

Ways to taxation in a model of a mixed economy

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Abstract. *In this article staged model of mixed economy. It is offers a modification of the tax system in this model. We introduce a set of differentiation profitable enterprises into four groups according to income level. A distributed calculation of the interest tax rate for each group of firms separately. Analyze the influence of the proposed changes on the model of a mixed economic system as a whole.*

Keywords

Taxation, model of a mixed economy, progressive taxation system

1 Introduction

Nowadays tax rate (by profit) for companies is 21% from profit. Considering other tax fees the percent by profit is too big, as a lot of economists think, and doesn't promote the developing of small and middle business in Ukraine, that are the most important section of economic system in developed countries.

There are various ways to improve the situation, one of which is a modification of the model that describes the existing economic system. Selected modification in aspect of the tax system, as this is one area that needs urgent intervention and the consequent changes.

2 Theoretical part

The model of a mixed economy is the model, which can describe processes that are in Ukrainian economy, as country with transition economy. Let's consider this model [1]:

The model of mixed economy (socially-oriented market economy) considers the possibility of state (government) regulation by income redistribution between poor.

The value

$$d = \frac{\pi(p)}{H} = \frac{1}{H} \sum_{i=1}^L \pi_i(p) = \frac{1}{H} \max_{z \in T} (pz) \quad (1)$$

is called the average revenue per customer at prices p , where H – number of consumers, L – number of companies, T – set of manufacturing processes.

The company called profitable at prices p , if $\pi_i(p) > 0$. It is assumed that the overall economy is profitable ($\pi_i(p) > 0$). To ensure each member of the minimum income $\mu d, \mu \in [0; 1]$, the state (government) takes from every profitable enterprise value tax as $(1 - \mu) \cdot 100\%$. Normalizing factor μ is chosen so as to ensure the overall financial balance:

$$\sum_{k=1}^{\#} K_k(p) = \pi(p), \mu(p) = \pi(p) \left[\sum_{i \in L(p)} \pi_i(p) + \sum_{k=1}^{\#} \max \left\{ 0, d - \sum_{i \in L(p)} S_i^k \pi_i(p) \right\} \right]^{-1} \quad (2)$$

where $L(p)$ - plural of numbers of profitable companies,

S_i^k – proportion of consumers in the enterprise i , $K_k(p)$ – function of income.

Let r_j^l - number of primary resource type j that are purchased by firm l . Then income π^l of firm l looks like (has the form):

$$\pi_l = \sum_{i=1}^n \pi_i q_i^l - \sum_{j=1}^m w_j r_j^l, l = 1, \dots, L \quad (3)$$

(in vector form $\pi_l = q^l p - r^l w$, $l = 1, \dots, L$. Each firm maximizes its profits under the constraint in the form of the production function that is written by interrelation $\Phi^l(q^l, r^l) = 0, l = 1, \dots, L$).

There is the state of equilibrium in the model of mixed economy [2] with previous suppositions and $K^h(p^*) > 0$ for each $h = 1, \dots, H$.

Considering the level of social security of vulnerable people the tax system which is considered in this model (general) is not effective. There are different ways of its modification, in particular – using the progressive tax system [2].

Taking into account [3] the proportion of small, middle and big companies in Ukraine (by the number of people that work there): big companies/entrepreneurs are 43,3%, middle – 30,1%, small – 26,6% (together small and medium are 56,7%). It is appropriate to offer the modification of mixed economy:

- Distribution companies into four groups in terms of income per year (by the Law of Ukraine “Amendments to some legislative acts of Ukraine on regulation entrepreneurial activity” from 18.09.2008 №523-VI changed the criteria for classification of enterprises to small, medium or large).

Small companies-average number of employees during the year is less than 50 employees and gross revenues from sales of products (works, services) for the year does not exceed an amount equivalent to 70 million UAN.

Averages companies-average number of employees during the year is from 51 to 249 people and gross revenues from sales of products (works, services) for the year more than 70 million and less than 100 million UAN.

Big companies-average number of employees during the year is more than 50 employees and gross revenues from sales of products (works, services) for the year exceeds an amount equivalent to 70 million UAN.

- Calculating the percent rate depending on the type of business using the tax system that is more expedient in this group of companies.

Let companies are those that are divided into four groups (depends on amount gross income from sales of products (work and services) per year):

- 1) **Small companies**-gross revenues from sales of products (works, services) for the year does not exceed an amount equivalent to 70 million UAN.
- 2) **Averages companies**- gross revenues from sales of products (works, services) for the year is more than 70 million and less than 100 million UAN.
- 3) **Big companies**-gross revenues from sales of products (works, services) for the year is more than 100 million and less than 160 million UAN.
- 4) **Super big companies**-gross revenues from sales of products (works, services) for the year is more than 160 million UAN.

Let's count the normalizing multiplier for each group:

$$1. \quad \mu_1 = \mu(p) = \pi(p) \left[\sum_{i \in L_1(p)} \pi_i(p) + \sum_{h=1}^H \max\{0, d - \sum_{i \in L_1(p)} S_i^h \pi_i(p)\} \right]^{-1} \quad (4)$$

L_1 - plural of numbers of small profitable companies;

$$2. \quad \mu_2 = k_2 * \mu(p) == k_2 * \pi(p) \left[\sum_{i \in L_2(p)} \pi_i(p) + \sum_{h=1}^H \max\{0, d - \sum_{i \in L_2(p)} S_i^h \pi_i(p)\} \right]^{-1} \quad (5)$$

L_2 - plural of numbers of middle profitable companies

k_2 - coefficient, defined slope α directly dependent percentage tax on the percentage of medium-sized group relative to the set of all firms (look at Figure 1).

