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Maximum Mixed Savings on the Cycle of Money

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Abstract

This work is about the utility of the cycle of money with the maximum mixed savings. This means that have examined the crucial points of tax policy and public policy which are the best for the increase of consumption and of investments, subject to the case that there exists mixed savings in the maximum level. Therefore, follows an analysis which stands on the utility of the public sector and the utility of the uncontrolled enterprises. Thence, it is plausible to extract conclusions about the utility of the cycle of money, showing the points and the behaviors of any economy when there are mixed savings and escaped savings. For this analysis, the Q.E. method and its econometrical approach have been applied.

Keywords: maximum mixed savings, cycle of money.

1. Introduction

This paper analyzes the utility of the cycle of money with the maximum mixed savings. The examination of the cycle of money with mixed savings is plausible through the use of factories, research centers, development centers, and any kind of transactions that cannot be substituted by the middle/small enterprises and by the citizens (and generally the uncontrolled transactions). Thence, after estimations, the utility graphs, which used to obtain the behavior of the cycle of money with the maximum mixed saving.

The contracts and the agreements between the participants of control transactions are those that determine the allocation of profits and losses(Challoumis, 2020, 2021c; De Araujo et al., 2020; Engström et al., 2020; Fernandez & Raine, 2019; Gangl & Torgler, 2020; Maier, 2012; Syukur, 2020; Van de Vijver et al., 2020)(Baker et al., 2020; Berg et al., 2020; Gangl & Torgler, 2020; Hagenaars et al., 2017; Levi, 2021).. The agreements should mention changes that happen in the contracts. This is the reason why the tax authorities should make periodic inspections (Carattini et al., 2018; Carfora et al., 2021; Cascajo et al., 2018; Castaño et al., 2016; Castro & Scartascini, 2019). The periodic specification of contracts is important for the comparability analysis. These periodic inspections of the companies that participate in controlled transactions are crucial for the arm's length principle (Burstein, 2020; Cruz-Castro & Sanz-Menéndez, 2016; Haigh, 2020; Jeon et al., 2020; Peres et al., 2020; Rasmussen & Callan, 2016; Torres Salcido et al., 2015). Then, the determination of the cost-sharing depends on the periodic check of companies that are tested parties. The scope of the companies of controlled transactions is to face the issues that are connected with the taxation of their activities (Challoumis, 2023d, 2023e). Therefore, the requirements for the companies to control transactions with the tax authorities should be in the range of the arm's length principle (Challoumis, 2019a, 2019b). Thereupon, the appropriate

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agreement of the companies of controlled transactions is that which permits them the maximization of their profits in tax environments with low tax rates, and the maximization of costs in economic environments with high tax rates.

Furthermore, the companies of controlled transactions should be estimated tax authorities' inspections are conducted under the condition of proportional adjustments (Fernandez & Raine, 2019; Siegmeier et al., 2018; Urwannachotima et al., 2020; Van de Vijver et al., 2020; Παπακωνσταντίνου et al., 2013). The interpretation of the proportional adjustments condition is that companies that participate in controlled transactions frequently lack the appropriate data and uncontrolled transactions of similar circumstances to compare, so they proportionally adjust their data (Challoumis, 2021a, 2021h, 2023b, 2023c, 2023a, 2021g, 2021f, 2021b, 2021c, 2021e, 2021d, 2022b, 2022a). This means that if the tested parties conclude that the profits and losses of companies from uncontrolled transactions are significantly higher or significantly lower, they use a proportional analogy to compare them with their data.

The tax revenues correspond to the savings that businesses could realize if taxes were avoided. How these savings are administered varies from case to case. The benefits of the companies could then be managed in a completely different way, such as savings or taxation (De Araujo et al., 2020; Gong et al., 2020; Kominers et al., 2017; Maier, 2012; Olcina et al., 2020; Paes-Sousa et al., 2019). The theory of the cycle of money shows when the savings robust the economy and when the taxes robust the economy. It is crucial for this determination to be a separation of savings into the non-returned savings (or escaped savings) and the returned savings (or enforcement savings). For the scope of this analysis below are demonstrated the equations which are:

