Tax evasion and flat tax reforms under reference dependent preferences
Simulations and distributive effects

Andrea Albarea, Michele Bernasconi, Anna Marenzi, Dino Rizzi[*]

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Extended Abstract

It is argued by some commentators in policy debates in various western economies, including Italy, that reforming traditional tax systems of progressive tax schedules with a flat tax that decreases the average tax rate will reduce tax evasion and give rise to a positive (supply-side) effect in the economy. Other observers criticise the policy arguing that the most likely effect of a flat tax is to reduce tax revenues and, especially, to increase post-tax income inequality in the society.

Resolving the dispute by simulating the likely impact on tax evasion of a flat tax proposal is however difficult. This is because in the traditional portfolio model of tax evasion lowering the average tax rate will reduce, rather than increase, tax compliance (Allingham and Sandmo, 1972; and Yitzhaki, 1974). Indeed, in the classical model a reduction in the tax rate makes a taxpayer accepting an increase in the risk associated with a greater evasion (given the standard assumption of decreasing absolute risk aversion). Therefore, simulation exercises based on traditional portfolio models of tax evasion will by definition be unable to generate an increase in tax compliance following a flat tax reform.

We simulate the impact on tax evasion of introducing a flat tax in Italy in a microsimulation tax-benefit model based on reference dependent parameters and calibrated with reference dependent parameters. Tax evasion models based on reference dependent preferences are studied by various authors (e.g., Shepanski and Shearer, 1995; Bernasconi and Zanardi, 2004; Dhami and al-Nowaihi, 2007; Rablen, 2010; Bernasconi, Corazzini, Seri 2014). They differ from the traditional portfolio model. Contrary to the classical model, in our microsimulation analysis a reduction in the tax rate facing a taxpayer increases or decreases taxpayer's compliance depending on whether the taxpayer's income is below or above a reference point computed endogenously in the model. The asymmetric behaviour is in particular due to

[*]Department of Economics, University of Venice "Ca' Foscari", Italy. E-mail: andrea.albarea@unive.it, bernasconi@unive.it, anna.marenzi@unive.it, drizzi@unive.it

the fact that when the taxpayer's income is lower than the reference point, the increase in compliance following a tax cut is caused by the reduction of the psychological 'loss' that the taxpayer experiences with the tax payment. When instead the taxpayer's income is greater than the reference point, the consumer is in the 'gain' domain of the psychological function and the traditional portfolio effect prevails.

We conduct several policy simulations to study the impact of a possible flat tax reform in Italy. We first of all compute the flat tax rate required to obtain the same tax revenues as the current system with progressive tax schedules. We find that the flat rate required is 27.35%, which is not far from the ratio between tax revenues and gross income of the current progressive tax schedule.

We use the microsimulation BETAMOD to conduct the simulations (Albarea et al. 2018). BETAMOD is a tax-benefit microsimulation model for the Italian personal income tax for fiscal year 2014 (PIT - IRPEF, with regional and municipal surtaxes). The model works through various steps and modules in an iterated process to deliver pre-tax and post-tax income distributions of simulated tax reforms. The model delivers estimates of several other fiscal variables, including individual taxpayers' evasion rates. In the model the latter (defined as ratios between unreported incomes and true gross incomes) are in particular estimated using a technique which integrates the consumption-based approach of Pissarides and Weber (1989) with the discrepancy method of comparing the distribution of simulated data with administrative tax registered data.

