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Estimation of Tax Evasion on Iranian Manufacturing Industries

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Abstract

The complex structure of the conversion of raw material into products makes it difficult to create a match between the input and the output in the manufacture industry. Such firms can conceal a part of their sales despite the VAT system. The main motivation doing this is to evade profit tax. The purpose of this study is to model this type of tax evasion. By simulating the model variables and using the Monte Carlo method, a distribution for tax capacity, official tax and tax evasion were formed. The findings showed that 40 percent of government tax revenues in the manufacture industrial sector disappear in the form of tax evasion. The share of calculated tax evasion is related to VAT, which is not imposed on the firm, but because of informal sales, the taxes related to the added value created in the production and distribution sector are not transferred to the government. The total tax evasion value is 4.2 percent of the revenues of the manufacturing industries.

Keywords: Manufacturing Industries, Pert Distribution, Profit Tax, Tax Evasion, Value added Tax.

JEL Classification: H26, C15, L25.

1. Introduction

The firm's activity structure determines its tax evasion. For example, a store that supplies final products to the consumer will not be able to generate informal sales if it has received all its purchases formally. The value added tax system will reveal any artificial gap between the input and the output of this firm; but in the manufacturing industry, the raw material goes through a complex path to turn into the final product. Inventory dynamic value, price change, waste, returning from sale, substitution of some materials with each other, complex structure of the BOM, and sequential technical changes make it impossible for tax auditors to create a one-to-one correspondence between input and output. For this reason, the firm industry can conceal a part of the income and at the same time take all the credit for value-added tax. Thus, unofficial sales (without a factor) of a firm create a chain of underground economies in the distribution and services sector. The results of various studies have shown that this phenomenon can exist in underdeveloped countries (Ulyssea, 2018).

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The term "Second Ledger" is common in Iranian firms. This means that there is a ledger for analyzing real financial events, and another ledger is set up solely for the auditor's review. The main motive for the manufacturing industry is to avoid tax on profit. For this reason, in the second ledger or unreal fiscal statements, part of the company's income will not be recorded, but all the expenditures are documented. As a result, profits decrease, and the corresponding taxes become negligible.

The value added tax system creates limitations in making false financial statements. In this study, based on these constraints, the tax evasion of Iranian firms is modeled. The purpose of the model is to estimate tax evasion in the manufacturing industry, the results of which are summarized in the paper as well.

2. Model

There are two tax scenarios that are modeled in this paper: in T_1, there is no tax evasion but in T_2
firms try to avoid profit tax.

$T_1 : v(1-m) + tp_i$

$T_2 : v(1-m_i-x_i) + tp'_i$

The amount of tax evasion will be equal to $T_1 - T_2$. It is important to note that the firm will inadvertently escape the value-added tax.

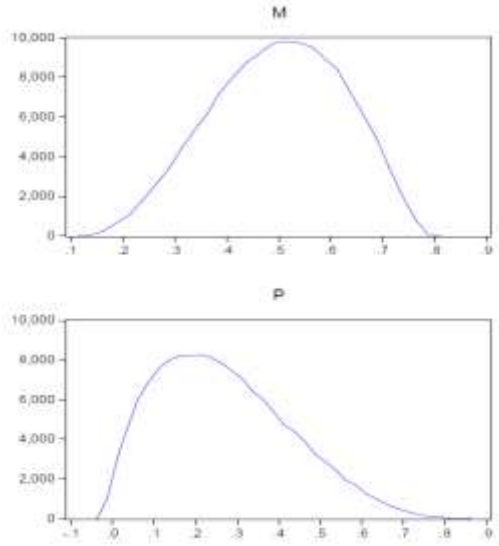
$T_2 : v(1-m_i-((1-\alpha_i)p_i)) + t\alpha_i p_i + \beta v(1-\alpha_i)p_i$

In the equation *v* is the VAT rate, *m* is the share of material in the finished cost, p represents the real profit and *t* denotes the profit tax rate. The coefficient α is the rate of $\frac{p'}{p}$. p' is indicates the unreal profit in the statement. The value-added value in the distribution network is equivalent to β.

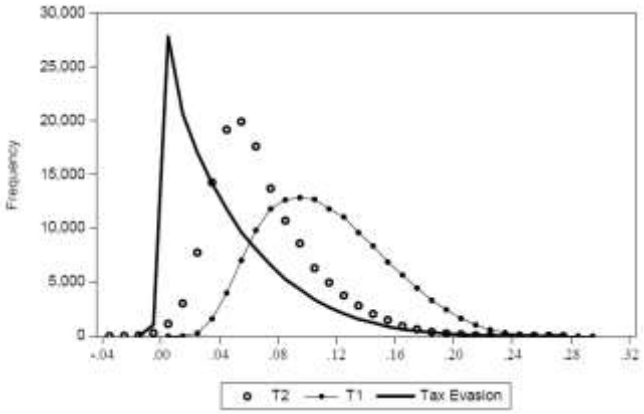
3. Tax Evasion Estimation

Based on the model, the tax evasion rate is estimated. The deterministic parameters like v and t are entered into the model by 0.09 and 0.25. Two variables (*m* and *p*) value found based on sampling from 35 manufactures which were close to the conditions of the research model. The probability density function created for these two variables is presented in Figure 1.

Fig. 1



For the variable (α) which is an effective factor in tax evasion, the Monte-Carlo random numbers were applied in 1400000 reputations. In Figure 2, simulations of tax evasion can be seen.



4. Conclusion

Based on the findings, tax evasion at the 99% confidence level ranges is from 0.047373% to 0.04326% of the total firm income. In summary, government tax revenue should account for about 11 percent of total industrial production revenue, but due to tax evasion and the possibility of generating unofficial income, government revenue reduces to 4 percent.

The political implication of the research is to reduce or eliminate the tax on profits of manufacturing industries. In this way, the tax evasion incentive in the

manufacturing industry will be eliminated, and government revenue will increase from the value added tax.

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