$$\alpha = \alpha_s + \alpha_t \text{ or } \frac{1}{v} + \alpha_t \quad (1)$$

$$x_m = m - a \quad (2)$$

$$m = \mu + \alpha_p \quad (3)$$

$$\mu = \sum_{\iota=0}^{n} \mu_\iota \quad (4)$$

$$\alpha_p = \sum_{j=0}^{m} \alpha_{pj} \quad (5)$$

$$c_m = \frac{dx_m}{dm} \quad (6)$$

$$c_\alpha = \frac{dx_m}{da} \quad (7)$$

$$c_y = c_m - c_\alpha \quad (8)$$

The variable of α symbolizes the case of the escaped savings. This means that there are savings that are not returning to the economy or come back after a long-term period. The variable of α_s symbolizes the case that there are escaped savings that come from transfer pricing activities. The variable of α_t symbolizes the case that there are escaped savings not from transfer pricing activities but from any other commercial activity. For instance, α_t could refer to the commercial activities that come from uncontrolled transactions. The variable of m symbolizes the financial liquidity in an economy. The variable of μ symbolizes the consumption in an economy. The variable of α_p symbolizes the enforcement savings, which come from the citizens and small and medium-sized enterprises. The variable of x_m symbolizes the condition of financial liquidity in an economy. The variable of c_m symbolizes the velocity of financial liquidity increases or decreases. The variable of c_α symbolizes the velocity of escaped savings. Therefore, the variable of c_y symbolizes the term of the cycle of money. Thereupon, the cycle of money shows the level of the dynamic of an economy and its robustness.

$$\alpha_p = \alpha_r + \alpha_n{}^*h_n + \alpha_m{}^*h_m \quad (9)$$

$$\alpha_r \geq \alpha_n{}^*h_n \geq \alpha_m{}^*h_m \quad (10)$$

In the prior two equations used some impact factors, which are the a_p which was also presented previously, moreover the variables α_r, α_n, h_n,α_m and the h_m. The variable $\alpha_r$symbolizes the impact factor of the rest rewarding taxes. The symbol of α_n is the impact factor of education and any technical knowledge. The symbol of α_m is about the impact factor of health anything relevant and supporting of this issue. The symbol of h_n, and of the h_m, are the coefficients of the health and the health impact factor accordingly.

2. Maximum mixed savings on the Cycle of Money

The mathematical approach of the utility cycle of money has been used for the prior equations subject to the utilities of the next equations, with their conditions:

$$\widetilde{U}'(t) = \sum_{j=1}^{n}[c_m \widetilde{U}(t) - c_\alpha U(t)]_j \quad (11)$$

$$U'(t) = -\sum_{j=1}^{n}[c_\alpha U(t)]_j \quad (12)$$

$$U(0) > 0 \quad (13)$$

$$\widetilde{U}(0) > 0 \quad (14)$$

According to the prior definitions should be mentioned that the symbol of $\widetilde{U}$ (t) is about the utility of the authorities and therefore of the public sector. The symbol of $U(t)$ is about the utility of the enterprises that participate in controlled transactions. In addition, including the mixed savings a_{mi}:

$$\alpha_r = a_{mi} + \sum_{j=1}^{n}(\alpha_r)_j \quad (15)$$

$$\alpha_s = \sum_{k=1}^{m}(\alpha_s)_k \quad (16)$$

$$\alpha_p = \sum_{j=1}^{n}(\alpha_p)_j = \alpha_r + \alpha_n{}^*h_n + \alpha_m{}^*h_m \quad (17)$$

$$\alpha_t = \sum_{v=1}^{d}(\alpha_t)_v \quad (18)$$

$$a = \alpha_s + \alpha_t = \sum_{k=1}^{m}(\alpha_s)_k + \sum_{v=1}^{d}(\alpha_t)_v \quad (19)$$

$$m = \alpha_p + \sum_{z=1}^{q} m_z \quad (20)$$

$$0 \leq a_{mi} \leq 1 \quad (21)$$

The a_{mi} represents the mixed savings. The role of mixed savings is to represent that simultaneously the factories, the research, and the development centers have escaped savings:

Table 1. Compiling coefficients

Variables	Coefficients
1 - a_{mi}	0.2
$\sum_{j=1}^{m}(\alpha_r)_j$	0.6
α_t	0.7

The generator of this procedure used the coefficients which appeared in the previous table. The factors have an upper limit of 1 and a lower limit of 0, but s and $\tilde{s}$ are plausible to receive values greater than one as their mathematical structure allows this. After 461 iterations the following diagram:

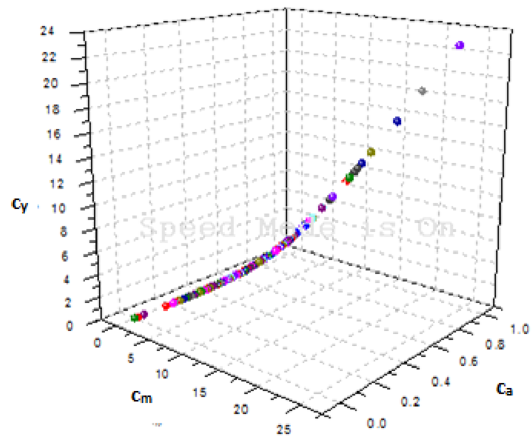

Figure 1. Cycle of money with maximum mixed savings in three-dimension representation

In the previous scheme is concluded that in the maximum case of the cycle of money (the version that included the escaped and the enforcement savings) is at a positive level as it grows.

