# The Theory of Cycle of Money - How Do Principles of the Authorities on Public Policy, Taxes, and Controlled Transactions Affect the Economy and Society?

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*Abstract*

This paper shows the key elements of the regulations that authorities should follow and on the other hand the issues about the companies of controlled transactions with the elements about the maximization of their utility. Then, we determine that we have a contra behavior between the authorities and the enterprises which participate in controlled transactions. The authorities follow some international methods to avoid taxation or to minimize the impact of taxes on their profits. Thence, in this scrutiny, are presented some crucial principles about the relation of public and tax authorities with the companies which participate in controlled transactions. The principles of international controlled transactions are significant for the companies and the authorities. The sense of framing is crucial for the determination of a problem, especially from an approach to public policies. The case of framing is crucial for the determination of social quality. Then, an inquiry has been made using the terms of framing and feedback to determine the impact of tax policies on the quality of society.

***Keywords:*** *Authorities; Controlled Transactions; The Cycle of Money; The Velocity of Financial Liquidity; Velocity of Escaped Savings; Enforced Savings; Tax and Public Policies; Controlled Transactions; The Cycle of Money*

Subject classification codes: H2, H26, E22, E23

## Introduction

The formation of adequate behavior of authorities and companies is critical to the economic system. This paper discusses the issues of the cycle of money, the tax policies with the public policies, which use the velocity of escaped savings, and the velocity of financial liquidity. This means that are scrutinized the structural economic elements which affect the dynamic of any economy and its robustness. Thereupon, are used the equilibriums of the cycle of money to extract the appropriate conclusions, which are needed about the adequate policies which must follow by the authorities. The same happens for the

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companies which participate in controlled transactions. (Boland 1991) Therefore, the authorities and the companies of controlled transactions have opposite roles in many points, but not in all of them. Since there are mixed savings that serve the tax and public policies, the same happens in factories, research, and developing services (Ariely et. al. 2003).

There are some methods for the controlled transactions followed by the companies:

- The CPM (Comparable Profits Method) or Modified Cost Plus/Resale Price Methods are used by authorities to compare the data they have for their case with the data available from market transactions. As a result, is a pricing method for intercompany transfers. These contrasts are between tangible and intangible property. The indicators are the most important part of this method. As a result, CPM employs objective profitability measures. These indicators are known as profit-level indicators, and they are used to calculate the arm's length price. Uncontrolled companies serve as the foundation for concluding these indicators because they engage in similar business activities under similar conditions (OECD 2017). These indicators are applied to controlled transactions to determine the appropriate arm's length price. Profit comparisons arising from specific controlled transactions fall under the purview of traditional transactional profits methods. The procedures of these methods could be used in profit split methods and transactional net margin methods. The transactional net margin method examines a taxpayer's net profit relative to an adequate obtained from a controlled transaction. This method behaves similarly to the cost-plus method and the resale price method. In the case of the profit split method, the companies divide the combined profits according to the rules and techniques of the transactional profits split method.
- In the case of RPM (Resale Price Method), the mechanism to control tax avoidance is the clarification of each distributor's profitability. The resale price method makes it easier for a distributor to calculate its gross margin. The resale price method is based on the price of the distributor to the consumer. As a result, in this case, the transfer price is the price to the customer less the applicable gross margin achieved by the distributor. The resale price method is applied based on adjustments for differences between controlled and uncontrolled transactions, which should be made if the differences between controlled and uncontrolled transactions affect the materials' gross margin. As a result, the gross profit margin earned from uncontrolled transactions should be adjusted accordingly. The resale price method then begins with the price at which a company-purchased product is resold to an independent company. Continuing, the price is reduced by a reasonable resale price margin.
- There is also the comparable uncontrolled price (CUP) method, which estimates the amount charged in a controlled transaction using the arm's length principle. The mechanism in this controlled transaction compares the controlled transactions to comparable uncontrolled transactions. Comparable data is obtained from two main sources. The first source comes from an examination of potential uncontrolled transactions. The public exchanges and quotation media are the second source.
- According to the profit splits method, each controlled taxpayer determines its appropriate share of profits in a way that reflects the functions that are performed, the resources that are used, and the risks that each company assumes in relevant activities. There is a difference in the profits split method. The first profit splitting method is the comparable profit split method, and the second profit splitting method is the residual profit split method. As a result, the comparable profit split method is determined by the profit or loss on comparable transactions between two unrelated businesses. In this case, the conclusion is that this method aims to address operating profits by dividing them among controlled taxpayers in amounts comparable to those resulting from uncontrolled transactions. The residual profit split method, the second specific profit split method, is concerned with the combined operating profit and loss from relevant enterprise

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activity that is allocated between them. The operating income is allocated to each participant to generate a market return on the business activity. The residual profit from the controlled group's valuable intangible property is divided among the participants. (OECD 1991)

- The cost-plus method and the resale price method share many similarities. The cost-plus method is similar to the resale price method, but the main difference is that the RPM uses the profitability of the distributor, whereas the cost-plus method uses the profitability of the manufacturer. The cost-plus method assumes that determining a manufacturer's cost is easier than determining a distributor's gross margin. The resale price method, on the other hand, assumes that it is easier for a distributor to clarify its gross margin than it is for a manufacturer to conclude its cost pricing. As a result, the cost-plus method of transfer pricing combines the costs that must be borne. (OECD 2000) The amount charged in controlled transactions is compared to the amount charged in uncontrolled transactions to determine whether the gross profit markup is at arm's length.

These techniques are used to contrast controlled and uncontrolled transactions. In this manner, we can estimate enterprise tax avoidance based on their business activity. These are the axes for theoretical analysis and mathematical comparisons of tax income between countries around the world.

Traditional transaction methods are based on the examination of price differences between controlled and comparable uncontrolled transactions. As a result, if there is an equally reliable method between them, a traditional transaction method and a transactional profit method are preferable. One of these traditional methods is the Comparable Uncontrolled Price (C.U.P.). Article 9 of the OECD is critical for corporate transactions. According to the article, the tax is appropriate when conditions are made between two similar enterprises that are affiliated in the field of commerce or finance that are the same with them as independent variables. Otherwise, if there is a disparity between companies that participate in controlled transactions and companies that participate in uncontrolled transactions, the authorities should take a different approach. As a result, when this disparity exists, the authorities should levy a tax to compensate. The application of appropriate condition comparison is critical in this procedure. Conditions include things like prices and so on. Another significant point is the clarification of the profits that would have accrued under the arm's length principle, or, more precisely, the fixed length principle.

