

Discuss the challenges introduced by non-compliance when evaluating the desirability of a particular tax policy.

Executive summary: Several points are made in this paper: 1) Non-compliance is particularly prominent among the self-employed and the ultra-wealthy because auditing and prosecuting their behavior is uniquely costly. Thus, targeting these taxpayers directly via policy may backfire. 2) Non-compliance contributes to both horizontal inequity (among a socio-economic stratum) and vertical inequity (the traditional notion of inequality). This affects the social welfare function (of which maximizing the value is paramount). 3) The nature of non-compliance mandates administrative and compliance costs, as well as increasing risk. In many models, these crucial costs are simply ignored—interactions are simplified as frictionless.

Background:

According to Best et al. (2015), Pakistan's tax rate on turnover was 0.5%, while the tax rate on profits was 35%, estimating that this unorthodox setup reduces evasion by 60-70% of corporate income. While Diamond and Mirrlees suggest that firm turnover should not be taxed (downstream of their prominent conclusion that good production should not be distorted), Pakistan does so anyways, because they accept the trade-off of increased production inefficiency for reduced tax evasion. This example, among others, exemplify why non-compliance is a substantial issue when evaluating the desirability of a particular tax policy.

Income taxation evolves as a country develops. Jensen (2022) provides a robust empirical explanation. In short, countries become more reliant on the income tax as they transition from workers being predominantly self-employed to workers being employees of firms. At the absolute lowest levels of development, only 1-10 percent of the economically active are subject to income taxes. Excise, customs, and property taxes make up a larger proportion of government revenues.

The mechanics of development involve “the employee share ris[ing] gradually further down the income distribution,” the income tax exemption threshold decreasing to lower rungs of the income distribution, and the employee share of the tax base holding constant between 85 and 95 percent of all employees. Combining this with the Atkinson-Stiglitz theorem, we can understand that an increasing employee share down the rungs of the income distribution is in the best interest of a government *and* also the social welfare function, insofar as these revenues replace “second-best” indirect taxes.

Standard Model (AS):

The standard model in non-compliance literature is the Allingham-Sandmo-Yitzhaki (AS) model, where “the true tax base is known to the taxpayer, but is not costlessly observable by the tax collection agency” (Slemrod, 2002). When the penalty of evasion is proportional to the size of the discrepancy (largely the case in the developed world), a taxpayer seeks to maximize his expected utility: $EU = (1-p) U(v + t(y-x)) + pU(v - \theta t(y-x))$, where y is taxable income, x is the

report, p is the probability of detection, θ is the proportional penalty (on top of full true tax payment), v is true after-tax income. $U(\cdot)$ represents the individual's preferences toward risk. Then, $(1 - p)t - p\theta t$ is the expected payoff per dollar of evaded income. Then, increasing the tax rate does not affect the payoff from evasion (note the linear t balancing both components. The FOC for optimal evasion becomes $U'(y_A) / U'(y_U) = (1-p)/p\theta$, where “ y_A and y_U refer to net income in the audited and unaudited states of the world, respectively.”

No substitution effect, but there is still an income effect.

Nonetheless, a taxpayer is not adept at grasping the objective probability of an audit. Scholz and Pinney (1993) find no significant correlation between predicted audit probability and objective audit probability. Hessing et al. (1992) finds that after receiving a correction for errors, taxpayers expressed more certainty in a large evasion being detected, and a small one not being detected, but in general, those with corrects express similar beliefs regarding the likelihood of detection compared to those receiving no corrections. In addition, the willingness to evade taxes is a function of credit constraint, as Andreoni (1992) argues. Individuals may be more willing to evade taxes when they are credit-constrained, in order to smooth consumption. These advanced but realistic considerations should supplement the standard model.

The nature of the current tax and audit system is arguably inequitable. Slemrod et al. (2001) found that the threat of an audit produced a small, statistically significant *increase* in reported income for low and middle-income taxpayers but a *lower* report from “sophisticated” high-income taxpayers. The authors speculated that the wealthy, (perhaps correctly) interpreted the audit threat as a negotiation, placing a low opening bid prior to negotiations. Nonetheless, audits have a crucial role to play, as Dubin et al. (1990) found that the continuous decline in audits between 1977 and 1986 caused a significant \$41 billion decline in IRS collections by 1985. Finally, as Alstadsaeter et al. (2019) notes, audits alone do not capture the true extent of tax evasion among the ultra-wealthy.

