ROLE OF TAX PENALTIES IN TAXPAYERS EDUCATION

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Fiscal control is a form of state financial control bodies from the Ministry of Finance, the instrument we have available to public authorities for monitoring and determining the methods and techniques to ensure the financial resources of the state constitution, in this case, tax revenue is the overwhelming them. Businesses, regardless of its ownership, which profit from their activity, are required by law to calculate and pay taxes to the budget in the amount and terms provided by the regulations.
Key words: *taxes, taxpayer, tax evasion legal sanctions, economic subject, tax fraud, income, unreported income, tax charges.*

Controlul fiscal este o formă a controlului financiar exercitat de organele statului din structura Ministerului Finanţelor, fiind instrumentul pe care îl au la dispoziţie puterile publice pentru supravegherea şi determinarea prin metode şi tehnici specifice asigurării constituirii resurselor financiare ale statului, în special, veniturile fiscale care reprezintă partea covârşitoare a acestora. Agenţii economici, indiferent de forma de proprietate, care realizează profituri din activitatea desfăşurată, au obligaţia, potrivit legii, să calculeze şi să verse la buget impozite în cuantumul şi termenele prevăzute de reglementările în vigoare.
Cuvinte cheie*: impozite, contribuabil, evaziune fiscală legală, sancţiuni, subiect economic, fraude fiscale, venit declarat, venit nedeclarat, taxe de impozitare.*

Налоговый контроль является формой финансового контроля исполняемый государственным органом – Министерством финансов, который представляет собой инструмент находящейся в распоряжении госорганов для надзора и определения с помощью методов и способов для обеспечения создания финансовых ресурсов государства, в частности, налоговых доходов которые представляют их доминирующую часть. Экономические агенты, независимо от формы собственности, которые получают прибыль от развития своей деятельности, имеют обязанности в соответствии с законодательством исчислять и направлять налоги в бюджет в размере и на условиях, предусмотренных регламентом.
Ключевые слова: *налоги, налогоплательщик, уклонение от уплаты налогов, юридические санкции, хозяйствующий субъект, уклонение от уплаты налогов, доход, незаявленный доход, налоговые сборы.*

JEL Classification: H00; H2; G32; G34; H26; H29

Introduction. Taxation of the population is not a problem for the respective bodies, if income is known, which can be determined by using the statements system. The desire of taxpayers to "bypass" the tax is natural and cannot disappear by itself by raising awareness in society of the need of payment.

The symbolic language. Between "desire" and "penalties" there is a reverse dependence. Only sanctions can "educate" the taxpayers. Let us examine this problem in the symbolic language. We consider that economic subject with the W income indicates in the statement another $-X<W$ amount. If tax services detect this, then the subject will pay tax, and penalties that will be: $(T(W) + \prod(W-X))$, where $T(W)$ – tax from W income; $\prod(W-X)$ – fine for the tax evasion $(W-X)$.

Further, we admit that the subject's behavior satisfies the Neumann-Morgenstern axiom related to the decision making under uncertainty [120] and the utility function **U** depends only on disposable

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income. This is the case when the amount of declared income will be determined from the condition of maximizing utility's hope [2].

$$\max E(U), \text{ where: } E(U) = (1-p)U(W-T(X)) + p\cdot U(W-T(W) - \prod(W-X)). \quad (1)$$

Or, if the subject is sanctioned and the amount for which the tax was paid remains the original that is X, then:

$$E(U) = (1-p)\cdot U(W-T(X)) + p\cdot U(W-T(X) - \prod(W-X)). \quad (2)$$

We should determine if the utility function for the subject has or does not have an extreme. To this end, we find the first two derivatives after X:

$$\partial E(U)/\partial X = (1-p)\cdot U^1(W - T(X))\cdot(-T^1(X)) + p\cdot U^1(W-T(X) - \prod(W-X)).$$
$$(-T(X) - \Pi(W-X))^1 = 0. \quad (3)$$

We admit that the marginal utility $U^1(W - T(X) - \prod(W - X))$ is a non-decreasing positive function, and the marginal tax $T^1(X)$ and marginal fee $\prod^1(W - X)$ are non-negative, increasing, convex functions, then the second derivative:

$$\partial^2 E(U)/\partial X^2 = (1-p)(T^1(X))^2\cdot U^{11}(W - T(X) - (1-p)\cdot T^{11}(X)\cdot U^{1*}(W-T(X)) + p\cdot(T^1(X) - \prod^1(W-X))^2 \cdot U^{11}(W-T(X) - \prod(W-X)) - p(T^{II}(X) + \prod^{II}(W-X))\cdot U^I(W-T(X) - \prod(W-X)) < 0 \quad (4)$$

So, the E(U) function has the maximum.

