

INDEX OF THE CYCLE OF MONEY – THE CASE OF HUNGARY

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Keywords:

E- cycle of money, Hungary, index of the cycle of money

Abstract

This paper has mounted the index of the cycle of money. According to the idea of the cycle of money, it is tested if an amount of cash is recycled inside the financial system in a variety of instances or if this amount of cash is misplaced from a financial system to different economies or banks abroad, due to the now no longer good enough structure of the financial system of the country. The reason for the paper is to expose the utility of the case cycle of money, right here for the case of Hungary. Therefore, this work goal is to make clear how the concept of the cycle of money, works in an actual case scenario and is well known how the cycle of money applies to an economic system. Moreover, the index of the cycle of money suggests how an economic system ought to counteract a monetary crisis and how well-structured it is. The estimations of the index of the cycle of money in the case of Hungary are compared with the global average index of the cycle of money. The estimations indicate as expected that Hungary is above the average global value. Hungary's findings reveal that it is a well-structured economy and can face an economic crisis. Prior papers are from the case of Latvia, Serbia, Greece, Bulgaria, Ukraine, Thailand, and Poland. This work is part of a project for multiple countries. The results are the first in the bibliography about the cycle of money of Hungary through the application of this theory.

1. Introduction

The theory of the cycle of money indicates that from a financial view, the taxes return to the society, in the case of the education and the health care system. But, the main rule is that the authorities should maintain the taxes as low as this is achievable ([13]; [17]; [20]; [63]; [75]; [78]; [80]). Moreover, for the medium and small financial rates, the government needs to guard those with the usage of very low taxes and simultaneously place greater taxes on the larger companies. But, in the case of the massive corporations whose purposes aren't blanketed with the useful resources of small companies, ought to be positioned with low taxes. Also, factories and excessive technological know-how groups need to have low taxes. Then, the principal idea is to have a financial system, with a fine allocation of production. Larger companies should not provide similar products and services to smaller groups, as they can make investments in monetary fields that smaller enterprises cannot cover. In that manner, an economic system achieves its highest level. Additionally, the idea of the cycle of money shows that with the pleasant allocation of production units and taxes, the money is cycled inside the economy and isn't always out of place in the economic system, as achieves the maximum use of the amount of cash in a financial system. This paper is about Hungary's s index of the cycle of money. The relevance of the research is based on the utility of the theoretical part to an actual case scenario of a country's economic system and simultaneously replies to the goal of the study, meaning the dedication of the general index of the cycle of money in Hungary's economy. Therefore, the principal hypothesis of this paper sought to estimate the index of the cycle of money in Hungary and to answer the question of whether it's near the worldwide general index of the cycle of money, with the simple index or the general index of the cycle of money. The applied approach is based totally on mathematical estimations from the relevant theory. The results confirmed that Hungary's financial system is properly established, as it follows the general international index of the cycle of money, meaning the value of 0.5, which represents the average global case [56].

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The countries near 0.5 and above have an appropriate distribution of money to their financial system. Therefore, the main speculation to clarify that Hungary's economic system is considered well-established is confirmed by the outcomes. The question of how the index of the cycle of money in the case of Hungary is replied to through the proper structure of its economy and the distribution of money to its economy. Besides, it desires some enhancements to have an even better index cycle of money, should decrease taxes for small and medium enterprises, achieve better reuse of money in the country's economic system, and higher taxes on international enterprises that store their cash out of nearby banking systems ([41]; [42]; [48]; [49]; [67]; [82]; [83]).

2. Literature Review

The Hungarian economy grew exponentially in the third quarter of 2018 with a growth rate of 5.2% (2.5 times higher than the EU average). Overall, since the beginning of 2018 and for the first three quarters, the growth rate of the Hungarian economy has been estimated at 4.9% (the highest growth ever recorded), ranking Hungary as the country with the second-highest economic growth in the EU. The sectors of the economy that contributed to the sharp rise are the construction sector (the policy of subsidizing young families for housing construction plays an important role), the services sector, and the industrial and agricultural sectors.