Another critical aspect of global formulary apportionment is the application of the tax system. The application difficulty is in the field of double taxation protection. The government should implement a system that ensures single taxation. The authorities must be able to form a single tax system and maintain appropriate coordination among countries worldwide. As a result, agreement on the predetermined formulae is critical to the success of this effort. Because of the complexities of politics and administration, the global formulary appointment system is only possible through international cooperation. Furthermore, predetermined formulae have some drawbacks. The themes that should be addressed are arbitrary market conditions, company circumstances, and resource allocation management. It should also be noted that the methodology used to reach these conclusions is based on the Q.E. method, which employs mathematical analysis and programming tools.

### Methodological Application

The hypothesis and the results with their conclusions are two important components of axiomatics. Axiomatics is based on the assumption that we do not know the outcome of one hypothesis. The hypothesis could be obtained and viewed as a set of assumptions made by the scientist before the start of its examination. The assumptions should be appropriate for the researcher's goals and scope of study. (Challoumis 2018) If this does not occur, the researcher will conclude that the model under consideration requires readjustments and modifications. This is the key to scrutinizing an economic theory under consideration. The hypothesis of economic theory serves as the foundation for further

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investigation of each economic model under consideration. As a result, axiomatics attempts to answer the background of economic analysis and confirm that the model's initial hypothesis is satisfied. If the hypothesis is met, the model is consistent with the principles of the model under consideration. (Hallerberg et. al. 1998) As a result, the axiomatic results can be divided into two categories. According to the first case, the axiomatics is satisfied because the model's hypothesis after examination is satisfied. The second case is when the axiomatics are not satisfied because the model's initial hypothesis is not satisfied. As a result, we conclude that the economic model is insufficient in this case. The main concept of axiomatics then rests on the correspondence of the initial hypothesis to the mathematical and economic results of the examination. Since the scientist believes it is possible to clarify the theory about the chosen model.

The concept of the Q.E. theory is based on a methodology that stands on the determination of mathematic equations subject to conditions which also considered. One more important thing is the determination of the upper and the lower limit of the values of the independent variables. Forasmuch as, the dependent variable represents the behavior of the selected model, pending on a generator that produces random values to all the independent variables to configure the interaction between them and their behavior under different conditions. The combination of these two methodological tools provides an accurate picture of the model's behavior. As a result, the scientist can learn about the model's behavior using two types of analyses. The dependent variables are those that have been modified for the generator. Following that, the generator generates values for the dependent variables. The extracted values of the generator enable the generation of magnitudes, which serve as the foundation for comparisons and the analysis of mathematical equations. It is possible to quantify quality data and theoretical terms in this way. Furthermore, the magnitudes generated by this methodology allow for further econometrical analyses. In general, is a methodology for quantifying the quality of data. Thus, using the Quantification of Everything (Q.E.) methodology to clarify the behavior is feasible.

The combinations of these two methodological tools offer an adequate view of the behavior of the model. Therefore, through two kinds of analyses, the scientist can obtain the behavior of the model. The dependent variables are these which are modified for the generator. Thereupon, the generator produces values for the dependent variables. The extracted values of the generator allow the creation of magnitudes, which are the base for comparisons, and the analysis of mathematical equations. In that way is plausible to quantify quality data and theoretical terms. Moreover, according to this methodology, the created magnitudes allow proceeding furthermore to econometrical analyses. In general, is a methodology for the quantification of quality data. Thus, using the Quantification of Everything (Q.E.) methodology is plausible to clarify the behavior of any model and to determine its standalone behavior, or its comparative behavior, between different models. Therefore, this methodology as an index permits the study of the following issues:

- The connection between quality data and quantity data can be a thing of rapprochement. It is possible the scrutiny and the examination of theoretical themes, from qualitative analysis to quantitative analysis.
- The randomization process of the generator permits the determination of adequate magnitudes. The creation of magnitudes can be used for any other analysis using that data as an axis for further estimations with different scientific tools, and sciences.
- After the clarification of the needed magnitudes, the scientist can proceed to other research procedures. Then, the created magnitudes permit an econometric analysis. This econometric analysis can be subject to appropriate conditions.
- These units initially if not determined accordingly are considered as "virtual units". The term "virtual units" means that they are used only for each study and for comparability analysis.

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- This methodology of the transformation of quality data into quantitative data allows a completely different approach to theoretical studies, as it permits the mathematical determination of terminologies and the study of them in a different scientific field.

Thence, the Q.E. methodology follows as index four basic steps. These steps are described in the bullets, below:

- The hypothesis is the focus of the first step. The hypothesis is the most important part of the axiomatics theorem. At this point is the scope of the analysis of each study. Thus, the mathematical determination is the main point of this step. This first step in the theory of the Q.E. method is connected with the fourth step. The combination of them allows the clarification of the appropriate model.

- The generator case is critical for the application of the Q.E. method. The generator employs a concept derived from fuzzy logic. The fuzzy logic is based on fuzziness, which is demonstrated by the randomization of number production. This randomization gives the equations under study a scheme and reveals their behavior. The generator then generates values for the independent variable. This procedure takes into account the upper and lower limits, which are used for the randomization of values. This technique converts quality data into a quantifiable format. After a certain number of irritants, it is possible to sketch the appropriate mathematical equation. In this manner, the behavior of the equation under consideration was concluded. To understand how the equation reacts in different forms, the procedure requires at least two mathematical equations, one lacking some variables and the other adding more variables to the existing equation.

- The third step provides the conclusions, and feedback with the hypothesis is plausible to confirm an existing theory or to submit a new scientific viewpoint. The conclusion is the culmination of scientific research. However, if the scientist determines from the model's behavior that it requires modifications, this step may not be the final one. The scientists then use the feedback to make changes to the model. (Camerer 2003)

- The fourth step concerns feedback. The fourth step is feedback, which allows for iterations and appropriate model adjustments. The number of iterations is determined by the scientist based on the unique circumstances associated with the model.

   The model's behavior can then be identified using the methodology of the Q.E. approach.

**The Cost-Sharing Mechanism of Controlled Transactions**

Profits and losses are allocated through affiliated companies to maximize the utility of these companies that participate in control transaction methods. Contracts and agreements between participants in control transactions determine the allocation of profits and losses. The changes in the contracts should be mentioned in the agreements. This is why tax authorities should conduct periodic inspections. Contracts must be specified regularly to be comparable. (Feinschreiber 2004). The arm's length principle requires periodic inspections of companies that participate in controlled transactions. The cost-sharing is then determined based on a periodic review of companies that have been tested. The scope of controlled transaction companies is to deal with issues related to the taxation of their activities. As a result, the requirements for companies conducting controlled transactions with tax authorities should fall within the scope of the arm's length principle. As a result, the appropriate agreement of the companies of controlled transactions is that which allows them to maximize their profits in tax environments with low tax rates and maximize their costs in tax environments with high tax rates.