We admit the taxable function $T(X) = \Theta X$, $\Theta>0$; the one of the fees $A>0$; utility function $U=\sqrt{W}$ $\prod(W-X)=\beta\cdot\Theta(W-X)$, then:

$$\partial E(U)/\partial X = (-(1-p)\Theta/2\sqrt{W-\Theta X}) + (p(-\Theta+A)/2\sqrt{W-\Theta X-AX}) = 0$$
$$\sqrt{W-\Theta X-AX}/\sqrt{W-\Theta X} = p/(1-p)\cdot(A-\Theta)/\Theta \quad (5)$$

We observe

$$\sqrt{W-\Theta X-AX}/\sqrt{W-\Theta X} = 1$$

A conclusion could be: tax evasion depends on two parameters: the p probability that the economic subject will be caught and the amount of the A fine.

Tax evasion depends on the amount of tax: if taxes are reduced $\Theta_0>\Theta_1$, the hyperbole is translated "in the left, bottom"; otherwise ($\Theta_0>\Theta_2$) dependency line lies "right, up" (Figure 1). Economic subject's behavior remains the same.

It can be "educated" just by the amount of fine and the fraud detection mechanism which determines the p probability.

If the amount of fines is stiff, is already established by law and cannot be changed, then it is required an adequate organization of mechanisms to detect tax fraud with the probability $p = 1/A^*$.

Substituting in (3) the values $T(X) = \Theta X$ and $\overline{\prod}(X) = A X$, we obtain:

$$(1-p)\Theta U^I(W-\Theta X) - p(A-\Theta)U^I(W-\Theta X - A(W-X)) = 0 \quad (6)$$

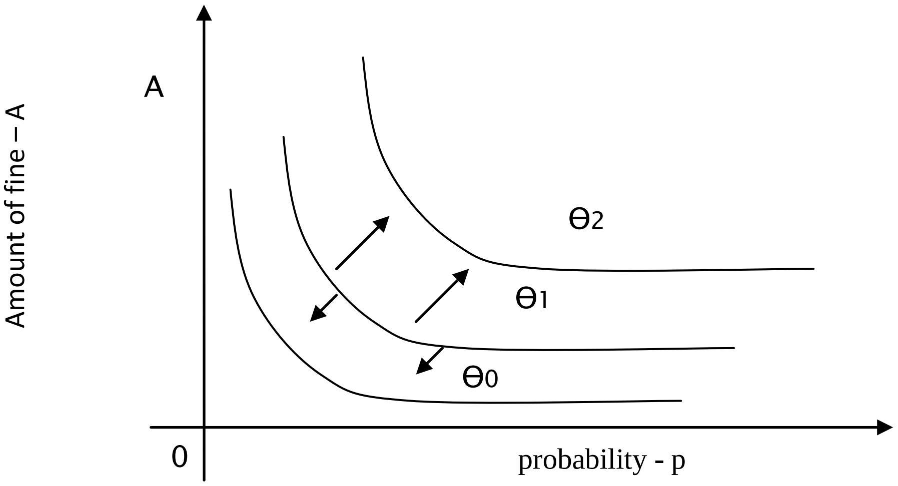

Fig. 1. The dependence of the tax evasion from the amount of tax

Economic meaning of this equation: if $\Theta = A \cdot p$, then the possible fine for tax evasion is the same with the tax fee and X * <W statement is justified; by solving equation (6) there can be determined the optimum amount of the declaration.

In [97] the problem of determining the optimal probability of detection of tax evasion is considered.

In [40], based on the same conditions, amounts of the fines that would effective "educate" the economic subjects are determined.

L.Socolovschi in [128], through substitution X=X* în (7), takes partial derivatives after W. Taking into account the relation (6), we obtain:

$$\partial X^*/\partial W = -1/D\ (1-p)/\Theta U^I(W-\Theta X^*)/[R_a\ (W-\Theta X^*) + (A-1)R_a(W-\Theta X^* - A(W-X))] \qquad (7)$$

where: $D = (1-p)\Theta^2 U^{II}(W-\Theta X) + p(A-\Theta)^2 U^{II}(W-\Theta X^* - A(W-X^*)) < 0$

Function $Ra(W) = -U^{II}(W)/U^I(W)$ is called as "antipathy" towards risk from economic subject. According to the K.Arrow hypothesis [6], Ra(W) function is positive because $U^I > 0$, $U^{11} < 0$ is decreasing, meaning $R^I a(W) < 0$. Hence: with increasing income (W) economic subject is increasingly prone to tax evasion than to declare his income.