According to a statement by customs authorities here, the number of customs clearances for Chinese goods in the first nine months of 2018 increased by 9%, compared to the same period of 2017, reaching 191,000. For the same period and due to these customs clearances, there was a 34.7% increase in customs revenues (from €22.2 billion in 2017 to 34 billion in 2018). Customs revenue from customs clearance of Chinese goods amounts to 6% of Hungary's total customs revenue. It should be noted that the value of products imported from China to Hungary has been on an upward trend in recent years and that in 2017 it reached 1.4 trillion HUF. China has now become the EU's most important trading partner and Chinese goods make up almost 25% of total EU imports. It is estimated that by 2027 around 321 containers will arrive in the EU every day. Hungary aims to receive at least five freight trains every week, so the efficiency of customs authorities and the speed of customs clearance will be a primary criterion for selecting transport-freight companies for transit through Hungary. According to an announcement by the Hungarian Deputy Minister of Innovation & Technology, Mr. Tamás Schanda, a total of €4.4 billion of European funds flowed into Hungary in 2018. Of the available European funds of the Financial Framework 2014-2020, Hungary absorbed 31%, exceeding the European average absorption (27%). It should be noted, however, that of the €4.4 billion, €1 billion came from the budget of the previous Financial Framework 2007-2013. Financial flows from The EU have a beneficial effect on Hungary's economy, whose growth rate is significantly affected by the amount of European capital flowing into the country. Finally, it is noted that to the negotiations taking place in the EU institutions regarding the Multiannual Financial Framework 2021-2027, Hungary disagrees with the cut of funds from traditional policies (e.g. Cohesion Policy, CAP) and supports the continuation of funding for these policies. At the same time, the Hungarian Government considers equally important the new challenges that the EU is called upon to face (e.g. climate change) and supports relevant funding from the EU budget ([67]; [82]; [83]).

Hungary now ranks 8th among the world's most attractive countries for investment, while the Hungarian Investment Promotion Agency (HIPA) was recognized as the best sovereign wealth fund in Eastern Europe and Central Asia. At the same time, the Minister of Foreign Affairs and Trade of Hungary, Péter Szijjártó (Szijjártó) announced that foreign direct investment (FDI), supported by the government's investment attraction program, has contributed greatly to the country's economic growth. More specifically, the Hungarian Minister said that in 2018 about €4.3 billion flowed into the country for the implementation of 98 investment projects, which were subsidized by the Hungarian Government with a total amount of €421.8 million. Thus, 2018 emerges as the most successful, in terms of attracting the number and value of investments, year in Hungary's history. In 2017, 96 investments were announced, with a total value of €3.5 billion, which created 17,000 new jobs. The new jobs created in 2018 were counted at 17,024 with an average monthly income of €1,330. Most FDI (28) with a total value of €1.9 billion came from Germany. 15 major investment projects were implemented by US companies and 17 by Asian companies (South Korea, Japan, China and India).

According to data from the Hungarian Statistical Office, the volume of industrial production in December 2018 increased by 5.4% year-on-year, compared to the same month in 2017. Overall for 2018, industrial grew by 3.6% compared to 2017. It is noted that this increase is initially due to the increase

in the number of industries, increasing the production of cars, computers, electronics, and optical products, as well as increasing the production of food, beverages, and tobacco. For the record, it is worth mentioning that between the years 1991-2018, the average industrial production is estimated at 4.67%, while in May 2000 the highest value of the index was recorded (23.5%), and in February 2009 the lowest (-28.99%).

The case of Latvia presented the condition of the country's economy and how to react to an economic crisis, according to the index of the cycle of money. Proportional results have the case of Bulgaria. These results are based on the theoretical approach of the theory of the cycle of money, where this theory presents that in an economy the taxes return to the society, basically in the case of the education and the health system ([8]; [52]; [61]; [64]; [68]). But, the main rule is that the authorities should keep the taxes as low as is plausible, for the medium or small economic units (meaning any kind of economic unit e.g. freelancers), and companies. In general, prior works are from the case of Latvia, Serbia, Greece, Bulgaria, Ukraine, Thailand, and Poland ([19]; [23]; [24]; [26]; [27]; [29]; [31]; [32]; [33]).

The arm's length principle is the principle where the authorities are based to apply taxes to international businesses and large groups of companies. The arm's length principle is a manner to put taxes on these corporations by way of the provided facts and tax methodologies offered to tax authorities. In many cases, the arm's length principle is tough to discover in which groups are making controlled or out-of-control transactions, as they offer similar data with that of other groups that make uncontrolled transactions and aren't hiding or keeping away from paying taxes ([3]; [6]; [12]; [52]; [55]; [58]; [65]; [71]; [73]; [76]; [79]; [86]). Therefore, the government needs to observe the fixed-length principle as opposed to the arm's-length principle. The fixed-length principle indicates that the agencies of managed transactions and in general the larger agencies need to pay a set amount of cash to the governments that sell their products or services. In that way, the cycle of money is enhanced, because the larger companies generally receive the cash from the society and the economy deposits them to international banks, and retrieves that money from the society, making weaker consumption. Then, with the fixed-length principle, the local enterprises that deposit their cash to local banks should have lower ([2]; [5]; [8]; [26]; [52]; [59]; [60]; [61]; [64]; [68]; [85]; [86]).

The fixed-length principle serves the theory of the cycle of money, where the small and medium enterprises are paying lower taxes than the larger enterprises, which substitute their operations. The arm's length principle on the other hand estimates the taxes standing on methodologies provided by the companies that sought international transactions. In that way, the large companies cover the activities of the smaller companies. The main issue is that small and medium companies robust the distribution of money to a country's economy as usually they don't save their money out of the country's economic system, and reuse the money inside the economy. According to that approach, money is distributed inside the economy many times increasing the cycle of money.