In this regard, it should be noted that the companies of controlled transactions and the inspections of tax authorities are carried out under the condition of proportional adjustments. (Wilson 1986). The interpretation of the condition of the proportional adjustment 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. This means that if the tested parties

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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 production of goods or services creates profits and costs for companies. Based on the prior scrutiny we have that:

$$u = s(zf + \check{z}d) \tag{1}$$

$$z = |\hat{z} - 1| \tag{2}$$

The symbol $u$ is about the impact factor of the comparability analysis which has any method to the $s$. The symbol z is a coefficient that takes values between 0 and 1. What value could receive is determined by the influence of the method (using the best method rule) to the $s$. The symbol of $f$ is about the cost which comes up from the production of goods, and the symbol of $d$ is about the cost which comes from the distribution of the goods.

According to equations from (1) to (6) is plausible to determine the following equations:

$$u_c = zf + \check{z}d \tag{3}$$

$$b = (p - u_c) * j_1 \tag{4}$$

The symbol of $b$ in the prior equation is about the amount of taxes that should pay the companies of controlled transactions in the application of the arm's length principle. The $u_c$ is the amount of tax obligations that can avoid through the allocations of profits and losses. Moreover, $j_1$ is a coefficient, which is been used for the rate of taxes. Then, equation (4) shows the case of the arm's length principle. Also the case of the fixed length principle we have the next equation:

$$v = p * j_2 \tag{5}$$

The symbol of $v$ in the previous equation shows the taxes that should pay the enterprises of controlled transactions in the application of the fixed-length principle. Then, $j_2$ is a coefficient for the rate of taxes in the case of the fixed length principle. Thereupon, we conclude according to the previous theory, that:

$$v \geq b \tag{6}$$

The tax for the companies which participate in controlled transactions of transfer pricing in the case of the fixed length principle is higher or at least equal to that of the case of the arm's length principle.

Thereupon, with the fixed-length principle, the enterprises of controlled transactions can tackle issues that come from the allocation of profits and losses. Thence, the tax authorities can face the transfer pricing effects on the global tax revenue.

The fixed-length principle permits to recovery the tax losses of the global tax revenue from the controlled transactions of the transfer pricing. The next scheme has illustrated the procedure that companies of controlled transactions follow for their allocations of profits and losses, the proportional adjustments of data, and the fixed-length principle. Thence, we have that:

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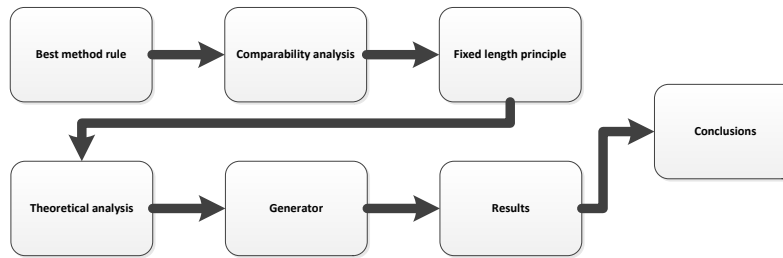
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Figure 1: Application of fixed length principle

In fig. 1 is determined the procedure of the fixed length principle and its quantity analysis for the determination of the behavior of the model. The next section has presented the theory of the cycle of money. The applied methodology is the Q.E. method which was analyzed before.

**The Theoretical Aspects of the Theory Cycle of Money**

In this section are presented the theoretical aspects of the approach of the cycle of money. The tax revenues correspond to the savings that the companies could have if the taxes were avoided. The way that these savings are administrated is different from case to case. (Challoumis 2018) Then the benefits of the companies could be managed in a completely different way, as could be saved or could be taxed. The theory of the cycle of money shows when the savings robust the economy and when the taxes robust the economy. This determination must be a separation of savings into non-returned savings (or escaped savings) and returned savings (or enforcement savings). For the scope of this analysis below are demonstrated the equations which are:

$$\alpha = \alpha_s + \alpha_t, = \frac{1}{v} + \alpha_t \tag{7}$$

$$x_m = m - a \tag{8}$$

$$m = \mu + \alpha_p \tag{9}$$

$$\mu = \sum_{i=0}^{n} \mu_i \tag{10}$$

$$\alpha_p = \sum_{j=0}^{m} \alpha_{pj} \tag{11}$$

$$c_m = \frac{dx_m}{da} \tag{12}$$

$$c_\alpha = \frac{dx_m}{dm} \tag{13}$$

$$c_y = c_m - c_\alpha \tag{14}$$

The variable of α has symbolized the case of the escaped savings. This means that we have savings that are not returned to the economy or come back after a long-term period. The variable of $\alpha_s$ symbolizes the case that we have escaped savings that come from transfer pricing activities. The variable of $\alpha_t$ it symbolizes the case that we have escaped savings, not from transfer pricing activities but from any other commercial activity. For instance $\alpha_t$ could refer to the commercial activities which come from uncontrolled transactions. The variable of $m$ symbolizes the financial liquidity in an economy. The variable of $\mu$ symbolizes the consumption in an economy. The variable of $\alpha_p$ 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 $c_\alpha$ symbolizes the velocity of escaped

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savings. Therefore, the variable of $c_y$ symbolizes the term of the cycle of money. Thence, the cycle of money shows the level of the dynamic of an economy and its robustness.

