

# On the Determinants of Tax Evasion Justification<sup>1</sup>

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## ABSTRACT

The classical Allingham-Sandmo-Yitzhaki model explains tax evasion behavior based on the probability of being discovered, the amount of the fine imposed and the level of risk aversion. Nonetheless, empirical studies show that the decision and the level of tax evasion depends also on non economic considerations, usually named as the "psychological costs" associated to tax evasion. We build a theoretical model of tax evasion including non monetary considerations. We propose an empirical study on the determinants of the psychological costs of tax evasion, based on the theoretical taxonomy proposed by Lagares (HPE 1994). Data come from a questionnaire filled by 705 university students. The dependent variable is the percentage of students considering acceptable to evade taxes. Using a binomial logit model we find that the justification of tax evasion is statistically related with: the presence of grievance in absolute terms (those who feel that taxes are too high; waste of public funds), grievances in relative terms (the suspected level of tax evasion by others, those accepting black economy labor), the sense of duty (having had a drink in a bar without having paid for it, buying pirated CDs) and the level of solidarity (people having made donations to ONGs, disposition to help other to solve academic doubts).

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## **1. Introduction**

Allingham and Sandmo (1972), Srinivasan (1973) and Yitzhaki (1974) propose the seminal theoretical models aiming to identify the determinants of tax evasion behavior. They explain tax evasion behavior based on the probability of being audited, the amount of the penalty imposed and the level of risk aversion. The relationship between tax evasion and income or marginal tax rate is ambiguous according to these models.

These theoretical models have opened the door in the following decade to the first empirical studies. The empirical results tend to confirm the influence of the variables as expected in the theoretical models. It seems also to exist a positive relationship between tax rate and tax evasion, in contrast with the ambiguous predictions of the model. Another conclusion that has emerged from the early empirical tests is that when taking into account only the strict economic determinants of tax evasion as proposed by the seminal models, these solely variables are unable to explain a substantial share of effective tax compliance (Graetz and Wilde, 1985; Skinner and Slemrod, 1985). Furthermore, counting only with strict economic determinants produces an uncomfortable impossibility to explain the behavior of those who never cheat (Baldry, 1986).

The first evident step in improving the explanatory model is to introduce socioeconomic and demographic characteristics as controls. Even if this is an evident step, it has not been always possible to proceed in that way because of data setting: the richest data set concerning tax evasion behavior (the U.S. Taxpayer Compliance Measurement Program) does not provide socioeconomic information of individuals. In most of the cases these variables are introduced as mere check of robustness of the other main finding proposed by authors, without proposing a theoretic or psychological explanation to interpret the results. It appears that among these characteristics, gender do matter for tax compliance, as female tend to evade less than males; married people tend to evade less than single people, and age tends to be positively correlated with compliance. There is no clear and consistent relation between compliance and level of education, as the studies provide heterogeneous results on this point. A similar ambiguous relation appears concerning the influence of unemployment rate. Andreoni, Erard and Feinstein (1998) or Bordignon (1993) propose a substantive review of the literature concerning the empirical findings on tax evasion determinants.

Similarly to what has happened in other economic research agenda, empirical studies concerning tax evasion analysis have been enriched since the decade of the 1990 by including strict non economic factors. The starting point for this new way of research is the disconcerting phenomenon raised by Baldry (1986): there is a significant share of population who never cheat, even when the pure economic cost-benefit analysis is clearly favorable to tax evasion behavior. The only way to reconcile this result with the preservation of the Allingham and Sadmo (1972) reference model is to postulate extreme values of economic risk aversion for a significant share of the population.

As it does not always make sense to propose extreme practical assumptions in order to match real life results with theoretical predictions, the second approach to resume the gap between theory and reality is to enrich the theoretical model with additional explanatory forces. In the tax evasion case it corresponds to the inclusion in the model of a psychic cost associated to an eventual cheating attitude.

## **2. A Model Integrating Psychic Costs Associated to Tax evasion**

We propose as reference a tax evasion model similar to that proposed by Allingham and Sadmo (1972), because it has been used as starting point for subsequent models. We will depart from it by including two new elements in the utility function in order to take into account the effects of non economic considerations.

The original baseline Allingham and Sadmo (AS) model refers to a calculus about the decision about whether or not to evade under uncertainty. The potential evader has a level of income  $Y$  legally submitted to taxes, which is only known by him. He considers to only declare an amount  $X$ , minor than  $Y$ . If the tax rate is  $t$  and he is not discovered, he will save an income equal to  $t(Y-X)$ . This decision is made under uncertainty, as there is a probability  $p$  to be audited and the tax evasion be thus discovered. In this case, the evader will have to pay the undeclared amount  $Y-X$ , at a penalty rate  $\pi$  which is higher than the tax rate  $t$ . The potential evader tries thus to maximize the following expected utility function restricted to the potential evaded income.

$$E[U] = (1 - p)U(Y - tX) + pU((Y - tX) - \pi(Y - X)) \quad [1]$$

Our proposal is to modify the AS model in order to take into account strict non economic considerations that a taxpayer can take into account before deciding to cheat or not, and to which level. To be honest with Allingham and Sandmo (1972) original contribution, it has to be stated that the authors considered also an alternative model which included a "reputation factor" affecting the utility function. This point is usually not reproduced in the subsequent literature citing this paper. "This is very simple theory, and it may perhaps be criticized for giving too little attention to non pecuniary factors in the taxpayer's decision on whether or not to evade taxes. It need hardly be stressed that in addition to the income loss there may be other factors affecting utility if one's attempt at tax evasion is detected. These factors may perhaps be summarily characterized as affecting adversely one's reputation as a citizen of the community" (Allingham and Sadmo 1972, p. 326). Nevertheless, the authors use the simplified version of their model in order to extract their main theoretical propositions.