$$3. \quad \mu_3 = k_3 * \mu(p) == k_3 * \pi(p) \left[\sum_{i \in L_3(p)} \pi_i(p) + \sum_{h=1}^H \max\{0, d - \sum_{i \in L_3(p)} S_i^h \pi_i(p)\} \right]^{-1} \quad (6)$$

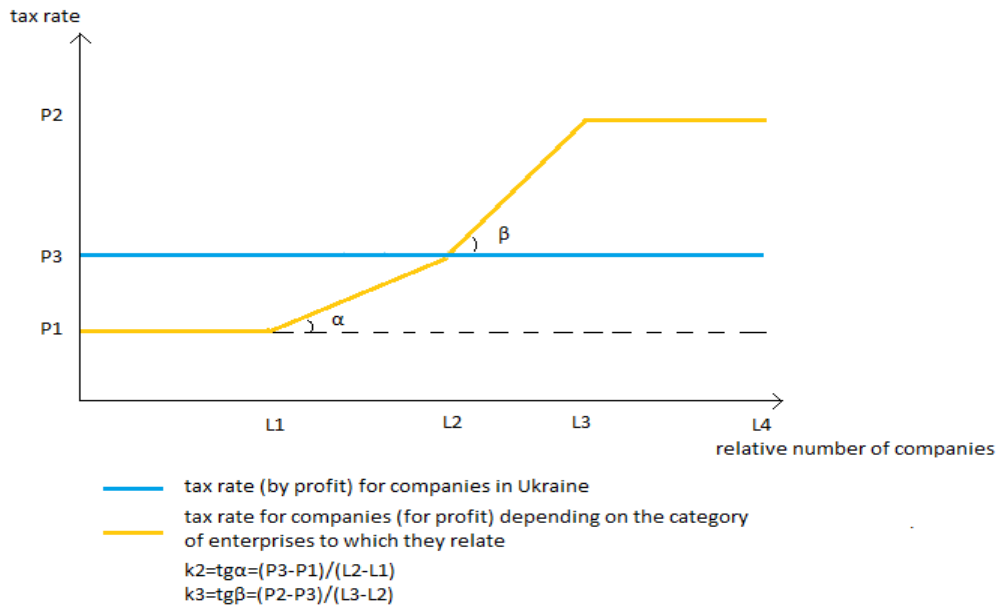
L_3 - plural of numbers of big profitable companies;

k_3 - coefficient, defined slope β , similar to k_2 .

$$4. \quad \mu_4 = \mu(p) = \pi(p) \left[\sum_{i \in L_4(p)} \pi_i(p) + \sum_{h=1}^H \max\{0, d - \sum_{i \in L_4(p)} S_i^h \pi_i(p)\} \right]^{-1} \quad (7)$$

L_4 - plural of numbers of superbig profitable companies.

2.1 Figures



2.2 Equations

$$d = \frac{\pi(p)}{H} = \frac{1}{H} \sum_{i=1}^H \pi_i(p) = \frac{1}{H} \max_{z \in R} (pz) \quad (1)$$

$$\sum_{h=1}^H K_h(p) = \pi(p), \mu(p) = \pi(p) \left[\sum_{i \in L_1(p)} \pi_i(p) + \sum_{h=1}^H \max \left\{ 0, d - \sum_{i \in L_h(p)} S_i^h \pi_i(p) \right\} \right]^{-1} \quad (2)$$

$$\pi_i = \sum_{l=1}^n p_l q_i^l - \sum_{j=1}^m w_j r_j^i, i = 1, \dots, L \quad (3)$$

$$\mu_1 = \mu(p) = \pi(p) \left[\sum_{i \in L_1(p)} \pi_i(p) + \sum_{h=1}^H \max \left\{ 0, d - \sum_{i \in L_h(p)} S_i^h \pi_i(p) \right\} \right]^{-1} \quad (4)$$

$$\begin{aligned} \mu_2 &= k_2 * \mu(p) = \\ &= k_2 * \pi(p) \left[\sum_{i \in L_2(p)} \pi_i(p) + \sum_{h=1}^H \max \left\{ 0, d - \sum_{i \in L_h(p)} S_i^h \pi_i(p) \right\} \right]^{-1} \end{aligned} \quad (5)$$

$$\begin{aligned} \mu_3 &= k_3 * \mu(p) = \\ &= k_3 * \pi(p) \left[\sum_{i \in L_3(p)} \pi_i(p) + \sum_{h=1}^H \max \left\{ 0, d - \sum_{i \in L_h(p)} S_i^h \pi_i(p) \right\} \right]^{-1} \end{aligned} \quad (6)$$

$$\mu_4 = \mu(p) = \pi(p) \left[\sum_{i \in L_4(p)} \pi_i(p) + \sum_{h=1}^H \max \left\{ 0, d - \sum_{i \in L_h(p)} S_i^h \pi_i(p) \right\} \right]^{-1} \quad (7)$$

3 Conclusions

Nowadays tax rate (by profit) for companies is 21% from profit. Considering other tax fees the percent by profit is too big, as a lot of economists think, and doesn't promote the developing of small and middle business in Ukraine[4], that are the most important section of economic system in developed countries.

The modification of mixed economic system that was proposed above allows to support, as authors think, the developing of small and middle business with reducing the percent rate (for example to 12% for small companies [5]).

From other side (assessing the experience in developed countries[5]) the tax burden for other companies (big and super big) is available and acceptable. In this case the tax profit, which our government receives, is bigger in mixed economic system than using general tax system. This shows the reasonability of introduced modifications that probably isn't the most optimal, but shows for appropriateness end need of radical changes for improvements the economic situation in Ukraine.

References

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