Thereupon, we have the following basic principles about the cycle of money:

- The companies of controlled transactions distribute the savings out of the economic system. On the other hand, the citizens, the small and the middle size enterprises substitute the services and the property of the companies which save their money and do not invest them or consume it proportionally in the economy. Thereupon, the companies of the controlled transactions are the main cause of the escaped savings.
- The escaped savings decline the liquidity in the financial system. Therefore, the dynamic of the economy is reduced. The escaped savings are responsible for the decline of the economic dynamic of the economy. The key point of escaped savings is that the companies of controlled transactions of transfer pricing are responsible for not reenter of this amount of money in the market. This situation causes a lack of financial liquidity in an economy.
- In the case of factories and research centers are some special economic principles. The substitution of controlled transactions is not substituted from the citizens and small and middle-size companies when there is not plausible to offer the same added value to the products and the services. This case happens especially in the instance of factories, research centers, etc. Therefrom, these cases in the appropriate tax policy should be taxed as uncontrolled transactions independently if they participate in controlled transactions (using the fixed-length principle).
- As the escaped savings decline the dynamic of the economy, on the other hand, the enforcement savings act in the opposite direction. Thereupon, the enforcement savings empower the dynamic of the economy. The enforcement savings are responsible for the high economic dynamic of the economy. Therefore, investments and consumption are these elements that come from the savings of the citizens, the small and the middle size companies.
- One of the velocities of the theory of the cycle of money is financial liquidity. The velocity of financial liquidity shows how rapidly the economy's robustness grows or declines accordingly. Then is an index for how well structured is any economy.
- The velocity of escaped savings is affiliated with the escaped savings which have been described previously. The velocity of escaped savings shows how rapidly the non-return savings are lost from the market, or by the lack of investments, or by the lack of consumption.
- The cycle of money represents the condition of the economy. The level of the well-structured tax system, and in general the dynamic of the economy. If this indicator is high then the economy could have high robustness otherwise has low financial liquidity.
- Controlled transactions in the theory of the cycle of money are considered not only the cases of transfer pricing but any kind of administration of profits and losses to avoid taxation.
- Uncontrolled transactions in the theory of the cycle of money are the case of the commercial activity of citizens, small and medium-sized enterprises, factories, research centers, and any kind of commercial activity that cannot substitute by the companies of controlled transactions.
- The fixed length principle by its structure faces issues that decline the dynamic of the economy. The fixed length principle tackles issues subjects like the case cycle of money. But, this doesn't mean that restriction must apply the fixed-length principle as the cycle of money is more widely theory which exceeds the transfer pricing scope.

Therefrom we perceive that the cycle of money grows when there is a tax system like the case of the fixed length principle which permits the low taxation of uncontrolled transactions and the higher taxation of controlled transactions. It should be mentioned that as uncontrolled transactions are considered the same happens with the cases of the financial liquidity of citizens and the small and middle-size companies.

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Additionally, there are three basic impact factors for rewarding taxes. The rewarding taxes are the only taxes that have an immediate and important role in the market of any economy. These factors are affiliated with education, with the health system of each society, and with the rest relevant structural economic factors of the prior two impact factors. Then using all the factors we have the next scheme:
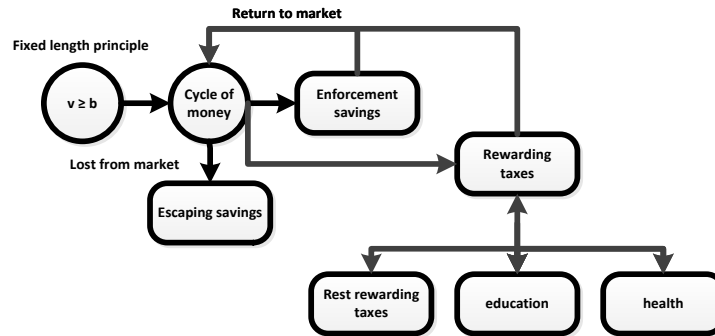


Figure 2: The cycle of money with rewarding taxes

The previous scheme has represented the cycle of money additionally with all the rewarding tax factors. Then, for the rewarding taxes, we have that:

$$\alpha_p = \alpha_r + \alpha_n * h_n + \alpha_m * h_m \tag{15}$$

$$\alpha_r \geq \alpha_n * h_n \geq \alpha_m * h_m \tag{16}$$

The prior two equations used some impact factors, which are the $\alpha_p$ which was also demonstrated previously, moreover the variables $\alpha_r$, $\alpha_n, h_n$, $\alpha_m$ and the $h_m$. The variable $\alpha_r$ symbolizes the impact factor of the rest of rewarding taxes. The symbol of $\alpha_n$ is the impact factor of education and any technical knowledge. The symbol of $\alpha_m$ is about the impact factor of health anything relevant and supportive 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.

**Definition of the Case about the Mixed Savings**

Using equations (7) to (16) it is plausible to proceed to the mixed savings. Then, including the mixed savings we have that:

$$\alpha_r = a_{mi} + \sum_{j=1}^{n}(\alpha_r)_j \tag{17}$$

$$\alpha_s = \sum_{k=1}^{m}(\alpha_s)_k \text{ and } \alpha_t = \sum_{v=1}^{d}(\alpha_t)_v \tag{18}$$

$$\alpha_p = \sum_{j=1}^{n}(\alpha_p)_j = \alpha_r + \alpha_n * h_n + \alpha_m * h_m \tag{19}$$

$$a = \alpha_s + \alpha_t = \sum_{k=1}^{m}(\alpha_s)_k + \sum_{v=1}^{d}(\alpha_t)_v \tag{20}$$

$$m = \alpha_p + \sum_{z=1}^{q} m_z \text{ and } 0 \leq a_{mi} \leq 1 \tag{21}$$

In the previous equations, we have the $a_{mi}$ which represents mixed savings. The role of mixed savings is to represent that simultaneously the factories, the research, and the development centers have escaped savings. The rest symbols are already defined. In the next section, we proceed to the terms of the general equilibriums of velocities of the cycle of money.

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**General Equilibriums of Velocities of the Cycle of Money**

This section is examined the general equilibrium of velocities of the cycle of money. We proceed to general mathematical representations of these forms, which stand on these equations about the case of the velocity of the escaped savings:

$$c_\alpha = c_{a0} * ln(c_m - c_{m0}) \tag{22}$$

$$c_{y\alpha} = b_1[(c_a - c_{a0})^2 + c_{y\alpha0}] \pm b_2(\frac{1}{c_a}) \pm b_3(\frac{1}{ln\, c_a}) \tag{23}$$

$$b_1, \quad b_2, \quad b_3 \quad = 0 \text{ and } x_i \tag{24}$$

$x_i \geq 0$, where i=1,2

In the prior equations the $c_{a0}$ and the $c_{m0}$ are accordingly the initial values of the velocity of escaped savings and the cycle of money. Moreover the equation of $c_{y\alpha}$ represents the general equation of the escaped savings. For financial liquidity, we have the equations:

$$c_{ym} = b_4[(c_m - c_{m0})^2 + c_{ym0}] \pm b_5(\frac{1}{c_m}) \pm b_6(\frac{1}{ln\, c_m}) \tag{25}$$

$$b_4, \quad b_5, \quad b_6 \quad = 0 \text{ and } x_i \tag{26}$$

$$x_i \geq 0 \text{ , where i=1,2} \tag{27}$$

In equation (25) we have the general form of the velocity of the cycle of money. The coefficients of $b_1, \quad b_2, b_3$ took two of them a zero and the other one a constant value $x_i$,. The same happens with the coefficients of $b_4, \quad b_5, b_6$ which also two of them take a zero value and the other one $x_i$. In that way, all the possible combinations of velocities of escaped savings and financial liquidities can be defined by two concrete equations.