The "reputation factor" was incorporated in the AS model in an analogous way as we propose with the last term of the expression 2, the factor  $\lambda$ .

$$E[U] = (1 - p)U((1 - t)Y + t(Y - X)\eta) + pU((1 - t)Y + t(Y - X)\eta - \pi(Y - X) - \lambda)) \quad [2]$$

Compared with expression [1], we have decomposed in expression [2] total income between net income and payment to tax administration. Factor  $\lambda$  corresponds to the disutility generated by the reputation loss produced because the tax evader has been discovered by tax administration. It is estimated *ex ante* by the potential evader and incorporated into the maximization rule.

It can be noticed that expression 2 differs from expression 1 also by the element  $\eta$ , which is present in both terms of the expression.  $\eta$  refers to the part of the psychic cost more directly linked to what authors identify as "tax morale". Some people consider that tax evasion can never be ethically justified. Thus, depending on how strong this feeling is, it will lower the direct utility produced by the consumption of the saved income by cheating. Our model captures the notion of "crime and punishment" used in this and other related economics

fields. If an individual considers that tax evasion is an unregular behavior *per se*, when he evaluates the possibility to cheat, such an action would put him in contradiction with his personal beliefs. He considers then tax evasion as a “crime”. The eventuality of having earned an illegal source of income should produce a personal feeling of “punishment”, a sense of guilty, which is unrelated with the fact of being caught or not, and that he is able to anticipate when assessing the utility of underreporting his income to the tax administration. In this framework, the consumption of an illegally earned unit of income produces less utility than the other part of the income legally obtained ( $\eta$  is thus lower than 1). In some cases, the ethical repulsion to unduly earned income could be so strong that he anticipates a null utility from the consumption of this illegal income ( $\eta$  is zero).

Our model includes thus the non economic notions of guilt (tax morale) and shame (reputation effect) proposed among others by Erard and Feinstein (1994)<sup>2</sup>.

We derive the first order condition of expression 2 in expression 3

$$-t\eta(1-p)U'((1-t)Y+t(Y-X)\eta)-(t\eta-\pi)pU'((1-t)Y+(Y-X)\eta-\pi(Y-X)-\lambda)=0 \quad [3]$$

From expression 2 and 3 we can calculate also which are the equilibrium conditions associated to a full tax compliance, where the quantity declared for tax purposes correspond to the actual personal wealth:  $X=Y$ .

$$\left. \frac{\partial E[U]}{\partial X} \right|_{X=Y} = -t\eta(1-p)U'((1-t)Y)-(t\eta-\pi)pU'((1-t)Y-\lambda) < 0 \quad [4]$$

Expression 4 can be rewritten as

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<sup>2</sup> The functional relationship between moral sentiments and the level of utility produced evaded income proposed by Erard and Feinstein (1994) is made proportionally dependent to the ratio of his underpayment to his true income. They consider also that the disutility factor affect all their income, also that honestly earned, point that is somewhat surprising. These authors consider also that tax morale considerations are not present under the audited event. Finally, the simplified functional form proposed in our paper helps to perfectly capture the behavior of those never considering to evade, whatever the strictly economic costs and benefits associated to tax evasion.

$$\pi p < t\eta \left[ p + (1-p) \frac{U'((1-t)Y)}{U'((1-t)Y - \lambda)} \right] \quad [5]$$

Let us denote the part of the expression 5 in brackets as  $\alpha$ .

$$\alpha = p + (1-p) \frac{U'((1-t)Y)}{U'((1-t)Y - \lambda)} \quad [6]$$

If we rewrite expression 5 using expression 6, we have:

$$p\pi < t\eta\alpha \quad [7]$$

Expression 5 provides us the information about the minimal conditions in terms of marginal benefits associated to tax evasion (right side of the inequality) needed to undermine the expected costs of tax evasion behavior (left side of the inequality) and thus making reasonably to begin to underreport income, in terms of personal utility.

We can identify several reference points by giving specific values to the factors  $\eta$  and  $\lambda$  which are interesting for our purposes.

We consider 4 different states related with the presence of non pecuniary factors in the utility function of a potential tax evader.

In the first case we eliminate all references to non pecuniary considerations in the maximization exercise. This happens when  $\eta$  is 1 (total absence of tax morale) and  $\lambda$  is zero (agent does not care about reputation if caught cheating). In this case, expression 7 is reduced to the expression 8, as  $\alpha$  takes value 1.

$$p\pi < t \quad [8]$$

The tax payer will fill correctly his tax duties as far as the expected tax payment on undeclared income ( $p\pi$ ) is at less equal to the regular income ( $t$ ). He will begin to underreport when the inequality 6 holds.

The regular tax rate acts as the marginal benefit of one unit of income evaded, which has to be checked against the marginal cost, determined by the probability of being audited times the penalty. This result corresponds logically to the basic finding obtained from the AS baseline model.

We can now analyze what happens to the decision rule when the non economic elements are active.

The second case under consideration correspond to the individual who has not really strictly ethical concerns when assessing the tax evasion convenience ( $\eta$  remains equal to one), but he gives importance to his personal reputation, for a number of reasons ( $\lambda > 0$ ). If  $\eta$  disappears and  $\lambda$  persists in the expression 5, we find that the decision rule is placed in the following equilibrium point

$$\pi p < t \left[ p + (1-p) \frac{U'((1-t)Y)}{U'((1-t)Y - \lambda)} \right] = t\alpha \quad [9]$$

This results is similar to the alternative AS model which included the "reputation factor".

Assuming as usual that the marginal utility of income is decreasing we conclude that  $\alpha$  is less than one. This result implies that when taking into consideration the reputation factor among the elements affecting the utility function of a potential tax evader, the threshold of tolerance to cheating behavior is reduced, all other things being equal. Effectively, the marginal benefit associated to tax evasion is reduced, as  $t\alpha < t$ . So, if the values of  $p$  and  $\pi$  remains unchanged, the segment of income for which there is a net benefit to try to hide to tax administration is reduced. Note also that this reduction of the window favorable to tax evasion supposes a jump reduction compared with situation depicted in the expression 8, as  $\lambda$  is strictly greater than zero. We have supposed in our model that the shame effect produced by the loss of reputation is independent from the amount of income underreported, as the reputation loss emerges when an audit proofs that the taxpayer has not fully filled his legal obligations.