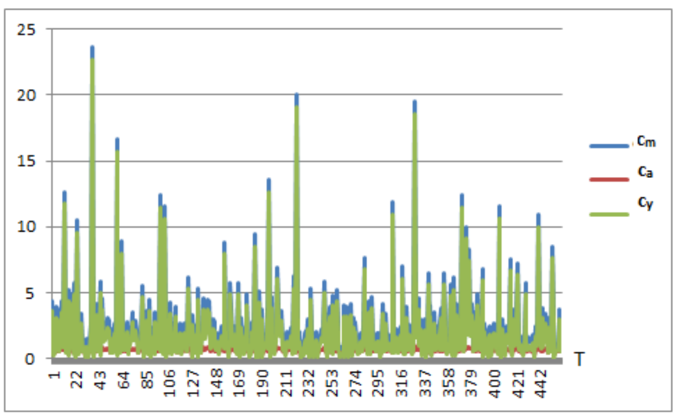

Figure 2. Cycle of money with maximum mixed savings in three-dimension representation

In the prior figure, it is concluded that the cycle of money is at a positive level as this is also revealed in Fig. 1. Thence, the velocity of financial liquidity is at a higher level than the effect of the velocity of escaped savings (with high mixed savings). Thence, it follows an analysis of the sustainability of the model, using the Q.E. method on its econometric approach:

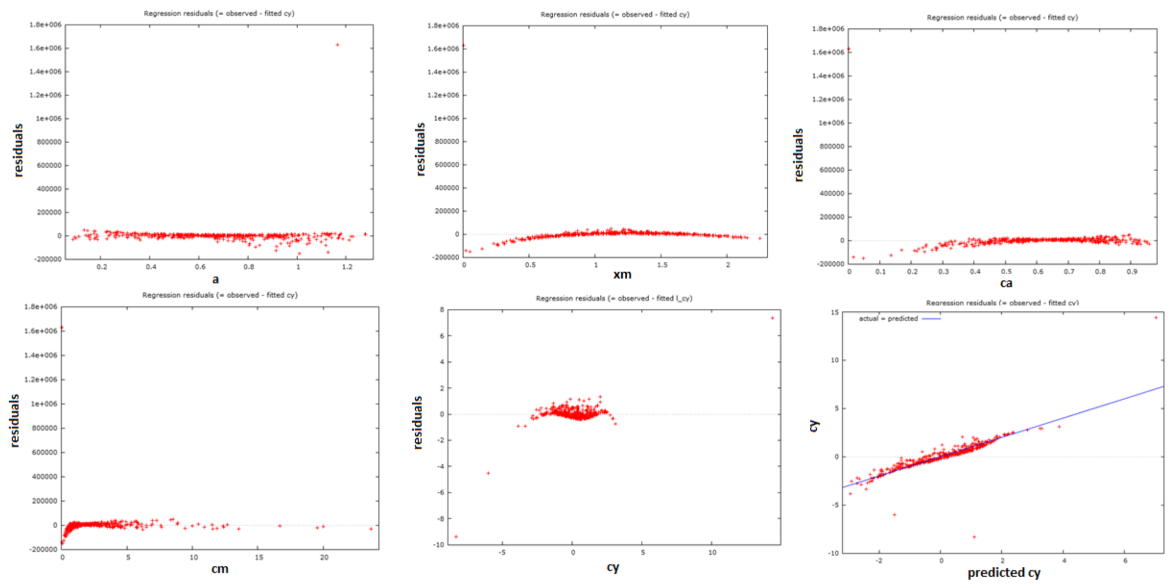

Figure 3. Econometric analysis

From the econometric analysis of the model, it is obtained that it is sustainable as in all cases there is no diversion between the predicted values with the existing ones. Therefore, it is revealed that the model is stable.

3. Conclusion

In this paper, it is concluded that mixed savings, in general, serve the economy, as the economic dynamic of this economy is very high because mixed savings are increased. Therefore, consumption and investments in this economy are at the top level. The velocity of financial liquidity is higher than the velocity of escaping savings, then the cycle of money increases proportionally with the growth of mixed savings.

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Appendix

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%(C)(R)2017 Constantinos Challoumis Q.E. method

as=0;
at=0;
xm=0;
m=0;
m1=0;
ap=0;
cm=0;
ca=0;
cy=0;
t=0;

while t<10
    t=t+1;

if rand()<9
    am=0.2*rand();
end

if rand()<9
    ar=0.6*rand();
end

if rand()<9
    at=0.7*rand();
end

m=(1-am)+ar;
a=at;
xm=m-a;
cm=xm/m;
ca=xm/a;
cy=cm-ca;


tab=[a,xm,m,cm,ca,cy;tab];
end
```