**The Mathematical Approach of the Cycle of Money with the Velocities of the Escaped Savings and Financial Liquidity**

In this section, we examine the behavior of the cycle of money using the escaped savings and financial liquidity. To this examination, financial liquidity is considered to be under normal economic conditions. The same normal conditions are used in the case of the escaped savings. Then, this approach is about a general facet of the cycle of money. Therefore, are no minimums or maximums to this approach. Using equations (22) to (27) for that case we have the next equations:

$$c_{y\alpha} = b_1[(c_a - c_{a0})^2 + c_{y\alpha0}] \tag{28}$$

$$c_{ym} = b_4[(c_m - c_{m0})^2 + c_{ym0}] \tag{29}$$

The table of coefficients for the cycle of money for this analysis is this:

Table 1: compiling coefficients

| Factors | Values |
|---------|--------|
| $\alpha_s$ | 0.6 |
| $\alpha_t$ | 0.7 |
| $\mu$ | 0.9 |
| $\alpha_p$ | 0.8 |

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Applying the Q.E. method with the prior coefficients we have for the behavior of the cycle of money the following scheme:
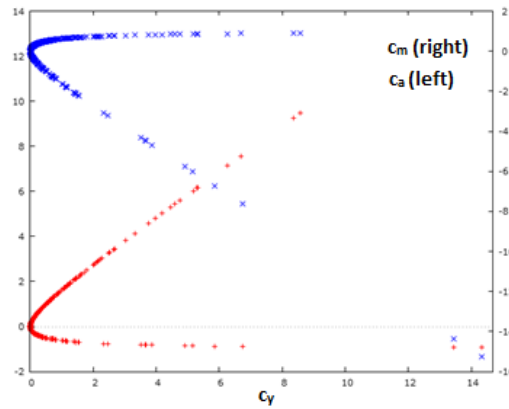


Figure 3: Cycle of money with its velocities

From the previous figure, we have that the cycle of money is connected with the velocity of escaped savings, and with the velocity of financial liquidity. Thence, we have that the velocity of financial liquidity is positive and the velocity of escaped savings has an opposite orientation. We conclude that initially, the velocity of the escaped savings has a stronger impact on the cycle of money, but finally, the velocity of financial liquidity has a higher impact than the velocity of escaped savings. Then, in general, the cycle of money in normal economic circumstances has a positive orientation.

**The Mathematical Approach of the Cycle of Money with the Velocities of the Minimum Escaped Savings and Financial Liquidity**

In this section, we examine the behavior of the cycle of money using the escaped savings and financial liquidity. In this case, the escaped savings are considered to be at their minimum level. Using equations (22) to (27) for that case we have the next equations:

$$c_{y\alpha} = b_3\left(\frac{1}{\ln c_a}\right) \tag{30}$$

$$c_{ym} = b_5\left(\frac{1}{c_m}\right) \tag{31}$$

The table of coefficients for the cycle of money of this section analysis is this:

Table 2: compiling coefficients

| Factors | Values |
|---|---|
| $\alpha_s$ | 0.6 |
| $\alpha_t$ | 0.7 |
| $\mu$ | 0.9 |
| $\alpha_p$ | 0.8 |

Applying the Q.E. method with the prior coefficients we have for the behavior of the cycle of money the following scheme:

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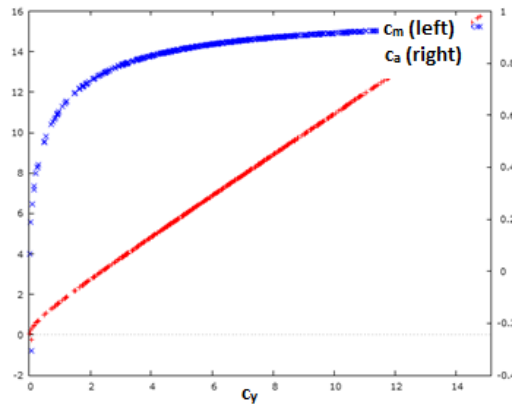
11

Figure 4: Cycle of money with its velocities

From the previous figure we have that the cycle of money is connected with the velocity of minimum escaped savings, and with the velocity of financial liquidity. Thence, we have that the velocity of financial liquidity is positive and the velocity of minimum escaped savings has an opposite orientation.

We conclude that initially, the velocity of the minimum escaped savings has a stronger impact on the cycle of money, but finally, the velocity of financial liquidity has a higher impact than the velocity of minimum escaped savings(which here is approximately equal to zero the escaped savings). Then, in general, the cycle of money in the case that the escaped savings are approximately equal to zero the economic economy is at its higher level. Thence, when the escaped savings are approximately zero, the velocity of escaped savings becomes linear, from a logarithmic form.

**The Mathematical Approach of the Cycle of Money with the Velocities of the Escaped Savings and Minimum Financial Liquidity**

In this section, we examine the behavior of the cycle of money using the escaped savings and financial liquidity. To this approach, financial liquidity is considered to be at its minimum rate. Using equations (22) to (27) for that case we have the next equations:

$$c_{y\alpha} = b_1[(c_a - c_{a0})^2 + c_{y\alpha0}] \tag{32}$$
$$c_{ym} = b_4[(c_m - c_{m0})^2 + c_{ym0}] \tag{33}$$

The table of coefficients for the cycle of money for this sections analysis is this:

Table 3: compiling coefficients

| Factors | Values |
|---------|--------|
| $\alpha_s$ | 0.6 |
| $\alpha_t$ | 0.7 |
| $\mu$ | 0.9 |
| $\alpha_p$ | 0.8 |

The previous equations in combination with the prior table are used in this procedure. Applying the Q.E. method with the prior coefficients we have for the behavior of the cycle of money the following scheme:

The Theory of Cycle of Money - How Do Principles of the Authorities on Public Policy, Taxes, and Controlled Transactions Affect the Economy and Society?
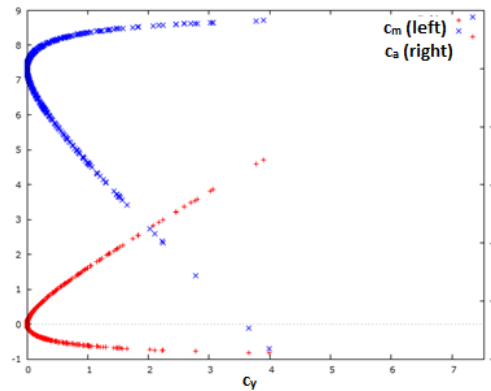
12

Figure 5: Cycle of money with its velocities

From the previous figure, we have that the cycle of money is connected with the velocity of escaped savings, and with the velocity of minimum financial liquidity. Thence, we have that the velocity of minimum financial liquidity is positive and the velocity of escaped savings has an opposite orientation. We conclude that the velocity of financial liquidity and the velocity of escaped savings are low, showing that the cycle of money is weak in that case.

