Tax Evasion and the Dynamics of Income Disclosure Schemes

Abstract

This thesis explores the persistent issue of black money in India through the lens of the Income Disclosure Scheme (IDS), with a focus on behavioural responses and strategic enforcement. Traditional IDS frameworks, which rely on fixed penalty structures, often fail to induce voluntary compliance from tax evaders. This work reformulates the IDS penalty parameter (α) as an endogenous function of audit probability and penalty rate both of which are modelled to depend on the degree of evasion, enforcement resources, and macroeconomic constraints. By incorporating elements of game theory and behavioural economics, the paper captures the nuanced decision making processes of taxpayers who weigh the benefits of evasion against the risks of detection and disclosure.

The analysis identifies key equilibrium strategies under different policy configurations and demonstrates how a dynamic, responsive penalty system one that escalates with greater under reporting can lead to more effective disclosure outcomes. It also emphasizes the importance of risk-based auditing and behaviourally informed policy design to counter procrastination and over optimism among tax evaders. The findings offer actionable insights for future IDS implementations, advocating for calibrated deterrence, efficient resource allocation, and credible enforcement as pillars of successful tax reform. Ultimately, the thesis contributes a robust theoretical foundation for designing IDS schemes that are both economically sound and behaviourally realistic.

Introduction to Black Money

The National Institute of Public Finance and Policy (NIPFP) defined black income as "the aggregates of incomes which are taxable but not reported to the tax authorities. Further, black incomes or unaccounted incomes are the extent to which estimates of national income and output are biased downwards because of deliberate, false reporting of incomes, output and transactions for reasons of tax evasion, flouting of other economic controls and relative motives."

To get a general idea of how rooted black money is into our economy we can look at the share of black money in India's GDP. It is estimated to be around 62 per cent of India's entire GDP in 2016 (Arun Kumar, The Black Economy in India) which comes out to be around 93 lakh crores. This figure is expected to be much higher in the present.

Few instances of how deeply black money is engraved into our society:

- Businesses often set up their headquarters in countries which are basically a tax heaven and selling their products in the domestic market to avoid the domestic taxes.

- In Army canteens the members can purchase liquor with concessional taxes and people can purchase it from friends and relative and resell it at a cheaper price than the market which are taxed at the normal rates and pocket the extra revenue.

- Black money is also prevalent in the healthcare industry where many malpractices exist apart from all the illegal activities black money can also be generated by prescribing unnecessary tests and medicines. Etc.

Income Disclosure Scheme (IDS) as a Measure to Tackle Black Money

Possession of black money is a serious offense that could even result in heavy penalties, but on the same note, it is very difficult to monitor each and every individual separately, which makes the enforcement of rules and regulations difficult.

Governments use certain schemes to curb black money; one of such schemes is the Income Disclosure schemes, it involves people voluntarily revealing their incomes to avoid harsher penalties by coming out clean. Under the income disclosure scheme government sets up a deadline before which the tax evaders fill out a form declare their income voluntarily and pay the applicable tax on said income.

There are many other ways to collect black money as well but primarily we will be looking at income disclosure schemes and have a fresh perspective from the behavioural point of view.

History of Income Disclosure Scheme in India

After Independence we have witnessed quite a few measures to reduce black money in the economy. The government has tried various Income Disclosure Schemes over the years, which are as follows:

- Voluntary Disclosure of Income Scheme (VDIS), 1997

- The Income Declaration Scheme, 2016

- Direct Tax Vivad se Vishwas Rules, 2024

The first 2 schemes were considered to be a failure as it failed to unearth the hidden income of individuals. At the time Income Disclosure scheme of 1997 only 5 per cent of the black money was disclosed whereas during the scheme of 2016 it was able uncover a negligible proportion of 0.7 per cent. DTVsV is a fairly new scheme which also focuses over a more lenient penalty to the new applicants who wish to declares his/her income before the deadline.

Why do these schemes fail

There could be countless reasons for individuals to evade taxes and an equally wide range of measures to counteract such behaviour. However, a closer look at recurring patterns reveals a common behavioural trend underlying the failure of Income Disclosure Schemes (IDS).