**Figure 1** – Tax evasion rates by classes of gross income - Current tax system versus flat tax 27%
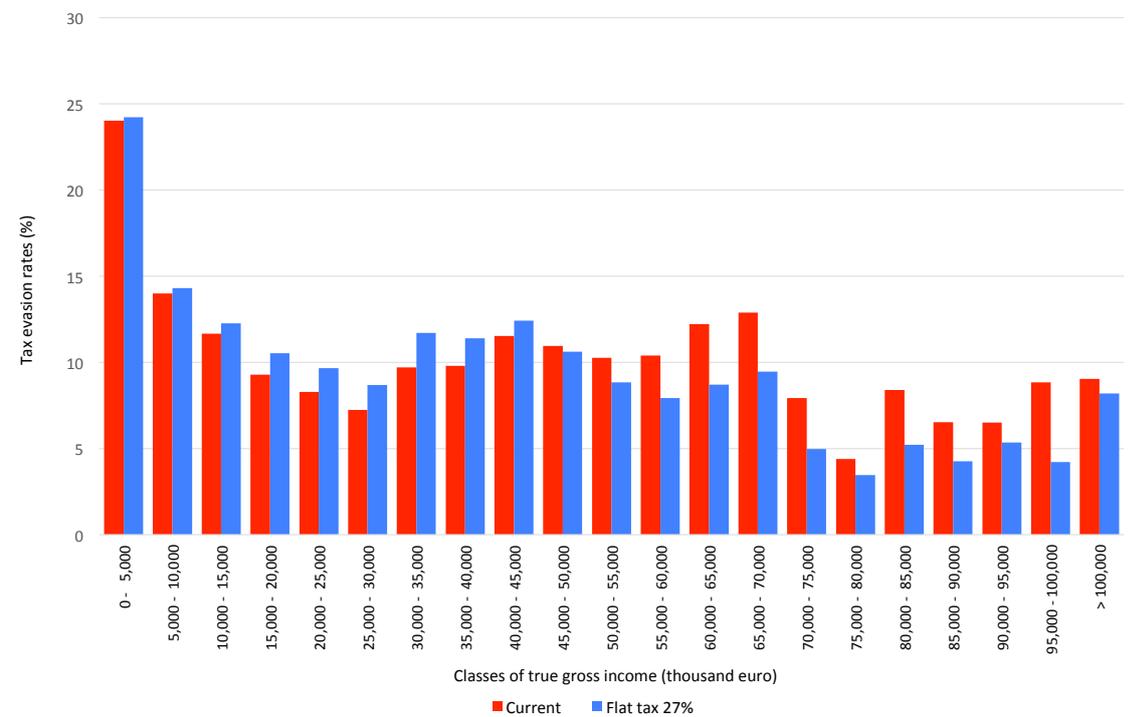
In the benchmark simulation of the flat tax with the fixed tax revenues (flat rate 27.35%) we do not find significant differences on the average evasion rate between the current progressive tax system and the flat tax (estimated close to 10% with and without the flat tax).

Figure 2 – Differences in tax evasion rates - Current tax system versus flat tax 27%
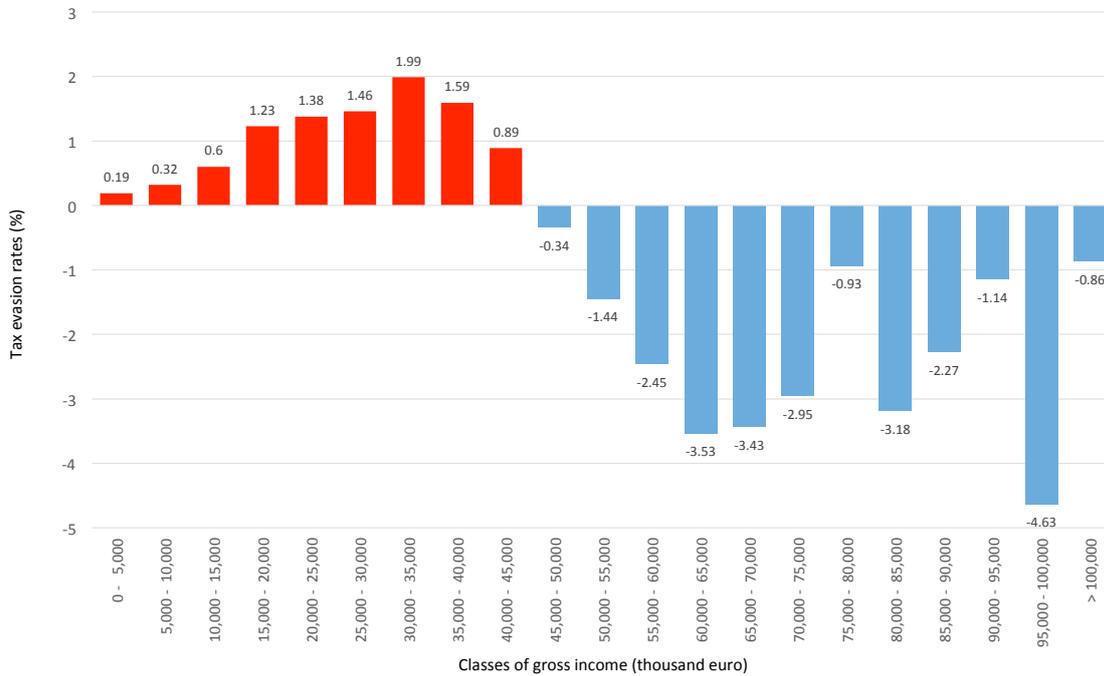
Figure 3 – Effective average tax rates - Current tax system versus flat tax 27%
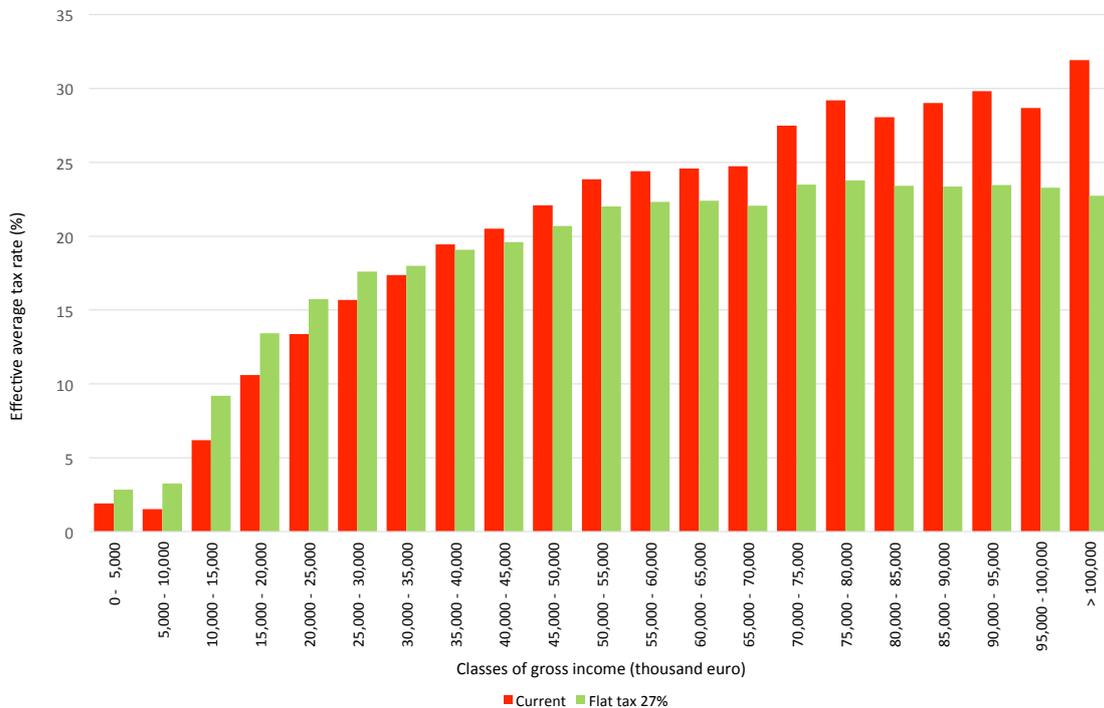
Likewise, we find substantially no effect on the tax gap (measured as total taxes lost due to tax evasion). We find, however, different reactions across the taxpayers (see Figure 1).

