Why do people evade taxes? What should governments do about tax evasion?

LENT TERM PRESENTATION ESSAY
EC325: PUBLIC ECONOMICS

Eugene Clifton Cha
LT Presentation Essay
08 March 2003
EC325 / Barr, Comperrolle
WHY DO PEOPLE EVADE TAXES?
WHAT SHOULD GOVERNMENTS DO ABOUT TAX EVASION?

To declare or not to declare—that is the question in understanding tax evasion, the illegal practice of paying less-than-necessary taxes by declaring less-than-actual income. In the simplest of reasoning, individuals evade taxes because the payoff is potentially greater—that is, through evasion one can potentially enjoy a greater income. A simple illustration is as follows: Suppose an individual gets taxed at rate $t$ on income $Y$. There is a $p$ chance that she will get caught by the tax authorities through evasion, and if caught, forced to pay a fine $F$. An honest individual will enjoy a sum of $(1 - t)Y$, but an evading individual has an expected sum of $p(Y - F) + (1 - p)Y$, which takes into consideration both the greater payoff and the possible penalty. With income £12000, a probability of 0.5, a tax rate of 0.33, and a fine of £5000, an honest individual enjoys $(1 - 0.33)(£12000)$, or £8000. However, under the same parameters, the expected value of an evading strategy is $0.5(£12000 - £5000) + 0.5(£12000)$, or £9500, which is £1500 more than if honest. Clearly, one would think evasion is always a better strategy since the expected outcome is higher income, but the real-life decision is much more complicated.

The above example only considers two choices: to pay all tax or to evade all tax. However, as opposed to being faced with the problem of declaring any income at all, individuals are more commonly faced with the problem of how much of their income to declare for taxation and how much not to declare. This requires the development of a model for optimal tax evasion which incorporates the concept of individual utilities and explains why people evade taxes. Understanding these, discussion will move to the government’s response to tax evasion, which incorporates policy consideration, formulation, and recommendation.
The model. The model for optimal tax evasion is a two-state model (income if caught C and income if not caught N) and is presented here, involving the following definitions and equations:

- Individual’s income $Y$; proportional tax rate $t$; probability of detection $p$; rate of fine $F$; amount of declared income $D$.
- Income when not caught: $N = Y - tD$. That is, income is equal to taxable income minus the tax on declared income.
- Income when caught: $C = Y - tD - F(Y - D)$. Equivalently, income is equal to taxable income minus the tax on declared income minus also the fine on undeclared income, $Y - D$.

An individual will choose an amount $D$ that maximises his expected utility $EU$.

Given the above definitions, the $EU$ function is as follows:

- $EU = (1 - p)U(Y - tD) + pU(Y - tD - F(Y - D)),$ or, substituting:
- $EU = (1 - p)U(N) + pU(C),$ which integrates the likeliness of each state.
The derivative of the EU function with respect to the amount declared is negative when an individual declares all income, such that \( \frac{dEU}{dD}(D = Y) < 0 \), illustrating that honesty is utility decreasing and—conversely—that evasion is utility increasing. Thus, instead of declaring all income (that is, \( D = Y \)), an individual will declare somewhere along the budget constraint 12, which illustrates all possibilities of \( D \) and has a slope of \( (1 - F/t) \). This constraint is also known as the price line because it indicates the “price” that an individual will pay if caught.

Where exactly on the price line an individual declares \( D \) depends on his indifference curve, which is equal to the marginal rate of substitution, calculated as:

\[
MRS_{y_c, y_x} = \frac{\frac{dEU}{dY_x}}{\frac{dEU}{dY_c}} = \frac{-(1 - p)U'(N)}{pU'(C)}
\]

It is at the point of tangency between this indifference curve and the price line where an individual declares \( D^* \) and pays a tax of \( tD^* \), resulting in:

- Income if not caught \( N = Y - tD^* \)
- Income if caught \( C = Y - tD^* - F(Y - D^*) \)

The optimum strategy is therefore to declare \( D^* \) and evade \( Y - D^* \) income, which is notably a compromise between declaring all income and declaring no income at all. It is key to note that income if not caught is higher than when honest, but income when caught is lower than when honest. This demonstrates the risk involved in tax evasion.