From (7) it follows that the sign of the partial derivative $\partial X^*/\partial W$ depends on the amount of the A fines and for A>1 (ie economic subject pays 100% tax plus, for example, 10% additional) the fine accounts for 1,1.

$$\partial X^*/\partial W > 0$$

That is, with increasing of the W real income, the X declared income by the economic agent also increases. Starting with $R^I a(W) < 0$ (marginal "dislike" is in decrease) from the equation (7) follows:

$$\partial(W-X^*)/\partial W = (1-\theta)(R_a(W - \theta X^* - A(W-X^*)) - R_a(W - \theta X^*))/\theta R_a(W - \theta X^*) + \\ + (A - \theta)R_a(W - \theta X^* - A(W - X^*)) \qquad (8)$$

So, with the real income growth, not just the reported income increases increases, but also the remaining (hidden) one.

Let's examine the impact of taxation on the reported income tax. from (7) follows:

$$\partial X^*/\partial\theta = (1-P)/D \cdot \theta \cdot X^* U'(W-\theta X^*) \cdot [R_a(W-\theta X^*) - R_a(W-\theta X^* - A(W-X^*))] + 1/D \cdot [(1-P)U'(W-\theta X^*) + \\ + PU'(W-\theta X^* - A(W-X^*))] \qquad (9)$$

From $R^I a(W) < 0$ results that the first term of expression (9) is positive, and the second is negative. So, $\partial X^*/\partial\theta$ has an undefined sign. But if the fine is proportional not with the hidden income (W-S), but with $\theta(W-X)$, then:

$$\partial X^*/\partial\theta = (1-P/D) \cdot \theta U'(W-\theta X^*)\{X^*[R_a(W-\theta X^*) - R_a(W-\theta X^* - A(W-X^*))] - \\ - A_0(W-X^*) \cdot R_a(W-\theta X^* - A(W-X^*))\} \qquad (10)$$

From the relation (10) and $R^I a\ (W) < 0$ results $\partial X^* > 0$.

We conclude: if marginal "antipathy" towards the risk is a decreasing function, then the increase of the tax fee leads to the increase of the amount of the stated income.

We examine the impact of the fine for tax evasion on reported income:

From equation (7) we get:

$$\partial X^*/\partial A = -(1/D) \cdot PU(W-\theta X^* - A(W-X^*)) \cdot [1+(A+\theta)(W-X^*)R_a(W-\theta X^* - A(W-X^*))] > 0$$

The function is increasing, thus increasing of the fines amount contributes to the increase of the reported income.

We examine the impact of screening mechanisms for tax evasion on the reported income.

$$\partial X^*/\partial p = -1/D(QU^I(W-QX^*) + (A-Q)U^I(W-QX^*-A(W-X^*))) > 0$$

Increased probability of tax evasion detection contributes to the increase of the reported income.

According to relation (9) economic subject does not react uniquely to the amount of the tax fees.

The same effect can be achieved in two ways. Increasing the A fine reduces the probability of a tax evasion (Figure 2).

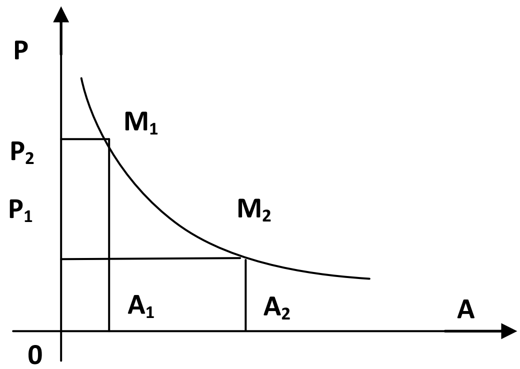

Fig. 2. The ratio between the increase of the fine and the likelihood of tax evasion

For the A_1 fine, the probability of the tax evasion is P_2; for the fine A_2-P_1 $P_1 \cdot A_2 = P_2 \cdot A_1 = \theta$

Priority in these alternatives is $P_1A_2 = \theta$, beacause $P_2A_1 = \theta$ assumes higher expenses for detection of the evasion. And variant $P_1A_2 = \theta$ has a "discomfort". It is about that governments can not argue too large fines for avoiding the tax inspectors. So, the P_1A_2 variant is "crossed out by the maximum amount of the fine." A way to increase the A_2 fine would be a method that would gather all negative effects (economic, environmental, social, etc.) obtained from tax evasion. All these losses must be updated in current money by the multiplier $(1+\lambda)^t$, where λ contains the bank rate plus inflation rate.