The third case takes into account the presence of "tax morale" principles and sentiments to some extent in the individual considering the eventuality of cheating. In this case,  $\eta$  is

strictly smaller than one, but also strictly greater than zero ( $0 < \eta < 1$ ). If the agent is sensitive to tax morale concerns, we also suppose that she will also take care about her reputation ( $\lambda > 0$ ).

Under these circumstances, the equilibrium conditions are those already presented under the expression 6.

$$p\pi < t\eta\alpha \quad [10]$$

As  $\eta$  is positive but smaller than one, we have that the marginal benefit associated to tax evasion when taking into account tax morale and reputation factors is lower than those guided only by reputation factors.  $t\eta\alpha < t\alpha < t$ . By this the space where tax evasion yields net utility to a potential tax evader is still reduced.

Finally, we can consider the fourth reference case, where tax morale concerns are completely dominant ( $\eta = 0$ ). This means as already stated that the additional consumption generated by tax underreporting does not produce any increment of utility at all, as the punishment feeling overrides completely the satisfaction of additional revenues.

In this case, expression 6 becomes:

$$p\pi < 0 \quad [11]$$

As the penalty associated to tax evasion ( $\pi$ ) and the audit probability ( $p$ ) are strictly positive, there is no compatible tax evasion threshold under fully tax morale assumption. Even if the probability of being caught was null, there is no place for a cheating behavior under full tax morale beliefs, as the entering into the cheating territory needs a negative value for  $p\pi$ , solution which is non real world feasible. An economic agent as depicted under this fourth case will never find economic motivations able to counterbalance her tax morale beliefs in order to lead her into the tax evasion territory.

The model proposed in this paper offers a theoretical sustentation to a number of empirical puzzles and findings concerning the determinants of tax evasion behavior or, conversely, of tax compliance. This model allows to understand the actually substantive share of taxpayers who had never evaded and who do not plan to evade in the future, independently of their



revenues, the fiscal burden they support and their possibilities to easily underreport income with low or even insignificant chances of being caught.

The model also captures the behavior of those agents who refrain their interest of cheating when considering only economic arguments because they take into account the effects of such a behavior on their tax morale feelings and/or on their reputation. Nevertheless, individuals in this group can enter into the tax evasion territory if the difference between the economic benefits and costs is higher than the anticipated psychic costs.

Finally, there is a third group of individuals who only take into account the probability of audit and the penalty supported if caught against the potential benefit generated by the underreported income in order to decide whether or not to hide all or a share of their taxable income to the tax administration. This last group of individuals use to concentrate the attention of researchers on tax evasion behavior.

### **3. On the determinants of Tax Evasion Psychic Costs**

Andreoni *et al* (1998) consider that a lot of new pieces of information concerning tax evasion behavior have been improved thanks to new empirical results, but they are sometimes somehow difficult to interpret because their lack of linkage with comprehensive theoretical models.

Our intention is to move further into the comprehension of psychic costs effects on tax compliance, using the reference model proposed in the preceding section.

In the theoretical model derived in the precedent section we have shown the possible presence of two different origin of non economic determinants affecting the decision to evade or not and to what extent. In this section we will focus our attention mainly in behavior linked with tax morale notion ( $\eta$ ).

Nevertheless, and referring for a moment to the other element identified in the model (the reputation factor  $\lambda$ ) as conceptually different from the tax morale arguments can help us to offer an explanation to one empirical finding in this field, which is normally presented

without interpretation. Some empirical studies (Hanousek and Palda 2003, Flathmann and Shreffin 2002, Torgler 2002) show that gender do matter for tax compliance attitudes (females are less tolerant to cheating behavior than males) as well as age (old people tend to justify less tax evasion than young people). This differential behavior is attributed normally to structural differences in tax morale, even if it is difficult to find sociological or psychological intuitions justifying such gender and age differences. We have identified in the precedent section a second group of agents which are sensible to the reputation factor and some of them also to tax morale concerns, but not to a so stringent level that they all renounce to cheat in any case. Under this group some of them can reject tax evasion only because of the reputation factor, which is not part of the tax morale components, strictly speaking. To this group, the subjective perception of the probabilities of being caught cheating is determinant for the decision to evade or not. This perception is determined by objective information captured by each potential tax evader, but also and in a significant manner by the level of risk aversion. And there is some empirical evidence suggestion that female and aged people tend to be more risk averse than the complementary groups.

Even if several authors working in this field consider that empirical research on tax morale is in its childhood (Andreoni et al 1998; Torgler 2003b), substantial advances have been reached since the late eighties. We will reunite this several pieces in the model we propose in this paper. We use Lagares (1994) systematic regrouping of arguments concerning tax morale motivations as reference point.

Expression 11 shows the list of tax morale determinants we will consider in this section.

$$\eta = f(z, \alpha z_{t-1}, \dots, \alpha^i z_{t-i}, ag, rg, d, s) \quad [12]$$

With the following expected relations:

$$\frac{\partial \eta}{\partial z_{t-i}} > 0; \frac{\partial \eta}{\partial ag} > 0; \frac{\partial \eta}{\partial rg} > 0; \frac{\partial \eta}{\partial d} < 0; \frac{\partial \eta}{\partial s} < 0 \quad [13]$$

Remember that higher values of  $\eta$  correspond to lower levels of tax morale

The first determinant included in the function,  $z, \alpha z_{t-1}, \dots, \alpha^i z_{t-i}$ , refers to present ( $z$ ) and past ( $\alpha z_{t-1}, \dots, \alpha^i z_{t-i}$ ) personal biography on tax evasion activities.  $z$  is thus defined as  $Y-X$ . Assuming that  $\alpha < 1$  we reflect the decreasing impact of past actions in present beliefs. We argue thus that present and past tax evasion behavior does affect the present. This same argument is clearly stated by Andreoni *et al* (1998) "Individuals seek to present a rational, coherent image in surveys: those who report engaging in evasion provide beliefs to justify their evasion, while those who report that they are honest provide beliefs to justify their honesty" (Andreoni et al 1998, p. 845).