For instance, a recent case involved a sitting judge being caught with unaccounted cash worth crores, highlighting that even high-ranking officials participate in tax evasion. Such events only reinforce public scepticism about enforcement and accountability. Moreover, in most cases, the undisclosed income far exceeds the disclosed income, further suggesting the limited effectiveness of voluntary compliance mechanisms.

Keeping IDS as our focal point, it appears to be a win-win solution on paper tax evaders get a chance to come clean with minimal penalties, while the government recovers lost revenue without prolonged litigation. However, in practice, this is rarely the case. The introduction of an IDS often creates a temporary window for disclosure, but rather than using it proactively, individuals tend to procrastinate. The time-bound nature of the scheme is misunderstood as a grace period, giving people the false impression that they still have time or that enforcement will be slow and inconsistent after the deadline.

Instead of thinking rationally, many tax evaders develop a false sense of security. They may believe that enforcement mechanisms will take time to act, or worse, that there will be yet another disclosure scheme in the future. A common sentiment is: "If the big players are not being caught, why would I be?" This belief fosters a collective inertia, where people delay disclosure or avoid it entirely, convinced that the risks are minimal and that others are worse offenders.

As a result, such behavioural tendencies ranging from overconfidence to herd mentality often lead to low participation and undermine the overall effectiveness of IDS policies.

Payoffs

Payoff for non-evasion
$$P_{ne} = (1 - \theta)y$$

Payoff for evasion
$$P_e = (1 - \theta\gamma)y$$

Payoff if audit occurs
$$P_a = (1 - \pi(1 - \gamma) - \theta\gamma)y$$

Payoff for no audit occurs
$$P_{n1} = (1 - \theta\gamma)y$$

Payoff if evader reveals income under Income Disclosure Scheme

$$P_{ids} = (1 - \alpha(1 - \gamma) - \theta\gamma)y$$

Payoff for no audit occurs again

$$P_{n2} = (1 - \theta\gamma)y$$

1. where θ is the tax rate

2. where π is the rate of penalty

3. where α is the tax rate under Income Disclosure Scheme

4. where γ is the undervaluation

Sequential game for tax evasion

Consider a rational individual who earns a total taxable income denoted by y who is presented with a strategic decision whether to fully comply with the tax obligation and pay taxes on the entire income, or to evade taxes by under reporting income. In this context, the individual may choose to report only a portion of the income, denoted by γy. This revealed income is what the tax authority sees without a proper audit.

The tax rate applicable to the reported income is θ, applied uniformly. If the individual decides to under report, $(1 - \gamma)$ becomes the undisclosed or hidden income. Should this evasion be detected, the individual is liable to pay a penalty, calculated at a higher rate π, imposed on the undeclared portion of the income. Additionally, the model introduces an intermediate rate α, which represents a softer penalty that may apply if the individual chooses to partially correct the evasion (e.g., voluntary disclosure before being caught). The relationship among the rates is such that $\pi > \alpha > \theta$.

Assumptions

1. The tax rate remains the same for all levels of income, i.e., there are no separate tax slabs.

2. $1 > \gamma > 0$

3. We assume the penalty and IDS tax rate to be linear in nature.

4. There are no tax arrears, the evader only has to pay interest/penalty over the disputed amount.

Analysis

We first calculate the expected payoff from evading taxes, with 'a' being the probability of audit.
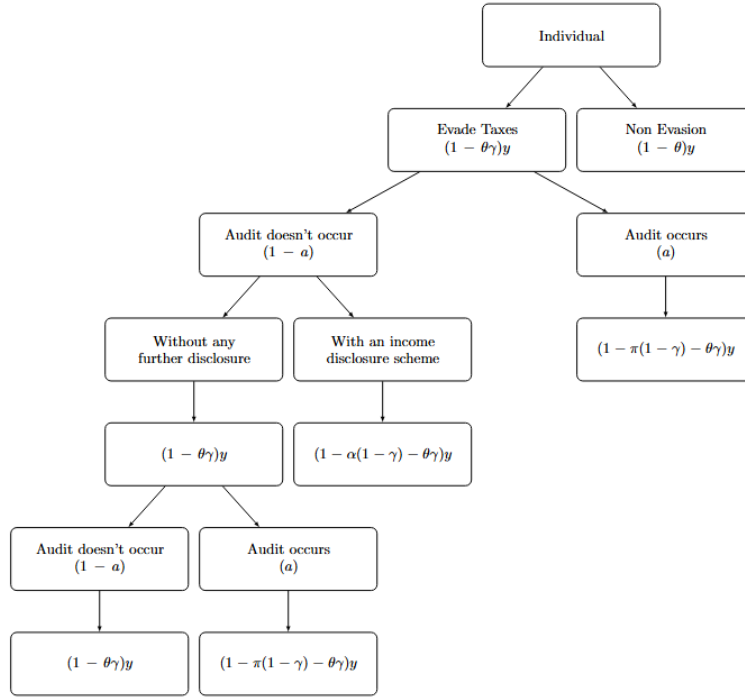
Figure 1: Sequential game for tax evasion.

