G., James R. Hines Jr., and Joel B. Slemrod (eds.), *Rethinking Estate and Gift Taxation,* Washington, DC: Brookings Institution Press, 2001, 299-343.

Jacobs, Bas and Robin Boadway, "Optimal Linear Commodity Taxation under Optimal Non-Linear Income Taxation," *Journal of Public Economics* 117 (2014): 201-210.

Judd, K., "Redistributive Taxation in a Simple Perfect Foresight Model", Journal of Public Economics, 28 (1985): 59-83.

Kopczuk, Wojciech and Joseph Lupton, "To Leave or Not to Leave: The Distribution of Bequest Motives," Review of Economic Studies, 74 (2007): 207-235.

Kopczuk, Wojciech, "Incentive Effects of Inheritances and Optimal Estate Taxation," American Economic Review, 103 (May 2013): 472-477.

Kopczuk, Wojciech "Taxation of Intergenerational Transfers and Wealth", in A. Auerbach, R. Chetty, M. Feldstein, and E. Saez (eds.), Handbook of Public Economics, Vol. 5 (Amsterdam: North-Holland, 2013).

Piketty, Thomas and Emmanuel Saez, "A Theory of Optimal Inheritance Taxation," Econometrica, 81 (2013): 1851-1886.

Lee, Siha, and Kegon T.K. Tan, "Bequest Motives and the Social Security Notch," University of Wisconsin–Madison Working Paper, 2016.

Saez, Emmanuel, "The Desirability of Commodity Taxation under Non-Linear Income Taxation and Heterogeneous Tastes," Journal of Public Economics 83 (2002): 217-230.