The Self-Employed Problem & Policy Landscape:

There are at least two groups of taxpayers who pose unique threats to the legitimacy of the current income tax scheme: the self-employed and the ultra-wealthy. Artavanis et al. (2016) identifies the extent of tax evasion from the former. The researchers utilize bank loan information from a Greek bank, inferring the bank’s estimate of individuals’ true income. To highlight the motivation behind this research question, the authors note that data suggests “implausibly, that self-employed Greeks spend 78% of their monthly reported income servicing debt.” Then, they calculate “a tight range of tax-evasion rates from 43% percent to 45% for the self-employed,” comparing this to Pissarides & Weber (1989), which found “a tax-evasion rate of 35%” in Great Britain among the same group. Artavanis et al. (2016) find “that the true income of self-employed individuals is 1.75 to 1.84 times their reported income,” estimating €9.1 to €11.2 billion in forgone tax revenues annually. Such immense sums have tremendous policy implications. If only there was a way for these figures to be realized—“second-best” modes of indirect taxation could be reduced. Finally, the researchers also find that the self-employed in lower wealth areas evade taxes at least as much as those in the high-wealth

quintiles do. This suggests that from a socioeconomic perspective, self-employment tax evasion is not necessarily inequitable within itself.

There is no easy solution to the self-employed tax evasion problem. After all, enforcement of taxes is difficult without the third-party agents and information trails present in formal employment and corporations (Jensen, 2022). Altogether, this yields higher administrative and compliance costs. In fact, this is one reason that the personal income exemption exists: the cost of auditing negligible reported incomes would outweigh the taxes collected from them. As Jensen notes, policymakers are aware of the unique policy trade-offs that must be noted for the self-employed: because they face higher compliance costs than standard employees when filing taxes, the government (perhaps reflecting the social welfare function) is sympathetic enough to them to yield an exemption. Indeed, hardly any basic model accounts for these—certainly not the optimal linear and non-linear taxation models from Week 3.

The Ultra-Wealthy Problem & Policy Landscape:

The ultra-wealthy pose a different problem, which Alstadsaeter et al. (2019) analyze in leaked Scandinavian records. One example highlights this: their estimate of 25% tax evasion among the ultra-wealthy dwarfs the <5% consistently found across the wealth distribution. More on Scandinavia: the authors note how the self-employed compose a minor portion of workers in the Nordic region (as opposed to Artavanis (2016)'s Greece), and while there are relatively high VAT and payroll taxes, capital taxes are remarkably low and flat. This exemplifies the heterogeneous nature of non-compliance across countries: Pakistan, Greece, and Scandinavia all face different problems in the realm of non-compliance. Alstadsaeter et al. (2019) finds that “households in the top 0.01 percent are 13 times more likely to hide assets at HSBC than households in the bottom half of the top 1 percent, i.e., in between percentile 99.” The authors note how this contradicts the AS model, which “predicts that the very rich should evade little, because they are likely to be (nonrandomly) audited by the tax authority.”

Very good

The merits of tax amnesties, a popular policy, have been fiercely debated in the literature. Mikesell (1986) finds that there's some benefit, but states mostly collect what they eventually would, just sooner. Then there are questions about whether such amnesties are perceived as weakening of enforcement. Alstadsaeter et al. (2019) adds to the literature, finding “that the poorest evaders are slightly more likely to participate in an amnesty. Households between the 95th and the 99.5th percentile...are relatively overrepresented in the amnesty sample.” Again, this reinforces Slemrod et al. (2001), where the ultra-wealthy have the sophistication to alter their behavior less when faced with amnesty options. Alstadsaeter et al. (2019) demonstrates this with the AS model, describing how “tax evaders should continue evading as long as τ , the marginal tax rate they face, is greater than $p \times \theta$.” Studying the 2009 IRS amnesty program, they hypothesized that less sophisticated tax evaders perceived a rising p (probability of detection), thus tipping the calculation over the τ . On the contrary, this was not the case for those with shell companies and trusts—sophisticated instruments.