$$E_e = aP_a + (1-a)P_{n1}$$
$$= a(1 - \pi(1-\gamma) - \theta\gamma)y \ + \ (1-a)(1-\theta\gamma)y$$
$$= y\left[-a\pi(1-\gamma) + (1-\theta\gamma)\right]$$

We have the payoff for disclosing income under the IDS

$$P_{ids} = (1 - \alpha(1-\gamma) - \theta\gamma)y$$

equating both the equations which shows the taxpayer is indifferent between disclosing his true income under the IDS and Evading taxes:

$$\alpha = a.\pi$$

$$Optimal \ IDS \ rate \ = \ Audit \ Probability \ * \ Penalty \ rate$$

Case I

when $\alpha < a.\pi$

$$P_{ids} > E_e$$

This suggests that the taxpayer would be more inclined towards the IDS when his/her payoff from disclosing is greater than the expected payoff from evasion of taxes. In this

situation, people would prefer to disclose rather than evade.

This implies that the government is generous while setting the rate at which tax evaders must disclose their undisclosed income this could lead to the original tax rate (θ) being undermined resulting to the anticipation of another Income Disclosure scheme.

Case II

when $\alpha > a.\pi$

$$P_{ids} < E_e$$

In this case the taxpayer will find it more appealing to evade taxes if he considers the Income Disclosure rate to be too harsh. This could also result in the failure of this scheme due to low participation.

Most of the variables till now are assumed to be exogenously determined. Now lets have a look at how we can try to determine these endogenously and see how it affects the results that we have derived.

Determination of audit probability

In this model, the audit probability a is treated as an endogenous variable, meaning it is not fixed but instead determined by key behavioural and macroeconomic factors. Specifically, audit probability is modelled as a function of the extent of tax evasion by an individual, the size of the black economy in the country, the resources available for enforcement, and the cost of conducting audits. Formally, we can write this relationship as:

$$a = f(\gamma, B, C)$$

This can be expressed through the following functional form:

$$a = \frac{a_0(1 - \gamma_i)^2 B.R}{GDP.C}$$

Where,

- a_0 is the base audit rate

- $(1 - \gamma)$ is the extent of evasion by an individual i.

- B is the size of the Black economy in the country.

- GDP is the Gross Domestic Product.

- R is the Enforcement Budget for the audits.

- C is the cost involved in conducting the audits.

The squared term $(1-\gamma)^2$ reflects a realistic assumption of non-linearity, implying that individuals who evade more are disproportionately more likely to be audited. This aligns with strategic enforcement behaviour observed in practice, where authorities prioritize cases with higher suspected evasion.

Their ratio, $\frac{B}{GDP}$ reflects the proportion of black income in the economy. A higher ratio indicates a systemic problem with tax evasion, thereby justifying greater audit intensity at the macro level.

The ratio $\frac{R}{C}$ indicates the fiscal feasibility of conducting audits, i.e., how many audits the government can afford with the current budget. A higher value suggests stronger audit capacity, enabling broader enforcement coverage.

Determination of the penalty rate

In addition to audit probability, the penalty rate π imposed on evaders is also modelled as an endogenous variable in this framework. Instead of assuming a fixed penalty across all levels of evasion, it is more realistic to let the penalty rate vary based on the extent of income concealed by the taxpayer. The penalty rate is defined as a function of the degree of under reporting:

$$\pi = \pi_0 + \pi_1(1 - \gamma)$$

Where,

- π_0 is the base penalty rate

- π_1 is the penalty rate over the degree of undisclosed income.

