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INDEX OF THE CYCLE OF MONEY - THE CASE OF LATVIA

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Abstract

Research purpose. This paper has established the index of the cycle of money. The index shows the level of the appropriately structured economy. According to the theory of the cycle of money, it is examined if an amount of money is recycled in the economy a lot of times or this amount of money is lost from an economy to other economies or banks abroad, because of inadequate structure of the economy of the country, then the purpose of the paper is to show an application of the case cycle of money, here in the case of Latvia. Therefore, this work aims to clarify how the theory of the cycle of money works to a real case scenario, and in general, how the cycle of money applies to an economy. Moreover, the index of the cycle of money shows how an economy could counteract to an economic crisis and how well-structured it is.

Design/Methodology/Approach. The methodology followed in this work is based on the mathematical application of the theory of the cycle of money. Then, the current results have as root the equations of this theory for the examination of the case of Latvia for the period from 2012 to 2017. Beyond the mathematical applications, the R.B.Q. model with the Q.E. method is applied to ensure the credibility of the results. Therefore, we have a real case scenario and a simulation case for the case of Latvia.

Findings. The results of the index of the cycle of money to the case of Latvia are compared with the global average index of the cycle of money. The results show, as expected, that Latvia is above the average global value. Latvia's findings show that it is a well-structured economy and can counteract an economic crisis.

Originality/Value/Practical implications. The results are original and show for the first time the cycle of money of Latvia through the application of this theory. This research is the first application of the cycle of money in the case of index calculations. So, it is a completely new concept based on the theory of the cycle of money.

Keywords: Latvia; the cycle of money; the structure of the economy; index of the cycle of money

JEL codes: E4; E5; C1

Introduction

The concept of the cycle of money suggests that to an economic system, the taxes return to the society, to the case of the education and the health system. However, the major rule is that the authorities must hold the taxes as low as plausible. Moreover, if something is plausible to be provided with the aid of medium or small financial units and enterprises, the government ought to protect those using very low taxes and, at the same time, put greater taxes on the larger companies. However, in the case of the large agencies, if their purposes are not covered with the aid of small companies, there ought to be put low taxes. In addition, factories and high technological know-how agencies must have low taxes. Then the principal idea is to have an economy with the best allocation of production. This means that larger companies should not offer the same product and services as smaller companies, as they can invest in economic fields that smaller companies cannot cover. In that way, an economy achieves its greater level. Additionally, the idea of the cycle of money indicates that with the best allocation of production units and of taxes, the money is cycled in the economy and is not misplaced from the economy, as this achieves the maximum use of the quantity of money in an economy. The research of this paper is about the determination of Latvia's index of cycle of money and the determination and therefore how well structured is the country's economic system (Challoumis, The Keynesian Theory and the Theory of Cycle of Money, 2018). The relevance of the research is based on the application of the theoretical background to a real case scenario

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of a country's economy and, at the same time, to answer to the goal of the study, which is the determination of the general index of the cycle of money of Latvia's economy. Therefore, the main hypothesis of this paper sought to estimate the index of the cycle of money of Latvia and to answer the question if it's close to the global average index of the cycle of money, with the simple index or the general index of the cycle of money. The applied method is based on mathematical estimations from the relevant theoretical background, and based on the results, the rate of the cycle of money of Latvia's economy is determined. The results showed that Latvia's economy is well structured, as it follows the general global index of the cycle of money; meaning that it is close to the value 0.5, which represents the average global case. The countries close to 0.5 and above this value have an appropriate distribution of money to their economic system. Therefore, the main hypothesis to clarify that Latvia's economy is well structured is confirmed by the results. The question of how the index of the cycle of money works in the case of Latvia is answered by the appropriate structure of its economy and the distribution of money to its economy. Besides, it needs improvements to have an even better index cycle of money, meaning to have lower taxes for small and medium enterprises, better reuse of money in the country's economy, and higher taxes for international companies that save their money out of the local banking system.

Literature review

The theory of the cycle of money is based on the concept of the bounded economy, meaning that in the economy, the money should be reused many times, and in this way, the economies are bounded but are not closed. Therefore, well-structured economies have a high index of the cycle of money, and on the other hand, an economy with a low index of the cycle of money shows an economy without an appropriate structure. The interpretation of this situation is that when the economy issues money to the system, there is a higher distribution of money between the citizens, and as the consumption increases, unemployment will decrease (Challoumis, Methods of Controlled Transactions and the Behavior of Companies According to the Public and Tax Policy, 2018).