If tax collection function $T(X) = \theta \cdot X^\lambda$, $\theta>0$, then for $\lambda> 1$ it is progressive. The marginal tax is$\partial T(X)/\partial X = \theta\lambda X^{\lambda-1}$.

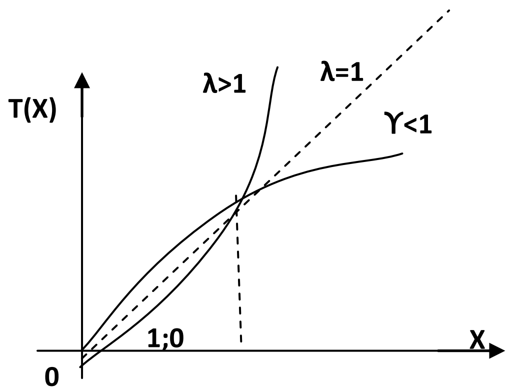

Fig. 3. Possible dependencies between increase of the tax and reported income

If $T(X) = \theta X^\lambda$, $X>0$, $\lambda>1$, then the tax levy increase becomes a "punishment" for economic activities. Economic topic for each subsequent time unit is paid less than the preceding. This happens because of progressive taxation; consequently, the economic agent is not interested in economic activities for which taxes become unbearable. Therefore, tax collection starting from a certain tax decrease (Figure 4).

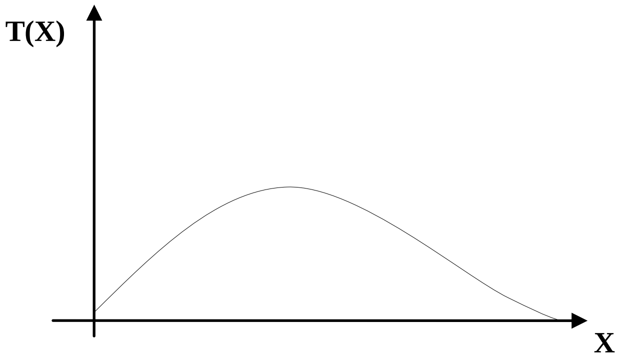

Fig. 4. Laffer curve: dependence between the amount of tax revenue and tax collection

In order to illustrate the assertions, we should examine an example. We admit two levels of taxation: up to a certain amount the income is taxed at 15% and above – with 30%.

In these conditions:

$$T(X) = (f(0,15)X/0,0225) - (f(0,15)X^2/0,0025)$$

The total collections are:

$$I_1 = \int_0^{0,3} T(X)dx = 1,66 \cdot f(0,15)$$

If the tax does not increase from 15% to 30%, then the collection will be:

$$I_2 = \int_0^{30} \frac{f(0,15)}{0,0225}dx = 2f(0,15)$$

In this case, the linear (proportional) taxation helps to increase budget revenues by at least 30% (I_2-I_1 = 0,34f(0,15)), but maybe more because of the increased amount of the declared income.

We admit that the economic subject has to pay income tax and social tax. Utility function U thus depends on the disposable income of the economic subject and the labor expenses L, which can be expressed WL+S, where: W – wages in a unit of time; L – units of time; S – extra income that does not depend on labor costs (eg dividends).

Starting from a utility function which is severable

$$U(B,L) = V(B) – H(L)$$

The functions F and H of derivatives (Figure 5):

$$\frac{\partial \nu(B)}{\partial B} \succ 0; \ \frac{\partial^2 \nu(B)}{\partial B^2} \prec 0$$

$$\frac{\partial H(L)}{\partial L} \succ 0; \ \frac{\partial^2 H(L)}{\partial L^2} \prec 0$$