The taxpayers with gross incomes lower than about 45,000 thousands euro increase evasion, whereas taxpayers with gross incomes greater than 45,000 tend to reduce evasion (see Figure 2). The findings are consistent with reference dependent preference which predicts that richer taxpayers who experience a reduction in the 'loss' associated with the taxes due decrease evasion; whereas poorer taxpayers obtaining a 'loss' from the flat tax (because the flat rate is for them higher than the progressive tax rate) increase evasion. In the simulation with a flat tax at 27%, the former taxpayers are those with an income grater than 40,000 and the latter those with an income lower than 40,000 euro (see the average tax rates in Figure 3). The simulation also confirms that the flat reform reduces substantially the progressivity of the tax schedule with in particular the effective average tax rates which increase for taxpayers with incomes lower than 40,000 euro and reduces for those with incomes greater than 40,000 (Figure 3). These effects, moreover, occur notwithstanding the different reaction to tax evasion.

We conduct several other simulations with flat tax rates lower than 27% (at 25% -20%-15%). In all simulations we find that it is in general difficult for a flat tax reform to generate a substantial reduction in the overall evasion rates. Of course, the tax gaps may reduce, but only when the flat rate becomes very low so that tax revenues shrink and the impact of evasion on total tax revenues becomes anyhow small. Redistributive effects may on the other hand be large, particularly with a flat tax at low rate. The problem in such a case is with the coming back at high income levels of the Allingham-Sandmo-Yitzhaki effect (namely, with taxpayers who react with more evasion to the tax cuts), increasing therefore the difference between evasion rates at high and low income levels. For the same reason, we find that a potential increase of gross incomes coming from possible supply-side effects generated by a flat rate tax may even increase tax evasion.

In fact, in the simulations we find that in order to obtain large reduction in tax evasion following a flat tax reform is necessary to impose stronger behavioural hypotheses on the taxpayers, like for example that even the taxpayers who are in the 'gain' domain of the psychological functions do not evade for moral or ethical constraints.