Optimal Tax Administration
with Self- Interested Governments

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Abstract

This note investigates how a self-interested government selects its optimal administration in terms of tax enforcement. The rules guiding the optimal policy are shown to parallel those for benevolent governments, but are adjusted for the marginal benefit of tax revenues. The more the government is self-interested, the more taxation and tax enforcement exceed the benevolent levels. However, the analysis shows that international support to improve tax administrations and enforcement can benefit the population.

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1 Introduction

Traditionally, a division between academic public finance economists and tax practitioners has been lamented. While the former were often seen as focusing exclusively on efficiency and equity issues from an abstract optimal taxation perspective, regularly deemed much out of touch with reality, the latter were instead regarded as only considering the practical aspects of implementing tax policy, such as managing effective tax administrations, or keeping administrative and compliance cost low, without any conceptual considerations. Over recent years, however, this divide has given way to an integrated view of tax

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systems that stresses the connections and interactions between these different perspectives and encompasses the role of institutions and political economy aspects (Slemrod and Gillitzer (2013), Slemrod (2016), Kopczuk et al. (2016), Alm (2018), among others). This development has been promoted by the increasing availability of micro level data as well as the insight that many aspects of tax evasion and tax enforcement can be fruitfully analyzed using microeconomic and, more recently, behavioral analytical tools. At the policy level, tax administration reform has received substantial evidence, see, for instance Junquera-Varela et al. (2017), with a particular focus on developing countries. In these countries in particular, it has long been noted that tax policy is inseparable from tax administration. Recently, Keen and Slemrod (2017) analyze optimal tax administration from the perspective of a fully benevolent government. Their approach builds an appropriate framework that allows to integrate optimal tax policy and optimal tax administration and to study the the relationships between theoretical considerations and empirically observable quantities. The first objective of this note is to extend their analysis of optimal tax administration to the case of self-interested governments. The setting of (at least partly) self-interested governments considered here is an important variation, given that many governments in the world cannot be considered to be fully benevolent. This is particularly true for many developing and emerging economies that are riddled by governance problems. These problems include, among others, the lack of accountability and the rule of law, or corruption throughout government and the administration.

A second motivation is that the mobilization of domestic tax revenue has been identified as a key instrument to engineer sustainable growth in developing countries. An influential stream of research has pointed out the strong relationship between the power to tax, state-building and good governance (Besley and Persson (2009, 2010, 2013, 2014). At the political level, fiscal policy is considered a key instrument in the context of the United Nations Sustainable Development Goals, which call for domestic revenue mobilization (DRM) to fund large and sustained public expenditures (United Nations (2015)). In line with these objectives and the corresponding political agenda, a number of key policy actors such as the International Monetary Fund and the World Bank have been engaging in long term projects as well as in short term technical missions to help developing countries improve their revenue systems. Similarly, the Addis Tax Initiative (ATI), initiated by individual donor countries such as Germany, the Netherlands, the United Kingdom, and the United States, among others, focusses on DRM. The ATI members, which include over 30 countries and international development organizations, pledged to
double total technical assistance for DRM and taxation initiatives by 2020 and to increase the focus on DRM as a priority for development. These activities typically combine efforts to improve the structure of taxation and tax administration in developing countries. The sponsors of these programs argue that their efforts help to improve fiscal governance and accountability by themselves. Alternatively, such efforts may be seen critically as providing a helping hand to Leviathan governments that squeeze tax revenue out of the population for private purposes which benefit a small elite, but do not benefit the wider population via the provision of better public goods and services. This note sheds light on these different opinions regarding such international interventions. To this end the study investigates, whether the population can actually benefit from international support to improve tax administration in countries characterized by self-interested governments.

My analysis builds on Keen and Slemrod (2017), who provided an insightful analysis of optimal tax administration for a benevolent government and a given available enforcement technology. I investigate how optimal tax administration changes, if the government is self-interested. This analysis shows that the optimal tax policy, as well as the optimal tax administration policy are guided by the same considerations as in the case of a fully benevolent government, but are adjusted for the higher marginal benefit of public goods. Thus, the resulting taxation and enforcement levels are higher than in the benevolent government case. Finally, I show that the level of tax enforcement increases in the degree of self-interest of the government.

Section 3 discusses foreign interventions to improve the effectiveness of the tax administration. Within the simplest conceivable framework, which models the support as a reduction in enforcement cost, the analysis shows that the population can benefit from such international intervention. However, the self-interested government does as well. This raises question whether such programs are actually preferable over more traditional development assistance approaches that try to directly provide public goods and services to the population.