**Policy considerations.** Tax evasion is a problem for the government because it results in lost revenues and unfairly penalizes those who report incomes honestly. There are three forms of actions governments can take to combat tax evasion: raising tax rates, raising fines, and raising the probability of detection.
Raising the tax rate $t$ causes the price line to swivel anti-clockwise on 1, therefore becoming less steep (see figure 2a). This is because the honesty point changes from 2 to 2', or from $Y(1-t)$ to $Y(1-t')$ where $t' > t$. The income effect of this alteration increases declared income and reduces tax evasion because the opportunity cost (equivalent to the tax) has risen and individuals are less willing to risk the less income they now have. However, the substitution effect reduces declared income and increases tax evasion because both the potential payoff to evasion and the “price” of honesty have increased. The combined result is therefore ambiguous.
In the case of decreasing absolute risk aversion, however, the result is no longer ambiguous. An individual with decreasing absolute risk aversion is willing to risk slightly more of their income in absolute terms when income $Y$ increases, such that a low-income individual is risk-averse while a high-income individual is risk-loving. In the case of decreasing absolute risk aversion, only the income effect acts to the counter-intuitive conclusion that an increase in the tax rate will cause more income to be honestly declared, reducing evasion.

A second way the government can combat tax evasion is through an increase in the fine. Raising the fine $F$ causes the price line to swivel clockwise on 2, changing the dishonesty point from $(y - Fy)$ to a vertically lower $(y - F'y)$ where $F' > F$ (see figure 2c). The price line therefore becomes more steep and now both income and substitution effects work in the same direction by increasing declared income and decreasing evasion. This is because an increase in the fine not only increases the fixed cost of getting caught but also decreases income, prompting the individual to become more risk-averse. An increase in the fine will unambiguously increase compliance, as one would intuitively expect.

Another action the government can take to reduce tax evasion is to increase the probability of detection $p$, such as through stricter and more frequent audits. Recalling that the slope of the indifference curve is equal to $-\frac{(1 - p)U'(N)}{pU'(C)}$, an increase in $p$ affects the slope of the indifference curve by rotating the curve anti-clockwise. The new point of tangency occurs on a higher point on the same price line and therefore increases declared income and decrease evasion (see figure 2d). An increase in the probability of detection will discourage individuals to evade and unambiguously increase compliance, again, as one would intuitively expect.
Policy recommendation. The above three policy considerations illustrate possible avenues of government action to combat tax evasion, but is any one better than the other two? First, since increasing the tax rate has ambiguous results (except in the case of decreasing absolute risk aversion) and furthermore penalises all individuals for the crimes of a relative minority, altering tax rates should not be considered an ideal policy. This leaves two other options: increasing the fine or increasing the probability of detection.

As illustrated by the equation \( \frac{dEU}{dD}(D = Y) < 0 \), evasion is utility increasing if when the taxpayer is honest the marginal expected utility with respect to changes in declared income \( D \) is negative. This means that reducing declared income \( D \) increases expected utility and occurs when \( F_p < t \), that is, when the expected penalty from evasion is less than the tax rate. The government should aim to reverse this inequality to \( F_p > t \), such that the expected penalty from evasion is greater than the tax rate, therefore discouraging individuals from tax evasion. Policymakers thus have an option to either increase \( F \) or increase \( p \), and should increase that variable which costs less to alter. That variable is \( F \), as increasing \( F \) is virtually costless while increasing \( p \) entails real costs associated with extra resource expenditures on tax inspectors and more frequent audits. It is important to note, however, that increasing \( F \) should be done within reason, so that the punishment fits the crime. Still, increasing the fine is the best policy consideration of the three discussed above.

In addition to increasing the fine \( F \), the government has other, more sociological options in combating tax evasion. Exploiting a taxpayer’s self-esteem and fear of disgrace could help as this capitalises on the social stigma of tax evasion. Furthermore, appealing to morality and public-spiritedness, as well as actively publicising and embarrassing those convicted of tax evasion, may also be effective weapons. The
problem with these measures, however, is that their effectiveness is difficult to measure quantitatively.

Tax evasion occurs because the potential payoff is greater in dishonesty than in honesty. The model for optimal tax evasion illustrates that evasion is utility increasing, and the precise amount of income to keep from declaration depends on the relationship between an individual’s unique indifference curve and price line. Concerning the response of the government to combat tax evasion, there exist three possibilities: increasing the tax rate, increasing the fine, and increasing the probability of detection. According to the model, only the latter two unambiguously increase compliance, and of these, only increasing the fine involves the least cost. There are, however, criticisms to the model on which these conclusions are based. Notably, the model does not take into consideration the morality of paying taxes, by which individuals may pay taxes no matter what and refuse on moral grounds to evade taxes. The model also does not take into account possible perceptions of overprovision, in which individuals evade taxes because they believe the government is already spending too much. Still, despite these criticisms, the model for optimal tax evasion illustrates both why individuals evade taxes and what the government can do to stop them from doing so.
BIBLIOGRAPHY