The attempt to adjust personal behavior to personal beliefs but also the human tendency to revise and adapt personal beliefs because of actual behavior seems to be a basic and profound psychological pattern, sculpted by the classical motto attributed to several authors: "behave as you think, or you will end by thinking as you behave". We do not have arguments to exclude its presence in tax morale evaluation.

This means that we are faced to a strong problem of endogeneity: tax morale is expected to influence the level of tax compliance, but at the same time present and past records of tax compliance affects tax morale.

Interestingly, we expect that the endogeneity problem is somehow asymmetric, depending on the occurrence of tax evasion behavior. If a taxpayer has never cheated before, we can assume that the endogeneity problem is mainly diluted, as the correlation becomes a causality sense from tax morale beliefs to the absence of tax evasion behavior. Even in this case we cannot exclude a weak reversal relation, as tax compliance behavior helps to reinforce the conviction that tax evasion is never justifiable. In the opposite case, if a taxpayer has evaded at least once, we can expect strong forces mutually reinforcing the correlation between both variables: tax evasion is accepted and executed because the lack of strong tax morale restrains and at the same time the repetition of illegal cheating behavior weakens the internal tax morale arguments, as the agent search to justify his practical decisions.

This insidious interaction between tax morale and tax evasion poses severe structural problems of robustness of the results produced by empirical analysis where the level of tax morale is included among the explanatory variables of tax compliance. Hanousek and Palda (2003) propose an empirical estimation where they interact these two variables. The main contribution of Flathmann and Shreffin (2003) when adding tax morale arguments into an empirical test of tax compliance is precisely that respondents tend to significantly under acknowledge their tax evasion practices.

More distorting, these difficulties continue to appear even in empirical attempts to understand tax morale determinants, as the values of the dependent and independent variables will be polluted by the presence or absence of actual tax evasion practices among the individuals of the sample. Our empirical design is oriented mainly to override this problem.

The second argument included in the explanatory model of tax morale is *ag*, which refers to grievance in absolute terms. This attitude appears when a taxpayer is contrary to significant features of the functioning of the public sector activities in fields sensitive to tax duties: this may be produced because she considers that public expenditures are too high, that they are oriented to meaningless policies or that a share of public income is wasted or diverted because of civil servants' corruption. Another similar argument related to this point is the consideration that the quantity and quality of public services enjoyed are not in due rapport with the fiscal burden supported. This "fairness" argument constitutes the nerve of the theoretical model on tax evasion proposed by Bordignon (1993). We can find other contributions supporting the incidence of this grievance in absolute terms (Cowell and Gordon, 1988; Falkinger, 1988; Webley *et al*, 1991; Smith, 1992; Pommerehene *et al*, 1994). The higher the sentiment of grievance in absolute terms, the lower the tax morale belief and thus, the higher the level of tax evasion. Torgler (2002) finds a statistically significant influence of this element on tax morale when using trust in government as proxy for grievance in absolute terms.

The third element intervening in the tax morale function is the term *rg*, the grievance in relative terms. This sentiment is produced when an individual considers that the tax burden

actually supported is excessive given his personal socioeconomic characteristics. This sentiment can also appear when a taxpayer observes or thinks that other taxpayers in a similar economic situation are paying a lower amount of taxes than him, in a regular way or by cheating. The presence of this sentiment will lower the influence of tax morale considerations when deciding whether or not to evade (suspected level of. tax evasion in general or in the same branch of activity). Spice and Hero (1985), Porcano (1988), or Gordon (1989) propose analysis oriented to this argument. Flathmann and Shreffin (2003), Hanousek and Palda (2003) find that this argument does affect tax evasion behavior.

The two remaining terms of the tax morale function are similar but not synonyms. The first one ( $d$ ) refers to the ethical sense of duty and the second ( $s$ ), to the sense of solidarity. In both cases, and for a wide variety of motivations, people can abstain evading taxes simply because of the presence of strong beliefs of moral, legal or social duty and/or the sentiment of solidarity with the well being of others. The higher the value of  $d$  and  $s$ , the higher the level of tax morale (the lower the value of  $\eta$ ). In some cases, this may be the basic component of a high tax morale standard. Based in his empirical results, Pyles affirm that such a behavior is by far non marginal: "It seems that whilst the odds are heavily in favor of evaders getting away with it, the vast majority of taxpayers behave honestly" (Pyle 1991, p. 173). Roth, Scholtz and Witte (1989), Grasmick and Bursick (1990), Scholz and Pinney (1993), Ockenfels and Weimann (1999) count amount the contributions having stressed this point.

#### **4. The Empirical Strategy**

We present in this section the structure we have chosen in order to empirically test which are the determinants of tax morale, according to the functional relationship shown in the precedent section.

Some measures of tax morale have been proposed in the literature. We have also shown in the precedent section that several empirical estimations have included specific variables

corresponding to some of the components of the tax morale function. In both cases, they have been used to test their impact on the level of tax compliance.

To our knowledge, there is almost no empirical literature dealing with explanatory models of tax morale. One exception is Benno Torgler, who has extensively worked in this specific area (see for instance Torgler 2001; 2002, 2003a; 2003b).