**The Mathematical Approach of the Cycle of Money with the Velocities of the Escaped Savings and Financial Liquidity Subject to Mixed Savings**

In this section, we examine the behavior of the cycle of money using the escaped savings and financial liquidity. This study is subject to the case that to the economy we have mixed savings. The mixed savings are used under normal conditions, not to a minimum and not to maximum conditions. Using equations (22) to (27) for that case we have the next equations:

$$c_{y\alpha} = b_1[(c_a - c_{a0})^2 + c_{y\alpha 0}] \qquad (34)$$

$$c_{ym} = b_4[(c_m - c_{m0})^2 + c_{ym0}] \qquad (35)$$

The table of coefficients for the cycle of money in the case of mixed savings is this:

Table 4: compiling coefficients

| Variables | Coefficients |
|---|---|
| $1 - a_{mi}$ | 0.6 |
| $\sum_{k=1}^{m} (\alpha_r)_k$ | 0.6 |
| $\alpha_t$ | 0.7 |

Applying the Q.E. method with the prior coefficients we have for the behavior of the cycle of money subject to mixed savings the following scheme:

The Theory of Cycle of Money - How Do Principles of the Authorities on Public Policy, Taxes, and Controlled Transactions Affect the Economy and Society?
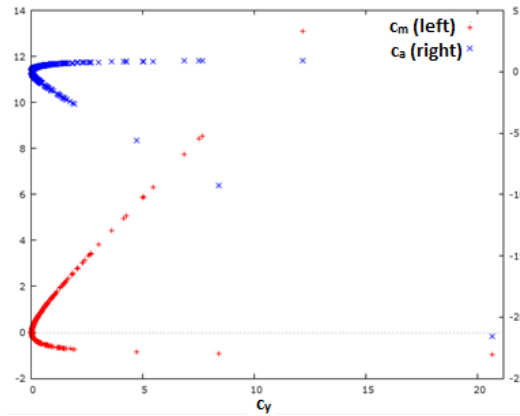
13

Figure 6: Cycle of money with its velocities

From the previous figure, we have that the cycle of money is connected with the velocity of escaped savings, and with the velocity of financial liquidity. The mixed savings enhance the economy. Thence, we have that the velocity of financial liquidity is positive and the velocity of escaped savings has an opposite orientation. We conclude that initially, the velocity of the escaped savings has a stronger impact on the cycle of money, but finally, the velocity of financial liquidity has a higher impact than the velocity of escaped savings. Then, in general, the cycle of money in normal economic circumstances has a positive orientation. The mixed savings help the economy to overcome these initial disturbances more rapidly.

### *The Mathematical Approach of the Cycle of Money with the Velocities of the Escaped Savings and Financial Liquidity Subject to Minimum Mixed Savings*

In this section, we examine the behavior of the cycle of money using the escaped savings and financial liquidity. This study is subject to the case that to the economy we have the minimum mixed savings. Using equations (22) to (27) for that case we have the next equations:

$$c_{y\alpha} = - b_2\left(\frac{1}{c_a}\right) \tag{36}$$

$$c_{ym} = - b_6\left(\frac{1}{\ln c_m}\right) \tag{37}$$

The table of coefficients for the cycle of money in the case of mixed savings is this:

Table 5: compiling coefficients

| Variables | Coefficients |
|---|---|
| $1 - a_{mi}$ | 0.8 |
| $\sum_{k=1}^{m} (\alpha_r)_k$ | 0.6 |
| $\alpha_t$ | 0.7 |

Applying the Q.E. method with the prior coefficients we have for the behavior of the cycle of money subject to minimum mixed savings the following scheme:

The Theory of Cycle of Money - How Do Principles of the Authorities on Public Policy, Taxes, and Controlled Transactions Affect the Economy and Society?
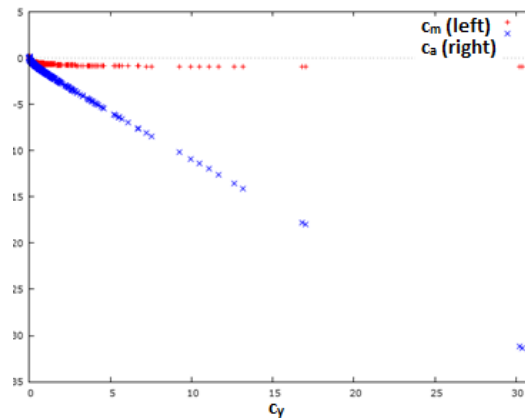
14

Figure 7: Cycle of money with its velocities

From the previous figure, we have that the cycle of money is connected with the velocity of escaped savings, and with the velocity of financial liquidity. The low mixed savings enhance the economy. Thence, we have that the velocity of financial liquidity is positive and the velocity of escaped savings has an opposite orientation. The low mixed savings don't support the economy, because the absence of savings of factories with the research and development centers costs to the economy. This explains why the industrial countries have a weaker cycle of money, and therefore lower dynamics in their economy.