This specification implies that penalty severity increases proportionally with the degree of evasion. Individuals who choose to hide a larger portion of their income will face a higher effective penalty. This structure also reflects the principle of progressive deterrence, commonly observed in tax enforcement systems, where authorities design penalties to be more punitive for larger violations to discourage high-stakes evasion.

From a policy standpoint, making penalties responsive to the scale of evasion enhances the deterrent effect of enforcement. It allows for a more nuanced approach where minor infractions are not overly penalized, while serious violations are dealt with more strictly. This flexibility supports the broader goal of improving compliance while maintaining fairness in the tax system.

Reformulation of the equation

The reformulation of the expected IDS penalty parameter α as the product of endogenous audit probability and penalty rate represents a significant advancement in tax enforcement modelling, moving beyond the traditional Allingham-Sandmo framework to capture the complex, interdependent nature of modern tax administration.

$$\alpha = a.\pi$$
$$= \frac{a_0(1 - \gamma_i)^2 B.R}{GDP.C}.[\pi_0 + \pi_1(1 - \gamma_i)]$$

By taking the first derivative, we identify how the penalty γ changes as a taxpayer decides to declare more of their income. It shows that as individuals move toward higher compliance (higher γ), the penalty decreases, which serves as an incentive to disclose. Taking the derivative with respect to γ yields:

$$\frac{d\alpha}{d\gamma} = \frac{a_0 B.R}{GDP.C}.[-2(1-\gamma_i)(\pi_0 + \pi_1(1-\gamma_i) - \pi_1(1-\gamma_i)^2]$$
$$= \frac{a_0 B.R(1-\gamma_i)}{GDP.C}.[-2\pi_0 - 3\pi_1(1-\gamma_i)]$$

Setting $\frac{d\alpha}{d\gamma} = 0$ produces two critical points:

1. $\gamma = 1$ (Complete compliance)

2. $\gamma^* = 1 - \frac{2\pi_0}{3\pi_1}$ (Equilibrium solution)

The critical points derived highlight that the model allows for both full compliance and partial compliance equilibria, depending on the parameters.

Second order conditions

$$\frac{d^2\alpha}{d\gamma^2} = \frac{a_0 B.R}{GDP.C}.[2\pi_0 + 6\pi_1(1-\gamma_i)]$$

Complete Compliance ($\gamma = 1$)

$$\frac{d^2\alpha}{d\gamma^2} = 2\pi_0 > 0$$

Local minimum of expected IDS penalty
When ($\gamma^* = 1 - \frac{2\pi_0}{3\pi_1}$)

$$\frac{d^2\alpha}{d\gamma^2} = 6\pi_0 > 0$$

Local minimum of expected IDS penalty

The second derivative, which is positive at both points, confirms that these are stable minima, reinforcing the idea that policy can shift behaviour toward compliance by manipulating π_0, π_1, or enforcement resources.

Conclusion

The persistence of black money in the Indian economy represents not merely an administrative failure but a complex behavioural and structural challenge. Through this thesis, we examined the Income Disclosure Scheme (IDS) not just as a policy intervention but as a strategic interaction between the state and the taxpayer governed by incentives, expectations, and enforcement realities.

Traditional formulations of the IDS have assumed fixed penalty rates, offering limited insight into taxpayer behaviour. This work challenges that approach by reformulating the IDS penalty rate (α) as an endogenous function of audit probability and penalty severity, both of which are in turn sensitive to the degree of evasion, enforcement capacity, and

macroeconomic constraints. The resulting model captures the nonlinear, self-reinforcing dynamics of tax evasion and state response.

Crucially, the model reveals that designing a successful IDS requires more than leniency or temporary compliance windows. It demands a dynamic, responsive penalty structure one that escalates with the severity of evasion and aligns with real-time enforcement constraints. When α is made a function of behaviour and resources, taxpayers face a credible, calibrated incentive to disclose, and the state can optimize its audit efforts without overextending its fiscal or administrative capacities.

The behavioural underpinnings of the model further explain why many IDS schemes fail: procrastination, herd behaviour, and misplaced optimism among evaders reduce participation. A purely rational model cannot capture these patterns, but the current framework offers a more grounded lens by embedding behaviour and enforcement into a strategic, evolving equation.

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