The starting critical point is the identification of the dependent variable, the measure of tax morale. The basic feature is to create a framework where the eventual impact of tax morale can be encapsulated and cleaned from other variables susceptible to also affect tax compliance. Expression 5 provides the more general set of variables having a theoretical impact on the agent's decision about tax evasion. The probability of being audited ( $p$ ) and the penalty suffered if a tax evader is caught ( $\pi$ ) are variable mostly driven by economic considerations. We would like thus to eliminate their influence. This result can be attained when the probability of being caught cheating is virtually null. Thus, if  $p \cong 0$ , expression 6 becomes:

$$p\pi \cong 0 < t\eta\alpha \quad [14]$$

In this case the expected economic costs associated with tax evasion are virtually null ( $p\pi \cong 0$ ).  $\alpha$  takes always positive values, and normally not far from one ( $0 < \alpha \leq 1$ ). Evidently, the agent considering to evade taxes is faced to a strict positive value of the tax rate ( $t > 0$ ).

In this setting, the only way to explain why an agent renounces to adopt tax evasion practices is that she assumes full tax morale principles ( $\eta = 0$ ). This is the framework we are interested in. Torgler (2002) correctly selects the tax morale variable, even if the question used to identify it contains some ambiguity concerning the crucial point of probability of being audited. He uses the following question from the World Value Survey: "Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: (...) Cheating on tax if you have the chance".

It has also to be decided which empirical method is used. Tax compliance empirical studies have profusely used audit data, as this is the most reliable data set. When looking to more specific motivations about tax compliance linked to tax morale determinants, audit data or

tax amnesty data are useless as these evasive notions are never taken into account in these data sets. Researchers must turn to laboratory experiments or survey data methodology in order to deal with tax morale determinants. The usual shortcomings attributed to laboratory experiments apply also here. Concerning survey data, the main advantages/disadvantages of this approach, as Andreoni et al (1998) state, are that they include "attitudinal variables that are not available with tax return and audit data, allowing researchers to investigate a rich set of hypotheses about the factors associated with non compliance. The major disadvantage of survey data is that they are based on self-reports, which often provide very inaccurate information" (Andreoni *et al*, 1998, p. 837).

We have selected the survey data approach, using a sample of university students. Non representative sample selection raise always doubts and critics about the possible extrapolation of the results. Ironic authors use to comment that all that studies do not learn us how do people behave, but how students behave, and normally just Economics and Management students. We will show now that our preference for such a data set selection and methodology is probably the less inconvenient when trying to tackle specifically tax morale determinants. Our intention is to provide empirical coefficients to the variables that we suppose affect tax morale, according to the functional relation of expressions 12 and 13. As we presented the expected impact of each explanatory variable we have raised the issue of the acute problems concerning the relationship between tax morale and present and past tax compliance, which could potentially undermine the robustness of empirical results.

Our strategy is to propose a sample selection where the impact of tax evasion behavior is minimized. Of course we suffer from sample selection problems if we restricted the analysis to a group of tax evaders or a group of full compliance taxpayers. But by selecting a set of university students we reduce the problem to the best way we think we can. College students (our sample refers to undergraduate students) have no experience of direct tax payment, at least in Spain, as virtually any student pursue studies and work experience to the extent that earned income becomes taxable. If they do not have to pay taxes, they have not evaded taxes, and they had never really decided whether or not to evade taxes in practice. We have thus that for practically all of the observations in our sample,

$$\alpha^i z_{i-j} = 0, \forall i = 0, 1, \dots, n \quad [15]$$

Expression 12 is thus simplified to the following arguments, which we want to estimate

$$\eta = f(ag, rg, d, s) \quad [16]$$

The elimination of individuals with tax evasion practices increase the reliability of each student's answer about whether or not they consider that cheating is acceptable.

The students sample selection has also another indirect advantage, which is also important. This selection helps to inoculate the interaction between tax morale and effective tax rate, as shown in expression 13. Even if we propose a framework where  $p$  is null, different risk aversion could make nevertheless that the perception of probability of being audited is something greater than zero. In this case, a full compliance behavior could be driven also by a tax morale standard which is not maximal coupled with a low tax rate which makes uninteresting tax evasion.

A way to reduce this source of distortion is to fix the value of the tax rate to a given level identical for all individuals of the sample ( $t = \bar{t}$ ), but without fixing all the other relevant characteristics of the individuals. We argue that this tends to happen in the sample we have chosen. Effectively, students are not faced to effective tax rates when considering whether tax evasion is justifiable or not. If any anticipation, students are thinking that they will earn in the future higher than average income, as they all are engaged in a human capital investment that should in average produce positive returns. They will then expect to support in the future a significant tax rate, that they can just roughly evaluate as higher than average, without knowing how much is it.

The homogeneity in the sample selection has also the advantage that allows to obviate socioeconomic and demographic control factors like age and education, as they are practically the same for all of them.

## 5. The Data Set and the Empirical Results



The data set was constructed through a questionnaire distributed to 560 undergraduate students from the University of Navarra of 9 different groups from three schools: Economics and Business Administration, Law and finally Communication. The final sample consist in 453 observations, after dropping those not fully answered. It was anonymous and confidential and filled in the classrooms. Another preliminary remark written in the questionnaire and repeated orally was: "It's essential that when you are asked about your position on different issues to give your opinion completely frankly (remember that this questionnaire is completely anonymous). In last resort, it is better not to answer a specific question if you are not comfortably with the answer you have in mind".

The questionnaire consisted in three groups of 20 questions. We asked first which was their personal position concerning a variety of issues with only a possible yes/no answer; then we asked them to guess which percentage of people did they think were favorable to each one of the 20 issues raised before, independently of what their personal position was. Finally, we asked them to say how much embarrassed they would be if discovered doing or being favorable to each one of the 20 issues, in a scale 1-5.

The questionnaire asked intentionally for a wide variety of social, political and economic issues (see questionnaire in annex). Question number 13 referred to tax evasion justification: "Do you think it is justifiable to cheat the tax administration (to pay less taxes than due) if there are small chances of being discovered cheating?". 41,86% of total respondents consider that tax evasion is justifiable. This percentage moves to 44,91% when referred to our final 453 observations sample. These numbers are not far from other surveys referring to the Spanish case. According to the World Values Survey conducted in 1990 and reported by Torgler (2002) it indicates that in Spain 41,6% of the 3745 respondents consider that tax evasion can be justified. According to IEF (2002), 36% of the respondents consider that tax evasion can be justified. The sample corresponds to 1506 persons interviewed.