### The Mathematical Approach Of The Cycle Of Money With The Velocities Of The Escaped Savings And Financial Liquidity Subject To Maximum Mixed Savings

In this section, we examine the behavior of the cycle of money using the escaped savings and financial liquidity. The examination is subject to the case that to the economy we have the maximum mixed savings. Using equations (22) to (27) for that case we have the next equations:

$$c_{ya} = b_3\left(\frac{1}{\ln c_a}\right) \tag{38}$$

$$c_{ym} = b_5\left(\frac{1}{c_m}\right) \tag{39}$$

The table of coefficients for the cycle of money in the case of mixed savings is this:

Table 6: compiling coefficients

| Variables | Coefficients |
|---|---|
| $1 - a_{mi}$ | 0.2 |
| $\sum_{k=1}^{m}(\alpha_r)_k$ | 0.6 |
| $\alpha_t$ | 0.7 |

Applying the Q.E. method with the prior coefficients we have for the behavior of the cycle of money subject to maximum mixed savings the following scheme:

The Theory of Cycle of Money - How Do Principles of the Authorities on Public Policy, Taxes, and Controlled Transactions Affect the Economy and Society?
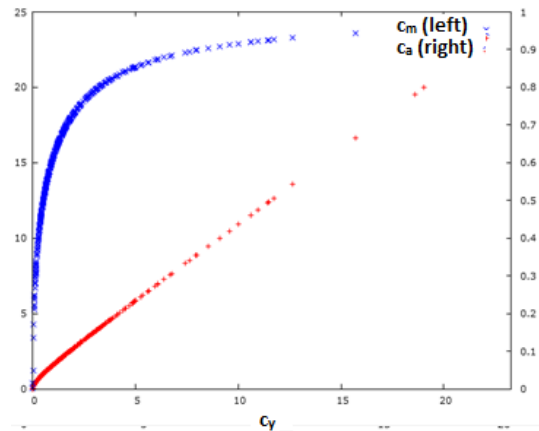
15

Figure 8: Cycle of money with its velocities

From the previous figure, we have that the cycle of money is connected with the velocity of escaped savings, and with the velocity of financial liquidity. The high mixed savings enhance the economy. Thence, we have that the velocity of financial liquidity is positive and the velocity of escaped savings has an opposite orientation. The high mixed savings enforce the economy, because the savings of factories with the research and development centers have o positive role in an economy, as there their transactions could not be substituted by other units, like the middle and the small companies, or by the citizens. This explains why the industrial countries have a greater cycle of money, and therefore higher dynamic in their economy.

### Results and Discussion

From the prior analysis, we have determined the behavior of the authorities and of companies that participate in controlled transactions. The key elements for the maximization of the utility, for the tax authorities, are these:

- The fixed length principle is crucial for the improvement of the dynamic of the economy. The taxation of the companies which participate in controlled transactions must be subject to the fixed-length principle.
- Some economic units must have lower taxation because that way would be increased the dynamic of the economy. The units which could not be substituted should have lower taxation (i.e. factories, R&D –Research and Development Centers).
- Moreover, should be a low taxation rate, for the economic units which enforce the economy. Then, the taxation of middle and small companies should be very low, and the same happens for the citizens because they are considered small economic units.
- In general, the wide investments (from the small and middle companies) increase the cycle of money. On the other hand, the compact investments, from big-size companies which substitute the small and middle enterprises decrease the cycle of money. This doesn't happen for the factories and the R&D centers, which use mixed savings.

The key elements for the maximization of the utility, for the enterprises of controlled transactions, are these:

- The robust economies consist of the appropriate economic environment for the enterprises of controlled transactions. The companies of controlled transactions should initially aim at economies with high financial liquidity.

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- Companies should change their behavior when the economies become weaker. Thence, when these economies become weaker by them, based on the analysis of the cycle of money, they should change economic environments, and transect to these economies which have a higher cycle of money.
- Thereupon, these companies could not be able to stay for the long-term in any economy, as the enforcement savings, by their attitude, will be diminished by the increase of the escaped savings.
- Also, these companies will become monopoly or oligopoly companies as the economies where they are will become weaker. Then the authorities will increase the taxation on them, and when this doesn't happen then these companies would not have any more profits. Therefore, should change the economic environment to increase their profits.

These conclusions show the appropriate behavior of the public authorities in combination with the case of companies that are affiliated with controlled transactions.

For the sense of feedback in sociological aspects could be used the terms framing and feedback. The framing and the controversies are subject to the same thing of inquiry, but at the same time, the sense of feedback is used for the appropriate determination of the framing. The framing is related to the controversies and framing, as belonging to the same terrain of reasoning. Predicaments of framing are connected with the internal difficulties internal the frame and external between the frames. Hence, this work is analyzed issues that come from the area of automatically controlled systems, in the engineering scientific field. Easton's approach and the Q.E. method are containing themes of the feedback, but with some critical differences between them, and from a different view of the study. Framing and controversies are the two choices of the identical issue. Problematic things are reborn into policy issues. We tend to understand policy scrutiny as associate degree intellectual activity that comes as a result of movements at intervals in the processes of larger policy discourse. The stubborn policy controversies use proof for resolutions, that are rarely finally resolved. Marvin Minsky has written the factitious intelligence, and also the term of the frame. The frame is employed to represent the data. Moreover, Dan Kahneman and Amos Tversky introduced the frames that distort the data, taking as reference a specific purpose of rational deciding. additionally, William Gamson has primarily based his analysis on the central organizing plan, or frame employed by policy position then expressed through metaphors. Finally, forward Goffman has created a frame analysis that provides the shape to the processes of social interaction. Thereupon, framing bears a spread of the previous determinations with scope to pick out data, arrange, interpret, and create a sense of complicated reality, providing some axes for the analysis of public policies. Framing ought to transpire in private life, science, and also politics. Nelson Goodman geared toward worldmaking as a framing illustration of reality by words. Karl urban center introduced the social science of data as a term wherever the objects gift themselves to the topic in step with the social and also historical settings. Thence, framing could be thanks to gifting problematic things, creating them coherently to administer them. In the case of policy controversies, the framing has some issues, as appeared completely different views of social reality. Interest teams, constituencies, and students operate {in completely different | in several | numerous} areas and have different contexts of things, as their aims and their standard of living disagree. Schutz's work could be a philosophical approach to multiple made realities through completely different languages and symbols. Stevens expressed that policy disagreements arise at intervals in a standard frame. this suggests that policy disagreements are often settled by recourse to facts alone. Policy controversies, on the opposite hand, don't be settled by standalone facts, as a result, policy controversies are subject to multi-perspectival accounts, as they derive from conflicting frames. The analysis of Thomas Kuhn within the philosophy of science expressed that are distinguished periods of traditional science, once the examiners conform to the identical frame or paradigm then settle the identical rules. Richard Rorty in his work "Philosophy and Also the Mirror of Nature" distinguishes between traditional and abnormal discourse. The case of traditional discourse is regarding the commonly shared rules, criteria, assumptions, beliefs, conventions, and generally, all relative parts, which might be used for the settlement of the disagreement. The case of abnormal discourse is regarding the settlement of the disagreement,

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while not essential parts to be outlined. Geertz thinks that the abnormal aspect of Rorty's work is predicated on the reading of traditional discourse. Then Geertz proposes the read of ordinary and non-standard discourse. James March planned that our judgment is outlined by criteria just like the beauty, the truth, and also the justice. The relativist interpretation acknowledges that one frame lead, in step with the common logic. The acute relativist interpretation of frames considers all frames as equally valid. Associate degree empirical philosophy is predicated on the approaches of the individuals to approach a frame conflict, within the absence of associate degree in agreement framework for breakdown them. Then the empirical philosophy uses a specific policy analysis. the standard policy uses the creating call method to extract conclusions, through multiple policies. The frame-critical policy seeks to boost the frame-reflective policy exploitation assumptions to extract acceptable conclusions.