2 The framework

The analysis is set in the framework developed by Keen and Slemrod (2017) but allows for self-interested governments. The representative citizen has preferences

\[ u = x - \psi(l) + v(g), \]  

(1)
with $x$ being private consumption, $l$ individual labor supply, with $\psi(l), \psi'(l) > 0, \psi''(l) > 0$, denoting the disutility of labor, and $g$ a publicly provided good, $v'(g) > 0, v''(g) < 0$. Private consumption $x$ equals net income, so that $x = wl - t(wl - e) - c(e, \alpha)$, where $e$ is the concealment or evasion effort, $c(e, \alpha)$ is the cost function corresponding to this activity with $\alpha$ denoting a tax enforcement parameter chosen by the government, and $t$ is the proportional tax rate levied on the taxable income $z \equiv wl - e$. For future reference, $c_e > 0, c_{ee} > 0, c_{ae} > 0, c_a > 0, c_{aa} > 0$. Moreover, $\varphi \equiv x - \psi(l)$ denotes the private component of individual utility. The first order conditions describing the optimal labor supply and the optimal concealment behavior are given by

$$w(1 - t) = \psi'(l)$$

$$t = c_e,$$

which implicitly define $l^* = l^*(t, \alpha)$ and $e^* = e^*(t, \alpha)$. The government’s objective is

$$V = V(\zeta, u) = V(\zeta, u(\varphi, g)),$$  \hspace{1cm} (2)

where $\zeta$ is consumption of the government that only benefits the rulers but not the population. Moreover, the function $V$ is quasi-concave and $\zeta$ and $u$ are both normal. This objective captures the fact that even self-interested governments typically at least partly care about the population. This partial interest in the welfare of the wider public could either reflect a genuine preference or, alternatively could reflect a fully self-interested government, which, however, cares about the population because this is helpful to stay in office. The government may spend money on self-serving goods $\zeta$, publicly provided goods for the population $g$, or on tax enforcement activities $\alpha$, which generate cost according to the function $a = a(\alpha), a'(\alpha) > 0, a''(\alpha) > 0$. Normalizing all prices to one, the government budget constraint is

$$\zeta + g + a(\alpha) = t(wl - e).$$  \hspace{1cm} (3)

It is useful to solve the government’s problem in two steps. First, consider the problem of maximizing self-interested consumption $\zeta$ subject to the population receiving some given level of utility $u$, where the government controls the tax rate $t$, the tax enforcement level $\alpha$, and the choice of the amount of publicly provided goods $g$. The solution of this problem provides a value function $\zeta = \zeta(u)$ which can be resubstituted into (2). The second step
considers the problem of choosing the population’s level of utility to maximize (2).\(^1\)

Before addressing the first stage problem, it is useful to invert the utility function \(u(\varphi, g)\) to give \(g = g(\varphi, u)\). From (1), we have \(g = v^{-1}[u - \varphi]\). The first stage problem is then to

\[
\max_{t,\alpha} \zeta = tz - a(\alpha) - v^{-1}[u - \varphi],
\]

with first order conditions

\[
\begin{align*}
 z + tz_t + v^{-1}[u - \varphi] \varphi_t &= 0, \quad \text{(4)} \\
 tz_\alpha - a_\alpha + v^{-1}[u - \varphi] \varphi_\alpha &= 0, \quad \text{(5)}
\end{align*}
\]

where the variables with subscripts indicate the partial derivative with respect to the subscript variable. Since \(v^{-1}(.) = 1/v'(.)\), and \(\varphi_t = wlt - z - twlt - \psi'(l)lt = -z\), due to the individual first order condition [Recall that \(\varphi = wlt - t(wl - e) - c(e, \alpha) - \psi(l)\)], so that (4) can be rewritten as \(v'(g)[z + tz_t] = z\), or

\[
\frac{t}{1-t} = \frac{v'(g) - 1}{v'(g)} e(z, 1-t),
\]

where \(e(z, 1-t) \equiv \frac{\partial z}{\partial (1-t)} \frac{1-t}{z}\). This is exactly the same formula as the one guiding the optimal tax rate choice of a fully benevolent government. However, to the extent that \(g\) will be chosen at a lower level by a self-interested government, this will affect the optimal tax rate. Assume that \(e(z, 1-t) = 0.25\), and let \(v'(g) = 1.5\). In this case the self-interested government choses a tax rate of \(4/7 \approx 57\%\).