We have chosen the following explanatory variables of tax morale.

To test for the presence of grievance in absolute terms (*ag*) we have chosen variables referred to tax burden, *TooTax* (Do you think that taxes paid in Spain are too high?,

question A8), if they are favorable to the suppression of Inheritance Tax (*InheritTax*) question A15. Another question refers to the perceived efficiency and responsibility of civil servants (Do you think that in general the State waste and squander taxpayers money?, *Waste*, question A 25). We include also variables referred to the acceptance of public expenditures, asking if they were favorable to substantial increases in defense expenditures (*DefenseExp*), question A18 and in public financed aid to developing countries (*AidExp*), question A16. These two question aimed also to indirectly control for ideology influence on tax morale.

Concerning grievance in relative terms (*rg*) we have included the answer concerning the percentage of people they think are justifying tax evasion, as a proxy for the estimation of the level of tax evasion (*OthersEvasion*), question B13. The second variable refers to the perceived fairness of tax pressure supported by famous and rich people (*Rich*, question A 26).

To test of the influence of the sense of duty (*d*) we have included four variables regarding four practices going against legal or social rules. *FreeBeer* corresponds to acknowledging that the respondent has taken something in a bar without paying for it during the last six months, question A7. The second question (A24) asks about the acceptance of buying illegal CD music in the street (*CD*). The third one refers to the acceptance of the non respect of legal road speed limits (*Speed*, question A 23). The last variable of this group checks the acceptance of voting absenteeism in general elections (*Voting*, question A 22).

As for the solidarity factor (*s*) we asked if they have given more than one euro to someone in need or an NGO since the beginning of the year (*NGO*), question A12. The second variable in this group concerns the disposability to offer one hour per day to solve colleagues' academic doubts (*Doubts*, question A27)

As control for the presence of the risk aversion profile affecting the perception of the probability of being caught we have introduced a question concerning their willingness to bet 5 euro with 50% of probabilities of winning another 5 euro and 50% of losing them. (*Risk*, question A29).

Finally, we have considered some socio-economic control variables, like *Gender*, the expected amount of future income (*ExpIncome*), estimated just as much higher, higher, average or lower in comparison with national average income. A third variable refers to the parental level of education (holders of an university degree), *ParentsEdu*. With the last variable we asked the students about their interest of working in the finance field in the future, *Finance*.

We have run a Binary Logit regression by maximum likelihood. Results are summarized in table 1.

[Table 1 about here]

The empirical results suggest that a main factor leading respondents to internally justify tax evasion behavior is the presence of grievance in relative terms, as the two variables chosen to measure it (the perceived level of tax evasion acceptance by others and the perception of tax evasion by rich and famous people) as strongly statistically significant. Grievance in absolute terms is also a vector to take into account when explaining tax evasion justification, as the variables measuring the perception of an excessive tax pressure and the presence of waste of taxpayers money are statistically significant. The other variables present the expected sign, but are not significant.

Also the sense of duty and the level of solidarity play a role as determinants of tax morale. The acceptance of illegal behavior such as buying pirated CD is linked with the justification of tax evasion, while those more prone to support other colleagues tend to reject tax evasion.

Concerning control variables, the most interesting feature is to show the absence of any relationship between gender and tax morale. This result is in contrast with many empirical studies showing a relationship between gender and actual tax evasion behavior. The absence of this relationship in an ex ante context as ours suggest the existence of endogeneity problems between variables in the framework of actual tax evasion behavior. Our results suggest also the absence of influence of expected future personal income and

the interest for finance on the justification of tax evasion, while a high level of parents formal education tends to increase tax morale.

## 6. Concluding remarks

The theoretical model we have proposed in section 2 allows us to understand and to incorporate in classical models of tax evasion how it is possible that a significant share of taxpayers never consider to cheat, even if they have convincing economic benefits if following such a practice. Our key assumption is that individuals supporting tax morale beliefs are not able to enjoy an income illegally obtained, at least to a full extent. We do think that this is not an heroic assumption as much of the readers of this paper can personally perceive this assumption as realistic.

With this theoretical result we can propose in section 3 a theoretical explanation of tax morale determinants. These two steps allows us to proceed to an empirical test of our assumptions hopefully avoiding the criticism raised in the literature that much of the empirical contributions on tax morale and tax compliance are not grounded in theoretical models, which difficult the interpretation of the empirical results.

We have been extremely conscious in selecting our data set in order to make it coherent with the theoretical proposals. The empirical results are all in line with our predictions and with other precedents results of the literature, but presented here in the framework of a comprehensive model and empirical test of tax morale.

## Appendix

**Table 1 Tax Morale Determinants (ML Binary Logit)**

Variable	Coefficient (z-Statistic)
Grievance Absolute TooTax	0.6864 ** (2.217)

InheritTax	0.5461 (1.172)
Waste	0.6928 ** (2.296)
Underground	0.4465 (1.216)
DefenseExp	-0.1523 (-0.461)
AidExp	-0.4881 (-1.331)
Grievance Relative ln(OthersEvasion)	1.4210 *** (4.718)
Rich	-0.8976 *** (-2.646)
Duty	
FreeBeer	-0.2090 (-0.572)
CD	1.0980 *** (2.636)
Speed	-0.0295 (-0.080)
Voting	0.2155 (0.678)
Solidarity	
NGO	0.0792 (0.245)
Doubts	-0.9265 ** (-2.348)
Risks Attraction	
Risk	0.0864 (0.276)
Constant	-5.8149 *** (-3.828)
Control variables	
Gender (Female=1; Male=0)	-0.0767 (-0.235)
log(ExpIncome)	-0.1345 (-0.211)
ParentsEdu	-0.5541 *

	(-1.661)
Finance	0.0411 (0.214)
McFadden R-squared	0.200
Log likelihood	-145.513
LR statistic	72.841 ***

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## Annex

### Cuestionario

---

Le estamos muy sinceramente agradecidos por su colaboración al contestar a las preguntas que formulamos a continuación.