The methodology used in the paper is an application of developed equations by the axiomatic method, which based on a prior simulation using the R.B.Q. (Rational Behavioural and Quantified) model. Moreover, the model uses the Q.E. method for the part of the simulation of R.B.Q. (Challoumis, The R.B.Q. (Rational, Behavioral and Quantified) Model, 2019) (Timothy, 2010). Therefore, in this paper, we have a real case scenario of the concept of the cycle of money based on these theories. Besides, expanding the acronyms of the R.B.Q. – the term rational is about the theoretical analysis, the term behavioural is about the non-mathematical aspects, pending on the behaviour of the taxpayers or the citizens, and the term quantified is based on the analysis of the quantity data. The three terms concretize a model that uses all the aspects of economic analysis. In this way, we have a secure and credible development of a concept (IMF, World Economic Outlook.Report, 2018) (McKay, Nakamura, & Steinsson, 2016). In this paper, we take as base an already developed theory that is scrutinized with this model to proceed to the application of the index of the cycle of money. Therefore, in this paper, we have the next level of the cycle of money, meaning the establishment of the theory by the real case estimations (King, 2009) (IMF, World Bank, & WTO, Making trade an engine of growth for all. Policy Paper, 2017). In this way, the wealthiness of the structure of the economy in real data and case is represented for the first time (Zax, 1988).

The large agencies, whose functions are not blanketed with the aid of small companies, have to pay low taxes (Wilson, 1986). Besides, factories and excessive technological knowhow agencies have low taxes (Boland, 1991). Then, the major idea is to have an economy with the best allocation of production. In this way, an economic system achieves its greater level (Feinschreiber, 2004). Additionally, the theory of the cycle of money suggests that with the best allocation of production units and of taxes, the money is cycled in the financial system and is not misplaced from the economy; hence, this helps to achieve the maximum use of the same quantity of money in an economy.

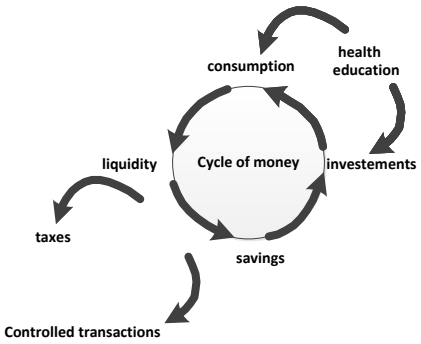


Fig. 1. The cycle of money (Source: author's compilation)

From the prior scheme, we conclude that the cycle of money uses four basic terms, which are savings, consumption, liquidity and investments. Moreover, we obtain that taxes and controlled transactions, in general, diminish the cycle of money. On the other hand, health and education make the economy better, as they belong to sectors that enforce the terms of the cycle of money with the implication of better quality of economic units of a country's society (Challoumis, Transfer Pricing Methods for Services and the Policy of Fixed Length Principle, 2019).

The arm's length principle is the principle where the authorities are made to put taxes on international companies, and in general, on large companies (OECD, Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, July 2017) (OECD, Review of comparability and of profit methods: revision of Chapters-III of the Transfer Pricing Guidelines, 2010). The arm's length principle is a way to put taxes on these companies by the provided data and tax methodologies that are provided to the tax authorities (OECD, Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, 2001). So, in many cases, the arm's length principle is difficult to find in the companies that are making controlled or uncontrolled transactions, as they provide similar data with that of the other companies that make uncontrolled transactions and are not hiding or avoiding to pay taxes (Erceg, Prestipino, & Raffo, 2018) (United Nations, 2013). Therefore, the authorities should apply the fixed-length principle rather than the fixed-length principle. The fixed-length principle shows that the companies of controlled transactions, and in general, the larger companies should pay a fixed amount of money to the governments that sell their products or services (Zax, 1988) (Meier & Rosenbaum, 2000). In that way, the cycle of money is enhanced, as the larger companies usually receive the money out of the society and the economy, and deposit them to third countries' banks, and retrieve that money form the society, making the consumption weaker (Bank de France, 2018). Then, with the fixed-length principle, the local enterprises that deposit their money to local banks have lower taxes and make the country's economic system robust (Helpman & Krugman, 1989).

Research methodology

Based on the Literature Review that was presented in the prior section, we can proceed to the analysis of the methodology used in this study. The method used in this paper is an application and calculation of a series of equations that are presented below. For the estimations of the cycle of money, the following mathematical equations are used:

$$c_y = c_m - c_\alpha \tag{1}$$

where

c_m symbolizes the velocity of financial liquidity;

c_α symbolizes the velocity of escaped savings;

c_y symbolizes the term of the cycle of money.