The first order condition with respect to the enforcement activities is

\[
 tz_\alpha - a_\alpha = \frac{c_\alpha}{v'(g)},
\]

since \(\varphi_\alpha = tz_\alpha - a_\alpha - c_\alpha = te_\alpha - c_\alpha - c_\alpha e_\alpha = -c_\alpha\). Defining the enforcement elasticity with respect to taxable income \(e(z, \alpha) \equiv \frac{\partial z}{\partial (1-t)}\), we can rewrite this as

\[
e(z, \alpha) = \frac{\alpha \left[ \frac{e_\alpha}{v'(g)} + a_\alpha \right]}{tz} \equiv \phi.
\]

Again, the formula guiding the optimal tax enforcement is completely analogous to the

\(^1\)This two-step solution is similar to the approach chosen by Edwards and Keen (1993).
case of a benevolent government, except for the different level of $g$, with the corresponding divergence in $v'(g)$. The parameter $\phi$ can be interpreted as the adjusted marginal cost-revenue ratio (Keen and Slemrod (2017)). To see this note that the numerator is a linear approximation of the combined compliance and administration costs under the assumption that $a(0) = c(e, 0) = 0$. We can summarize these results in Proposition 1.

**Proposition 1** The optimal tax rate and the optimal tax enforcement chosen by a self-interested government follow the same rules as those of a benevolent government, adjusted for the difference in the marginal utility generated by public goods due to the different provision levels.

Consider now the second stage. The first order conditions (4) and (5) implicitly define $\zeta = \zeta(u)$, so that self-interested government’s problem is to

$$
\max_u V = V(\zeta, u) = V(\zeta(u), u),
$$

with first order condition

$$
\frac{V_u[\zeta(u), u]}{V_\zeta[\zeta(u), u]} = -\zeta_u(u).
$$

The ratio of the marginal utility with respect to its own consumption and with respect to increased utility of the population is equal to the marginal reduction (in absolute value) of the government’s own consumption that is necessary to increase the utility of the population by one unit.

Consider now the effects of the government becoming relatively more self-interested. To make this operational we denote the alternative objective function of the government by $\tilde{V}(\zeta, u)$ where the increase in self-interest is reflected by the indifference curves of $\tilde{V}$ which are flatter everywhere in $u-\zeta$-space, i.e. $V_u[\zeta(u), u]/V_\zeta[\zeta(u), u] > \tilde{V}_u[\zeta(u), u]/\tilde{V}_\zeta[\zeta(u), u]$.

**Proposition 2** An increase in government self-interest as reflected by a variation from the original objective $V$ to $\tilde{V}$ results in a higher level of tax enforcement and in a higher level of taxation.

**Proof.** From (8) it follows that a more self-interested government with objective function $\tilde{V}(\zeta, u)$ will choose a higher level of its own consumption $\zeta$ and lower level of $u$. This increase in $\zeta$ implies increases in $t$ and $\alpha$, see Appendix.  ■
3 Increasing the effectiveness of tax administration

Consider now the case where the effectiveness of tax administration can be improved by external intervention. The simplest way to introduce this is to make enforcement less costly for the government. To this end, assume that the cost of engaging in enforcement of level $\alpha$, now becomes $sa(\alpha)$, so that we can model the technical and financial tax administration support as a reduction in $s$. This will change condition (5) to

$$tz_\alpha - sa_\alpha = \frac{c_\alpha}{v'(g)}.$$ 

Moreover, from the value function $\zeta = tz - sa(\alpha) - v^{-1}[u - \varphi]$ we have $\zeta_s = -a(\alpha) < 0$ and $\zeta_u = -v^{-1}[u - \varphi] < 0$. The first order condition at the second stage can be written

$$\Omega^s \equiv V_\zeta [\zeta(t(s), \alpha(s), u, s), u] \zeta_u [u] + V_u [\zeta(t(s), \alpha(s), u, s), u] = 0.$$ 

From this we have

$$\frac{du}{ds} = -V_\zeta \zeta_s \zeta_u + V_u \zeta_s = -\zeta_s \left[V_u \zeta - V_\zeta \frac{\partial V}{\partial u}\right],$$

where (8) has been invoked. The denominator of (9) is negative by the second order condition. The first term of the numerator is negative. Normality of $V$ implies $V_u \zeta - V_\zeta V_u \geq 0$, see Bilancini and Boncinelli (2010), so that the term in squared brackets is also positive. From this follows directly the next proposition.