#### 1. Advertencia previa

Para que los datos de la encuesta puedan ser oportunamente tratados es esencial que las respuestas sean llevadas a cabo de modo anónimo y confidencial.

#### 2. Modo de rellenar el cuestionario

Formularemos una serie de cuestiones sobre temas muy variados.

A. En cada caso le pediremos en primer lugar que tome posición con respecto al tema tratado (sí/no). Es esencial que dé su opinión con total franqueza (recuerde que la encuesta es completamente anónima). En último caso, es mejor no responder a una pregunta precisa si o está a gusto con dar la respuesta que tiene en mente.

B. A continuación le pediremos que indique cuál es el porcentaje de población que usted estima que está a favor de cada cuestión. Entendemos que para la mayoría de los casos no tiene una idea clara sobre cuánta gente piensa eso, pero le pedimos que nunca deje esa respuesta en blanco, e indique la cifra que le parece más razonable. Puede dar su respuesta para intervalos de 5 puntos porcentuales (Es decir: 0%, 5%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95%, 100%).

**Atención: se ha constatado que la gente se deja influir por lo que uno piensa personalmente sobre el tema cuando intenta adivinar el porcentaje de gente que piensa lo mismo sobre ese tema.**

C. Finalmente le pedimos que responda a las siguientes preguntas imaginando su reacción en las situaciones que se describen a continuación.

#### Preguntas

1. Varón       Mujer
2. Empadronado en Navarra       Fuera de Navarra
3. ¿Tiene su padre y/o su madre formación universitaria?      Sí       No
4. Imagine su situación familiar y profesional cinco años después de acabar su carrera. Usted supone que su nivel de renta será:      Muy superior a la media española       Superior a la media       Como la media       Inferior
5. Al acabar la carrera le gustaría trabajar en el mundo de las finanzas (bancos, mercados financieros)  
    Más bien sí       Más bien no       No lo sé

#### Preguntas A

- |  |                             |                             |
|--|-----------------------------|-----------------------------|
| 1. ¿Estaría usted a favor de que las grandes superficies abran al público durante todo el domingo? | sí <input type="checkbox"/> | no <input type="checkbox"/> |
| 2. ¿Tendría muchas dificultades en aceptar que una hermana se case con alguien de raza gitana?     | <input type="checkbox"/>    | <input type="checkbox"/>    |
| 3. ¿Ha leído usted un libro de literatura entero durante los últimos tres meses?                   | <input type="checkbox"/>    | <input type="checkbox"/>    |

4. ¿Se alegra usted cuando eliminan al Real Madrid de las competiciones europeas de fútbol?
5. ¿Estaría usted dispuesto a aceptar que los automovilistas que quieran ir al el centro de Madrid deban pagar un impuesto de 5 euros por día, para disminuir el tráfico y la contaminación?
6. ¿Suele echar la siesta durante los días laborables?
7. ¿Ha tomado una consumición en algún lugar público y se ha ido sin pagar en los últimos 6 meses?
8. ¿Cree que los impuestos que se pagan en España son excesivos?
9. ¿Ha tomado más de dos copas de licores fuertes durante una velada durante el último mes?
10. ¿Le gusta ver de vez en cuando el programa Gran Hermano?
11. ¿Ha ido al teatro alguna vez durante el último año?
12. ¿Ha hecho algún donativo superior a 1 euro a algún mendigo, ONG u organización caritativa desde el principio de año?
13. ¿Le parece justificable engañar a Hacienda (pagar menos impuestos que lo que se debe)?
14. ¿Le parece justificable engañar a Hacienda (pagar menos impuestos que lo que se debe), si además hay pocas posibilidades de ser descubierto?
15. ¿Está usted a favor de la eliminación del Impuesto de Sucesiones (no pagar impuestos por las herencias recibidas)?
16. ¿Está usted a favor de que aumenten mucho los fondos públicos destinados a la cooperación al desarrollo de los países necesitados?
17. ¿Cree usted que en general el proceso de globalización económica es algo positivo?
18. ¿Está usted a favor de que aumente mucho el gasto público dedicado a la defensa en España?
19. ¿Cree usted que habría que disminuir las prestaciones de desempleo para que los parados busquen trabajo más seriamente?
20. ¿Está usted a favor de que la emigración sahariana y subsahariana siga llegando como mínimo al mismo ritmo que ahora durante los próximos 10 años?
21. ¿Está usted a favor del ingreso de Turquía en la Unión Europea?
22. ¿Le parece aceptable que haya gente que no vaya a votar cuando hay elecciones generales porque no le interesa?
23. ¿Le parece aceptable que en general los conductores no respeten los límites de velocidad en las carreteras?
24. ¿Le parece aceptable comprar CD piratas en la calle?
25. ¿Cree usted que en general el Estado malgasta y despilfarra el dinero que recibe de los contribuyentes?
26. ¿Cree usted que en general las personas famosas con altos ingresos consiguen pagar demasiado poco impuestos?

27. Si pudieras ayudarles, ¿estarías dispuesto a dedicar una hora cada día para resolver dudas a tus compañeros de clase?

28. ¿Le parece bien que haya pequeñas empresas que para poder sobrevivir y contratar a gente no declare a sus trabajadores y por lo tanto no pague sus cotizaciones sociales?

29. ¿Apostarías hoy 5 euros si tienes el 50% de probabilidad de ganar 5 euros más y 50% de perder los 5 euros?

### Preguntas B

1. ¿Qué porcentaje de gente piensa usted que está a favor de que las grandes superficies abran al público todo el domingo?

