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A Note on Tax Evasion as a Built-in-Stabilizer*

Shigeru Watanabe**

ABSTRACT: It will be unrealistic to assume that no tax evasion will exist. Tax evasion as a built-in stabilizer has been analyzed in Watanabe (2005), though the tax evasion is an illegal activity and cannot be accepted from the point of equity. In Watanabe (2005), however, the possibility of the tax evasion being detected has not been considered for simplicity.

A purpose of this note is to examine the tax evasion as a built-in stabilizer, taking the possibility of detection into consideration. Following results have been derived. (1) The higher the penalty rate of the tax evasion, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer. (2) The higher the rate of the evaded and detected income relative to the total evaded income, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer. (3) The lower the marginal propensity to consume from the evaded and undetected income, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer. (4) The higher the marginal propensity to consume from the income known to the tax authority, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer. (5) The lower the tax rates, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer under a condition with respect to the penalty rate of the tax evasion and the rate of the evaded and detected income relative to the total evaded income.

Key Words: Built-in Stabilizer, Tax Evasion

1 Introduction

It will be unrealistic to assume that no tax evasion will exist. Tax evasion as a built-in stabilizer has been analyzed in Watanabe (2005), though the tax evasion is an illegal activity and cannot be accepted from the point of equity.

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** Professor at the University of Osaka Prefecture, College of Economics, 1−1, Gakuencho, Nakaku, Sakai-City, Osaka 599−8531, Japan
In Watanabe (2005), however, the possibility of the tax evasion being detected has not been considered for simplicity.

A purpose of this note is to examine the tax evasion as a built-in stabilizer, taking the possibility of detection into consideration. Following main results have been derived.

The higher the penalty rates of the tax evasion, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer. The higher the rate of the evaded and detected income relative to the total evaded income, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer.

In the next section a simple model will be presented. Concluding remarks will be given in the last section.

2 A Simple Model

Using the model as simple as simple, in the following the effect of an increase in investment on national income in presence of tax evasion will be compared with that effect in absence of tax evasion.

Consumption $C$ in presence of tax evasion is denoted by

$$C = C_0 + C_1 \{(1-t) \mu (t,F,\lambda) + (1-Ft) \lambda (1-\mu (t,F,\lambda))\} + C_2 (1-\lambda)(1-\mu (t,F,\lambda))Y,$$

where $C_0$ is constant, $C_1$ is the marginal propensity to consume from the income known to the tax authority, $C_2$ is the marginal propensity to consume from the evaded and undetected income, $t$ is the tax rate, $F$ is the penalty rate of tax evasion, $\lambda$ is the rate of the evaded and detected income relative to the total evaded income, $\mu$ is the rate at which income is reported to the tax authority and $Y$ is national income.

Hence, the effect of an increase in investment on the equilibrium national income $Y^*$ in presence of tax evasion is shown as

$$\frac{\partial Y^*}{\partial I} \bigg|_{0<\mu<1} = \frac{1}{1 - C_1 (1-t) \mu - C_1 (1-Ft) \lambda (1-\mu) - C_2 (1-\lambda)(1-\mu)}.$$  (2)
On the other hand, the effect of an increase in investment on the equilibrium national income in absence of tax evasion is shown as

\[
\frac{\partial Y^*}{\partial I} \bigg|_{\mu = 1} = \frac{1}{1 - C_1 (1 - t)}. \tag{3}
\]

Therefore the following relation can straightforwardly be derived.

\[
\frac{\partial Y^*}{\partial I} \bigg|_{0 < \mu < 1} \leq \frac{\partial Y^*}{\partial I} \bigg|_{\mu = 1},
\]

according as

\[
\frac{C_1 - C_2}{C_1} \geq \frac{t (1 - F \lambda)}{1 - \lambda}. \tag{4}
\]

Hence, the following results have been obtained.

1. The higher the penalty rate of the tax evasion, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer.
2. The higher the rate of the evaded and detected income relative to the total evaded income, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer.
3. The lower the marginal propensity to consume from the evaded and undetected income, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer.
4. The higher the marginal propensity to consume from the income known to the tax authority, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer.
5. The lower the tax rates, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer under a condition such that \(1 > F \lambda\).

3 Concluding Remarks

A purpose of this note is to examine the tax evasion as a built-in stabilizer, taking the possibility of detection into consideration. Following results have been derived. (1) The
higher the penalty rate of the tax evasion, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer. (2) The higher the rate of the evaded and detected income relative to the total evaded income, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer. (3) The lower the marginal propensity to consume from the evaded and undetected income, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer. (4) The higher the marginal propensity to consume from the income known to the tax authority, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer. (5) The lower the tax rates, the higher the possibility that the tax evasion has an aspect as a built-in stabilizer under a condition with respect to the penalty rate of the tax evasion and the rate of the evaded and detected income relative to the total evaded income.

Tax evasion may play a role as a built-in stabilizer under some conditions, however; the tax evasion is an illegal activity and cannot be accepted from the point of equity.

The results obtained in this note are similar to those obtained in Watanabe (2005). However, the results with respect to the penalty rate of the tax evasion and the rate of the evaded and detected income relative to the total evaded income are additional and new results which are not examined in Watanabe (2005).

Notes
1 See Musgrave (1959) for built-in-stabilizer.
2 See Allingham and Sandmo (1972), Peacock and Show (1982),

References
—, “A Note on Taxation & Understated Monopoly Profit: Tax Evasion & Oversupply of Monopoly”