**Proposition 3** An increase in the cost of tax enforcement reduces the utility of the population, i.e. $\frac{du}{ds} < 0$.

Note that foreign support to improve tax administration implies a reduction of $s$. Such a reduction will unambiguously increase the utility of the population. The intuition of the result is straightforward. A reduction of administration costs changes the relative price of tax enforcement. However, the effects on enforcement adjustment are only of second order, whereas there are first order cost savings effects on all existing enforcement activities. This generates slack in the government budget, i.e. the intervention generates a positive income effect for the government. Given the normality assumption this will at least partly lead to an increase in spending on public goods and services which benefits
the population. It may be worth pointing out that the benefits to the population will be higher, the more benevolent the government is to its people.

Finally, a reduction in $s$ will always increase the welfare of the self-interested government. It can implement the same tax administration and tax policy as before, but at lower cost. The public funds saved can be spent on the government’s self-interest, or on public goods. Both types of spending will increase the government’s welfare. Thus, the partly self-interested government always benefits from the intervention.

4 Discussion and conclusion

The analysis has shown that optimal tax administration follows an analogous rule as in the case of benevolent governments. However, the rule is adjusted to account for the lower level of public goods. This results in a higher enforcement level, and this level increases in the degree of self-interest of the government.

Technical assistance increases the utility of citizens. While lower cost of tax administration translate into higher enforcement levels, the cost savings, even if only partly spent on goods that benefit the population, allow to make the population better off. However, the more the government is self-interested, the less it will use the cost savings to increase the level of public goods and services. Thus, while DRM projects are often planned in countries characterized by weak governance and mostly self-interested governments, the analysis suggests that positive effects tend to be larger for countries that already exhibit a higher degree of welfare orientation towards the population.

Finally, the way technical assistance has been modeled here does not allow for aspects like higher transparency and improved accountability with respect to the governments. Moreover, enforcement has no effect on the actual level of economic activity, see Keen and Slemrod (2017) for a discussion.

5 Appendix

Detailed derivation of the proof of Proposition 2 In Proposition 2 it is argued that an increase in $\zeta$, or the corresponding decrease in $u$, implies that the government will choose a higher tax rate and higher enforcement levels, i.e. $dt/d\zeta > 0$ and $d\alpha/d\zeta > 0$. To see this we consider the comparative statics of the first stage of the governments
optimization problem. The first order conditions are given as

\[ R_t^t \equiv v'(tz - \zeta - a(\alpha))[z + tz] - z = 0 \]

\[ R_\alpha^t \equiv v'(tz - \zeta - a(\alpha)) [tz_\alpha - a_\alpha] - c_\alpha = 0 \]

Denoting by the \( R_i^t, i = t, \alpha, \) and \( j = t, \alpha, \zeta, \) the partial derivatives of the first order conditions, we can calculate the comparative statics as

\[
\frac{dt}{d\zeta} = -\begin{vmatrix}
R_\zeta^t & R_\alpha^t \\
R_\zeta^\alpha & R_\alpha^\alpha \\
R_t^t & R_t^\alpha \\
R_t^\alpha & R_\alpha^\alpha \\
\end{vmatrix} > 0.
\]

This follows from the fact that the denominator is positive by the second order condition. Moreover \( R_\zeta^t > 0, R_\alpha^t < 0, \) and \( R_\zeta^\alpha > 0, R_\alpha^\alpha > 0, \) so that \( R_\zeta^t R_\alpha^\alpha - R_\zeta^\alpha R_\alpha^t < 0. \) Similarly,

\[
\frac{d\alpha}{d\zeta} = -\begin{vmatrix}
R_t^t & R_t^\zeta \\
R_t^\alpha & R_\zeta^\alpha \\
R_t^t & R_t^\alpha \\
R_t^\alpha & R_\alpha^\alpha \\
\end{vmatrix} > 0.
\]

Again the denominator is positive. Moreover, \( R_t^t < 0, R_\zeta^\alpha > 0 \) and \( R_t^\alpha = R_t^\alpha > 0, R_\zeta^t > 0, \) so that \( R_t^t R_\zeta^\alpha - R_t^\alpha R_\zeta^t < 0. \)

References


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