**Porcenta**

2. ¿Qué porcentaje de gente piensa usted que tendría muchas dificultades en aceptar que una hermana se case con alguien de raza gitana?

3. ¿Qué porcentaje de gente piensa usted que en España ha leído un libro de literatura durante los últimos tres meses?

4. ¿Qué porcentaje de gente piensa usted que se alegra cuando el Real Madrid es eliminado en las competiciones europeas de fútbol?

5. ¿Qué porcentaje de la población piensa usted que estaría dispuesta a aceptar un impuesto de 5 euros por día para los coches que circulen por el centro de Madrid para disminuir el tráfico y la contaminación?

6. ¿Qué porcentaje de la población española suele echarse la siesta durante los días laborables?

7. ¿Qué porcentaje de los jóvenes españoles ha tomado una consumición en un lugar público sin pagar en los últimos 6 meses?

8. ¿Qué porcentaje de la población española piensa que los impuestos que se pagan en España son excesivos?

9. ¿Cuál es el porcentaje de jóvenes españoles que ha tomado más de dos copas de licores fuertes durante una velada durante el último mes?

10. ¿A qué porcentaje de la población española le gusta ver de vez en cuando el programa Gran Hermano?

11. ¿Qué porcentaje de la población española piensa usted que ha ido al teatro alguna vez durante el último año?

12. ¿Que porcentaje de la población española piensa usted que ha hecho algún donativo superior a 1 euro a algún mendigo, ONG u organización caritativa desde el principio de año?

13. ¿A qué porcentaje de la población le parece justificable engañar a Hacienda (pagar menos impuestos que lo que se debe) si hay pocas posibilidades de ser descubierto?

14. ¿Qué porcentaje de la población cree usted que está a favor de la eliminación del Impuesto de Sucesiones (no pagar impuestos por las herencias recibidas)?

15. ¿Qué porcentaje de la población piensa usted que está a favor de que aumenten mucho los fondos públicos destinados a la cooperación al desarrollo de los países necesitados?

16. ¿Qué porcentaje de la población española cree usted que piensa que el proceso de globalización económica es algo positivo?
17. ¿Qué porcentaje de la población cree usted que está a favor de que aumente mucho el gasto público dedicado a la defensa en España?
18. ¿Qué porcentaje de la población piensa que habría que disminuir las prestaciones de desempleo para que los parados busquen trabajo más seriamente?
19. ¿Qué porcentaje de la población piensa usted que está a favor de que la emigración sahariana y subsahariana siga llegando como mínimo al mismo ritmo que ahora durante los próximos 10 años?
20. ¿Qué porcentaje de la población española piensa usted que está a favor del ingreso de Turquía en la Unión Europea?

### Preguntas C

A continuación, le pedimos que responda a las siguientes preguntas imaginando su reacción en las situaciones que se describen a continuación. Para cada pregunta le pedimos que establezca su valoración, que podrá tomar los valores siguientes: 1 en absoluto; 2 poco; 3 indiferente; 4 bastante; 5 mucho.

Cree usted que a la gente en general le sería muy costoso o vergonzoso reconocer públicamente que:

- |  | nada                     |                          |                          |                          | mucha                    |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|  | 1                        | 2                        | 3                        | 4                        | 5                        |
| 1. Sería vergonzoso que se supiera públicamente que se está a favor de que las grandes superficies abran al público todo el domingo  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Sería vergonzoso que se supiera públicamente que se tiene muchas dificultades en aceptar que una hermana se case con alguien de raza gitana   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Sería vergonzoso que se supiera públicamente que uno <u>no</u> ha leído un libro de literatura durante los últimos tres meses   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Sería vergonzoso que se supiera públicamente que uno se alegra cuando el Real Madrid es eliminado en las competiciones europeas de fútbol   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Sería vergonzoso que se supiera públicamente que se está dispuesto a aceptar un impuesto de 5 euros por día para los coches que circulen por el centro de Madrid para disminuir el tráfico y la contaminación | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Sería vergonzoso que se supiera públicamente que suele echarse la siesta durante los días laborables  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Sería vergonzoso que se supiera públicamente que ha tomado una consumición en un lugar público sin pagar  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Sería vergonzoso que se supiera públicamente que piensa que los impuestos que se pagan en España son excesivos  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Sería vergonzoso que se supiera públicamente que ha tomado más de dos copas de licores fuertes durante una velada durante el último mes   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

10. Sería vergonzoso que se supiera públicamente que a uno le gusta ver de vez en cuando el programa Gran Hermano
11. Sería vergonzoso que se supiera públicamente que no ha ido al teatro ninguna vez durante el último año
12. Sería vergonzoso que se supiera públicamente que no ha hecho ningún donativo superior a 1 euro a algún mendigo, ONG u organización caritativa desde el principio de año
13. Sería vergonzoso que se supiera públicamente que le parece justificable engañar a Hacienda (pagar menos impuestos que lo que se debe) si hay pocas posibilidades de ser descubierto
14. Sería vergonzoso que se supiera públicamente que está a favor de la eliminación del Impuesto de Sucesiones (no pagar impuestos por las herencias recibidas)
15. Sería vergonzoso que se supiera públicamente que está en contra de que aumenten mucho los fondos públicos destinados a la cooperación al desarrollo de los países necesitados
16. Sería vergonzoso que se supiera públicamente que piensa que el proceso de globalización económica es algo positivo
17. Sería vergonzoso que se supiera públicamente que está a favor de que aumente mucho el gasto público dedicado a la defensa en España
18. Sería vergonzoso que se supiera públicamente que piensa que habría que disminuir las prestaciones de desempleo para que los parados busquen trabajo más seriamente
19. Sería vergonzoso que se supiera públicamente que está en contra de que la emigración sahariana y subsahariana siga llegando como mínimo al mismo ritmo que ahora durante los próximos 10 años
20. Sería vergonzoso que se supiera públicamente que está en contra del ingreso de Turquía en la Unión Europea