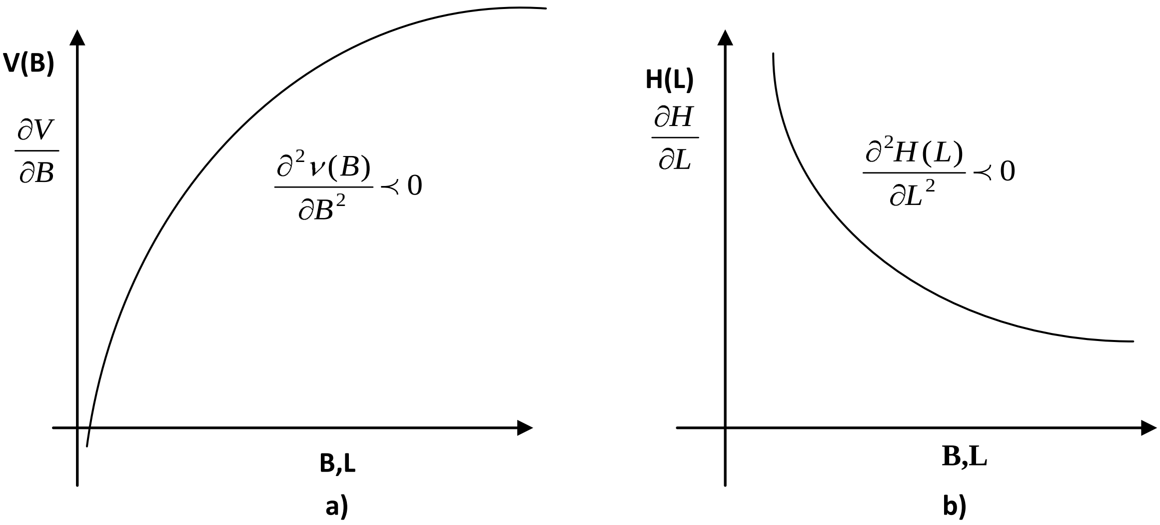

Fig. 5. Properties of functions V(B), H(L)

If the tax and fines are linear functions, then hope utility

$$E(U) = (I\text{-}P)\ V(\acute{\omega}L + S - \theta X) + pV(\acute{\omega}L + S - \theta X - A(\acute{\omega}L + S - X)) - H(L), \quad (11)$$

Where, the first term: with probability (1–p) that income after the "bypass" of the tax authority it will be available for the economic subject; the second term: with the p probability that the subject will pay a fine.

Partial derivatives of equation (9) where X, L:

$$\frac{\partial E(U)}{\partial X} = -(1-P)\theta\nu^{I}(\omega L + S - \theta X) + P(A-\theta)\nu^{I}(\omega L + S - \theta X - A(\omega L + S - X)) = 0$$

$$\frac{\partial E(U)}{\partial L} = -(1-P)\omega\nu^{I}(\omega L + S - \theta X) - P(A-1)\omega\nu^{I}(\omega L + S - \theta X - A(\omega L + S - X)) - H^{I}(L) = 0$$

From the relation (2.10) and $D_2 = \begin{vmatrix} \frac{\partial^2 E}{\partial X^2} & \frac{\partial^2 E}{\partial X \partial L} \\ \frac{\partial^2 E}{\partial L \partial X} & \frac{\partial^2 E}{\partial L^2} \end{vmatrix} \succ 0$ results the existence of the maximum value of the hope utility.

We should determine the impact on the amount of extra income S on the amount of the reported income X*:

$$\frac{\partial X}{\partial S} = \frac{1}{D_2}(1-P)\theta\nu^{1}(\omega L + S - \theta X^{*}) * H^{11}(L^{*})[R_A(\omega L + S - \theta X^{*}) + (A-1)R_a(\omega L + S - \\ - \theta X^{*} - A(\omega L + S - X^{*}))] \quad (12)$$

$$\frac{\partial L^{*}}{\partial S} = \frac{1}{D_2}(1-P)(1-\theta)^2 A^2 \omega\nu^{1}(\omega L + S - \theta X^{*}) * \nu^{11}(\omega L + S - \theta X^{*} - A(\omega L + S - X^{*})) \quad (13)$$

From the relation (13) follows: growth of the S additional income contributes to the reduction of economic activities and increasing of the reported amount income.

According to the relative antipathy function [G], if we admit $R'_R(W)>0$; $R_R(W)>1$, then growth of the probability of detection of the fiscal evasion contributes to increase of the economic activities and provides a direct dependence between the amount of reported income and the probability of detection of the evasion.

Conclusions. Thus, together with increasing income, the desire to "avoid" taxes also increases; reported and unreported income also increases.

Fine and tax evasion detection probability are defined in "educating" economic subjects. Increasing the amount of taxation leads to increase of the reported income. Increasing the amount of amendment contributes to the growth of the reported income. Increase of the probability of detecting tax evasion contributes to growth of the reported income.

If two variants are examined to increase the reported income by the economic agent by increasing the probability of detecting tax fraud or increasing the fine for fraud, increase of the amount of fine has a certain priority. Proportional to income taxation may increase budget receipts compared to progressive taxation. Additional revenue growth outside work contributes to the reduction of economic activities and increase of the amount of reported income.

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