We get during this work that the framing is the piece of ground for the controversies of predicaments. The suitable resolution could be a matter between the frames because the acts outside a frame affect the interior problems with the frame. The frameshifting could be a result of these interactions between the frames. The discourse repeatedly is of private interest and alternative times could be a result of interest between establishments, expressed by their presence in those establishments. The frame-reflective discourse indexes that there's a resolution of mediated agreements. Generally, we tend to conclude that framing is the field of controversies, to seek out an answer. Finally, the frames outline the topic of examination with traditional or abnormal type, which means the definition and also the abstract type consequently, and if there are interactions with alternative frames, a frame-shifting is plausible to outline the piece of ground fittingly. In Easton's work " A Framework of political analysis" is used the pressure imposed on a system from the environment of some interest groups. The system is trying to resolve this pressure of the environment, and if it achieves that, then it is plausible to survive this situation. Otherwise, if the system could not afford to resolve the pressure from the interest groups, it would not be able to survive. Then we perceive that the system can survive if and only if the commitment between the system and the pressure of the environment is such that permits it to survive. Therefore, we have the next scheme, which describes this condition:
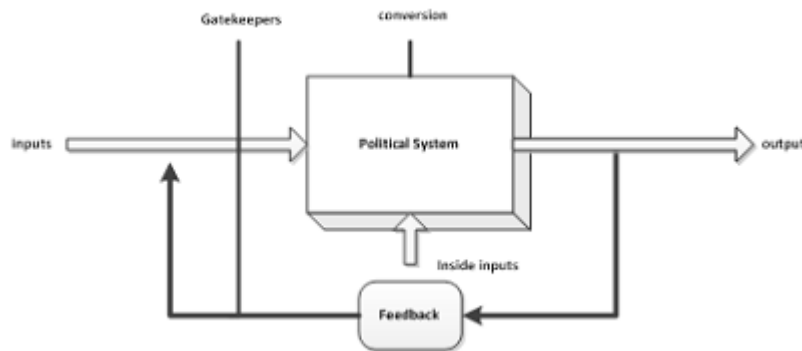


Figure 9: Feedback process

Then, according to the prior scheme we perceive that the feedback is the source of the information of the policymakers. The theme is that the information is filtered by the gatekeepers. Thence, the gatekeepers have a mainstream aim and scope to reduce and organize the information appropriately, reducing the overload of the system. The system should satisfy the requests of the environment, without being overloaded. This means that the system is not able to serve all the requests of the environment or more precisely the interest groups, in terms of a political system. Anything that allows the system to not collapse, is on the orientation of the serving of the system. The gatekeepers with the diminish of the overloading achieve to save the system from catastrophic results. At the stage of the political system, as we obtain from the prior scheme, we have the conversion of these requests. The procedure of the requests

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from the environment happens at this level. In the next section are scrutinized the similarities between the framing and the feedback mechanism.

The framing, feedback mechanism, and tax &administration principles have some similarities. One important similarity is that the system is functioning as the frame. This means that the system has the same time solution and the problems, interpreting proportionally that there exist the controversies and the theme, at the same time. According to Habermas's approach, the frame is in interaction with the environment, something that happens also here. The internal information of the system seems like Rotry's case, where the normal discourse tends to be an abnormal discourse when a lack of rules is there. The inputs seem to be like the case of Habermas where the environment and external frames have an impact on the frame of the study. Thereupon, we have the following table:

Table 7: Similarities between the three theories

| Framing theory | Feedback mechanism | Tax & public administration principles |
|---|---|---|
| framing | political system | political system |
| internal inputs | internal move from normal to abnormal discourse | tax and public policy for the society |
| inputs | external frames | tax and public policy for monopoly or oligopoly companies |
| reflection-discourse | gatekeepers | authorities |

Therefrom, we obtain that the framing corresponds to the system, as both are the main theme of the study. The internal inputs correspond to Rotry's theory, an appropriate solution is absent, because of stable rules between the different positions, of controversies are not able to mediate a resolution. The inputs in the theory of Habermas are subject to the relation between the frame of a study and external frames. Finally, the reflection discourse has a similar aim to the purpose of the gatekeepers, as both try to find a solution for the frame or the system accordingly. Since we obtain that both theories have similar mechanisms and the same scope. Therefore from Fig. 9 and Table 7, we obtain that the appropriate policy implementation by the authorities could robust the quality level of the society and economy. The emphasis on the lower taxation of middle-class companies robust the economy and extend the quality level of people.

### Conclusions

From the analysis of this paper, we conclude that some principles increase the dynamic of the economy. The low taxation of small and medium economic units permits the robustness of the economy. Then, small/medium economic units should not be substituted with big-size economic units. The reason for these as shown extensively in this paper is that the small/medium economic units increase the enforcement savings and reduce the escaped savings. Moreover, financial liquidity is increased in that way and then the cycle of money has a significant impact on the economy. Also, the factories, with the research and development centers enforce the quality standards of the economy. Then, the authorities should aim at the structural economic characteristics, to be able to have an adequately developed economic society.

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**Appendix**

```
%Monte Carlo for Transfer Pricing
    as=0;
    at=0;
    xm=0;
    m=0;
    m1=0;
    ap=0.1;
    cm=0;
    ca=0;
    cy=0;
    t=0;
    while t<10
    t=t+1;
    if rand()<9
    as=0.6*rand();
    end
    if rand()<9
    at=0.7*rand();
    end
     if rand()<9
    m1=0.9*rand();
    end
     a=as+at;
    m=m1+ap;
    xm=m-a;
    cm=xm/a;
    ca=xm/m;
    cy=cm-ca;
    tab=[a,xm,m,cm,ca,cy;tab];
    end
```

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## Appendix

This is an index for the compiles from the section 7 to 11:

```
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
as=0.6*rand();
end

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

if rand()<9
m1=0.9*rand();
end

if rand()<9
ap=0.8*rand();
end

am=0.2;
a=(1-am)+as+at;
m=m1+ap+am;
xm=m-a;
cm=xm/a;
ca=xm/m;
cy=cm-ca;
tab=[a,xm,m,cm,ca,cy;tab];
end
```

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