Therefore, we have the following equation as the index of the cycle of money:

$$c_y = \frac{dx_m}{dm} - \frac{dx_m}{da} \quad (2)$$

where

a symbolizes the escaped savings;

m symbolizes financial liquidity;

$x_m$symbolizes the condition of financial liquidity.

It should be mentioned that for the definition of c_m and c_α, we examine them from the view of losing money by the authorities, but if we examine them from the view of gaining money, the definition would be inverted. Then, for the index of the cycle of money, we would have the following equation:

$$i_{cy} = Y * \ b_d \quad (3)$$

where

Y symbolizes the national income or GDP for the certain case;

b_d symbolizes the bank deposits of the country;

i_{cy} symbolizes the cycle of money as an index, as c_y has and other expressions.

The application of equation (3) gives the following:

$$i_{cy} = \frac{\sum_1^t \sum_1^N (GDP_{capita\ i} * b_{d\ i})}{N} \quad (4)$$

where

t symbolizes the period or year;

N symbolizes the number of countries;

$GDP_{capita\ i}$ symbolizes the GDP of each country;

$b_{d\ i}$ symbolizes the bank deposits of each country.

We have a replacement of variable Y with the GDP, for the application of the theory to real economic data. Therefore, we can proceed to the estimation of the decimal values by the next form of type:

$$g_{cy\ Country} = \frac{c_{y\ coyntry's}}{c_{y\ Average} + c_{y\ coyntry's}} \quad (5)$$

where

$g_{cy\ Country}$ symbolizes the general index of c_y of the country;

$c_{y\ coyntry's}$ symbolizes the index of c_y of the country;

$c_{y\ Average}$ symbolizes the global index of c_y.

$$g_{cy\ Average} = \frac{c_{y\ Average}}{c_{y\ Average} + c_{y\ Average}} = 0.5 \quad (6)$$

where

$g_{cy\ Average}$ symbolizes the general global index of c_y, as a global constant.

The cycle of money expresses the money that is kept to the economy and recycled many times without escaping from the country's economy, therefore, this happens according to this theory concerning the structure of the economy. If a certain amount of money is deposited in a bank out of the country, then this money is escaping from the economy and the liquidity is diminished and becomes weaker. The economy is a bounded but not closed system, this means that it is connected with other economies of other countries, but at the same time, it's appropriate structure is based on the principles of the theory of the cycle of money.

Research results

Using the methodology that we referred to earlier, we proceed to the estimation of the indexes to conclude how well structured is the economy of Latvia. We expect to be in an appropriate condition, therefore, at least to the global average cycle of money. This means that the economy doesn't have a lot of money that it is losing from the cycle of the economy, by the escape of money to other economies from the larger enterprises. Moreover, according to this theory, we expect Latvia to have appropriate consumption and circulation of money, as the larger enterprises are not fully overcovering the smaller ones. Hence, to conclude the behaviour of Latvia's economic system, we must proceed to the estimation of the global average index and after that Latvia's index.

Estimating the global average cycle of money, we can have a basis for further research of the case of Latvia, to the period between 2012 and 2017. Then we receive the following table:

Table 1. Latvia's index of the cycle of money (Source: author's compilation)

YEAR	BANK DEPOSITS GLOBAL AVERAGE (%)	BANK DEPOSITS LATVIA(%)	GLOBAL GDP PER CAPITA ($)	LATVIA GDP PER CAPITA ($)	INDEX OF GLOBAL AVERAGE Cy ($)	INDEX OF LATVIA'S Cy ($)
2012	52.48	36.62	16,653.01	13,847.79	873,949.96	507,106.07
2013	53.96	53.96	17,266.62	15,043.12	931,706.82	811,726.76
2014	55.81	39.44	17,159.02	15,740.33	957,644.91	620,798.62
2015	59.38	40.56	15,295.71	13,698.94	908,259.26	555,629.01
2016	60.77	42.32	15,330.03	14,153.42	931,605.92	598,972.73
2017	60.07	41.81	15,082.49	15,548.08	906,005.17	650,065.22
RESULTS					**5,509,172.04**	**3,744,298.41**

We obtain from the prior results that:

The index of global average c_y is \$**5,509,172.04**

The index of Latvia's c_y is \$**3,744,298.41**

Calculating the general index of the cycle of money for the case of Latvia and of global view, we have:

- The general index of c_y for Latvia is $g_{cy\ Latvia} = 0.404$
- The general index of c_y of global view is $g_{cy\ Average} = 0.5$

Then, it is obvious that Latvia's index cycle of money is near the global average cycle of money. Therefore, the dynamic of the economy belongs to the global average and the structure is close to the expected one. Then, we receive the following graph:

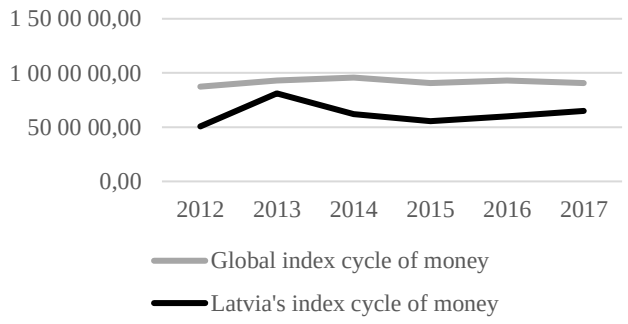


Fig. 2. Diagram of the index of the cycle of money (Source: author's compilation)

According to the prior diagram, we conclude that the index of the cycle of money of Latvia is very close to the global average of the index of the cycle of money. Then the global average index of the cycle of money is 0.5 from 2012 to 2017 and for the same period, Latvia has a value of 0.404. So, we can consider Latvia as a representative country of the global average of the cycle of money. Scrutinizing this result, we obtain that to be more protective of the economy, as part of the money of the economy liquid from the system and are not reused. Then, the government should be more protective of the small and medium enterprises establishing lower taxes, and at the same time, the larger companies should pay more direct or indirect taxes. In that way, the consumption and the banks of Latvia will have more money for the country's economic system. Also, in that way, people will have more prosperity and increased consumption.

Using the index of the cycle and the general index of the cycle of money, we receive the following chart:

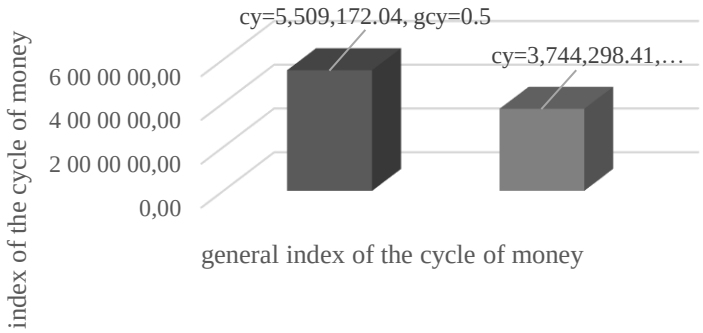


Fig. 3. Scheme of the cycle of money indexes (Source: author's compilation)

To the prior figure, we perceive the combination of the index of the cycle of money with the case of the general index of the cycle of money. We confirm the close relationship between the global average indexes and Latvia's index. So, we can deduce that Latvia belongs to the countries that are representative of the global average index of the cycle of money, either if this is the simple index or the general index.

Conclusions

According to the results as shown in Table 1, we conclude that Latvia is very close to the global average index of the cycle of money. Using Figure 2 and Figure 3, the index of the cycle of money is close to the global average of the index of the cycle of money, showing that Latvia's economy is well-structured. This means that the cycle of money of the country is at an appropriate level that allows the economy to function with an adequate distribution of money in the economy. The losses of the local banks are to a good level because the money is not excluded from the local economy by international transactions. The interpretation is that the economy belongs to the average cycle of money, then to the average economic dynamic, as the economic structure can be improved, with lower taxes to the small and the medium economic units, applying a higher tax to larger companies. Larger companies cover the production and the services that could be offered by smaller companies. The way to increase the cycle of money is to distribute and redistribute the money to the economy, diminishing the losses from the local banks' deposits and avoiding large companies to keep large amounts of money abroad that never come back to the economy, as saved to international accounts. Moreover, the larger companies should estimate production that smaller companies can't offer, then the government should have low taxes to high technological units and factories. Therefore, larger companies should not substitute smaller companies' activities. Then, larger companies should not offer goods and services that can be offered by smaller companies. The consumption and the general investments of a country are increased by the expansion of the distribution of money. A country with a well-structured economy is a country with a cycle of money at a good level concluding that this country can face more easily economic shocks and disturbances due to an economic crisis. The application of the fixed-length principle could enhance the index of the cycle of money, by the higher taxes to the companies that proceed to international transactions and substitute activities of smaller companies. Latvia's economy is close to the index of average GDP per capita, to the year 2017 was very close to the index of average GDP per capita. Moreover, we obtain that Latvia's structure of economy tends the last years to have higher reuse of money in the economy than to the past, as it tends to have closer characteristics to an economy that complies better with the concept of the cycle of money. Finally, Latvia's economic dynamic belongs to the global average cycle of money, showing that is a well-structured economy.

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