An overly simplistic solution suggested from the AS model is that θ , the tax evasion monetary penalty, could be set higher, so $p \times \theta > \tau$, deterring evasion. However, as Alstadsaeter et al. (2019) points out, if penalties are set too high, the legal system may demand a stronger burden of proof from prosecutors, potentially leading to fewer sanctions. Becker (1968) suggested something similar, where a very high θ would correspond to a very low p for the same effect, in essence “hanging violators with a probability of zero.” Ignoring how this degree of white-collar crime punishment may be intolerable to society, as Slemrod (2002) writes, such an obvious solution has a crucial drawback: corrupt or imperfect tax administrators/justice system could derail such a scheme. Once again, the implications of the AS model cannot be taken at face-value for real-world policy changes. Instead, the paper’s authors suggest revamping tax policy from the supply-side. They suggest for policymakers to “systematically put out of business the financial institutions found facilitating evasion...increas[ing] effective tax rates on the rich.” Nonetheless, only 3 small financial institutions, of the 80 Swiss banks having admitted to the US government of facilitating tax evasion, have been shut down. Banks of a tremendous size, like Credit Suisse, are able to keep their services open despite pleading guilty. Similarly, Artavanis et al. (2016) suggests that although Greek officials are aware of substantial levels of tax evasion, the courts are backlogged by 400,000 cases, each taking 5 to 10 years to resolve, with a clearance ratio below 80%. Altogether, in the real world, law, politics, and power, among other constraints, prevent optimal tax policy from being achieved.

Very good

Administrative & Compliance Costs, Risks:

Finally, administrative and compliance costs are worth studying in detail. The necessity of administrative costs are self-evident: they exist because non-compliance exists. The government cannot simply trust what a taxpayer claims. The cost of gathering information depends on how accessible the information is, and whether it can be easily hidden (Slemrod, 2002). As alluded to earlier, market transactions are easier to access: a formal payment from a firm to an employee, or purchasing groceries from Tesco (income and commodity tax) are stored in numerous ledgers: the consumer’s credit card, a receipt, the store’s own systems, etc. As Slemrod (2002) notes, if commodity taxes cannot be evaded while income taxes can, there is a strong case to be made for the commodity tax to supplement the income tax in the real world, perhaps diverging from the Atkinson-Stiglitz Theorem’s direct implication. The VAT in particular is lauded by numerous economists, due to the incentive structure of the input and output payments.

Evasion is more prominent in sectors like “homeowner services,” with “small scale of production that can aid concealment and the lesser need for receipts” (Slemrod, 2002). A thorough audit would be more costly administratively for the latter example. Once again, this contributes to horizontal inequity, along the lines of what happens with self-employed vs formally employed individuals. Nonetheless, it is unclear how much society disfavors this dimension of inequity: it is not as simple as the rich vs. the poor. How would differing rates of tax evasion *within* a socio-economic bracket affect the overall social welfare function? On a

different note, differentiated commodity taxation, though preferable from the Ramsey Rule, proportionately makes administration more difficult, requiring as many flows of information as differentiated rates. Altogether, the IRS (which focuses on income and payroll taxes, not sales taxes) has a public administrative cost of 0.6 cents per dollar of taxes. There is also a trade-off between the size of a tax and the cost of administering it: the larger the tax, the lower the average cost of administration (Slemrod, 2002). The drawback is, in practice, more evasion *may* be committed (despite our theoretical model above implying the opposite).

Private compliance costs, on the other hand, dwarf the public administrative costs, at an estimated 10 cents per dollar collected (Slemrod, 1996a). For middle-class/working-class tax-complying individuals, it includes the often-necessary cost of TurboTax/H&R Block/etc., and for those who are more tax-avoidant or evasive, it is the cost of finding creative legal and monetary loopholes. There are also time and anxiety costs with filling taxes (Reinganum and Wilde, 1991). As Slemrod notes, administrative costs are thoroughly scrutinized in any government or legislature's processes, but the private compliance cost is easier to overlook as a lawmaker. If there is a sudden increase in taxation complexity, this may be borne disproportionately by those with less resources or education, even if it looks more optimal on paper, further contributing to vertical inequity. Finally, there is also a risk-bearing cost of tax evasion, which is a deadweight loss to society (Slemrod, 2002). In the ideal world, the government could collect even more tax revenues if it bargained with an individual to cease auditing.

Conclusion:

In conclusion, the optimal extent of tax enforcement “equates the marginal social benefit of reduced evasion to the marginal resource cost” (Slemrod et al., 1987). This is more nuanced than what some textbooks and even IRS commissioners presume, “increasing p[robability of detection, e.g., increased auditors, better technology] until the marginal increase of revenue thus generated equals the marginal resource cost of so doing” (Slemrod, 2002). Simply observing increased tax revenues does not account for the risk bearing inherent in any tax evasion. As Slemrod writes, tax revenues do not intrinsically represent a net gain to the economy, but simply represent a transfer from private citizens to the government. At the end of the day, taxes must be utilized effectively by the government itself.