3. Methodology

The method used in this paper is an application and estimations of a series of equations that are presented in this section. Then the calculations of the cycle of money are defined in the following mathematical types:

$$c_y = c_m - c_\alpha \quad (1)$$

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

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

$$g_{cy \text{ country}} = \frac{c_{y \text{ country}}}{c_{y \text{ Average}} + c_{y \text{ country}}} \text{ or } \frac{i_{cy \text{ country}}}{i_{cy \text{ Average}} + i_{cy \text{ country}}} \quad (4)$$

$$g_{cy \text{ Average}} = \frac{c_{y \text{ Average}}}{c_{y \text{ Average}} + c_{y \text{ Average}}} \text{ or } \frac{i_{cy \text{ Average}}}{i_{cy \text{ Average}} + i_{cy \text{ Average}}} = 0.5 \quad (5)$$

The c_m is the velocity of financial liquidity, c_a is the velocity of escaped savings and c_y is the cycle of money ([17]; [19]; [24]; [25]; [26]; [27]; [28]; [29]; [30]; [31]; [32]; [33]; [34]; [35]; [36]; [37]; [38]; [39]; [40]). The i_{cy} is the index of the cycle of money, Y is the national income or GDP, and b_d is the bank deposits of the country. Moreover, $g_{cy\ Country}$ symbolizes the general index of c_y of the country, $c_{y\ country}$ is the index of c_y of the country, and $c_{y\ Average}$ is the global index of c_y . Finally, $g_{cy\ Average}$ is the general global index of c_y , and is obtained as a global constant.

Therefore, the main hypothesis is to establish the connection between the index of the global average c_y , the bank deposits, and the GDP per capita, with an econometric approach. Then is confirmed the initial assumption is that the cycle of money in Hungary is close to the global average index of the cycle of money.

The econometric regression equation based on Table 1 can be expressed as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:

Y: Dependent variable (Hungary's economic performance).

X_1 : Hungary's bank deposits.

X_2 : Hungary's GDP per capita.

X_3 : Global index of the cycle of money.

ε : Error term.

The analysis highlights the relationship between Hungary's bank deposits, Hungary's GDP per capita, and the global index of the cycle of money in shaping economic outcomes. Hungary's bank deposits show a negative coefficient, indicating that increases in deposits are associated with a decrease in the dependent variable, possibly reflecting inefficiencies in capital allocation or a preference for savings over investment ([43]; [44]; [45]; [46]; [47]; [49]; [51]). Conversely, Hungary's GDP per capita has a strong positive impact, suggesting that higher income levels significantly contribute to economic performance. Additionally, the global index of the cycle of money exhibits a positive influence, emphasizing the importance of international financial dynamics and monetary flows in Hungary's economic environment. Together, these variables provide a nuanced understanding of the interplay between domestic and global factors in the country's economic trajectory.

4. Results

Based on the prior methodology extracted results, the theory of the cycle of money, in the case of Hungary, is to receive the following table. This table included the parameters of bank deposits, GDPs, and the indexes of the cycle of money. This section has presented the dependence of Hungary's index on the cycle of money using the bank deposits of Hungary's economy and the GDP per capita of Hungary's economic system. The bank deposits of the global average case and the global GDP per capita are used for the comparison of Hungary's economy pending on its GDP and the country's bank deposits.

The same conclusions come from an econometric point of view with the dependent variable being the index of the cycle of money:

Table 1. Hungary's regression analysis (Author's estimations)

Variable	Coefficient	std. error	p-value
Hungary's bank deposits	-2.40814	0.477054	0.0150**
Hungary's GDP per capita	109.518	14.5271	0.0048***
Global index of cycle of money	10.1260	1.37350	0.0052***

In the prior scheme, the values with two asterisks symbolize the cases that the coefficients are below the 0.05 significant level, and accordingly, the three asterisks are the case of the 0.01 significant level.

The indexes reveal Hungary's distribution of money and the form of its economic structure. Based on those estimations and the theoretical background is determined the condition of the economic structure of the country and whether Hungary belongs to a well-structured economy. According to these results, it's plausible to determine the condition of the cycle of money in Hungary:

Table 2. Hungary's index of the cycle of money (Globaleconomy.com and author's estimations)

Year	Bank Deposits Global Average (%)	Bank Deposits Hungary (%)	Global GDP per Capita (\$)	Hungary's GDP per Capita (\$)	Index of Global Average c_y (\$)	Index of Hungary's c_y (\$)
2012	52.48	49.45	16,653.01	12,918.25	873,949.96	638,807.46
2013	53.96	46.8	17,266.62	13,687.25	931,706.82	640,563.30
2014	55.81	45.42	17,159.02	14,246.11	957,644.91	647,058.32
2015	59.38	45.01	15,295.71	12,651.57	908,259.26	569,477.17
2016	60.77	45.67	15,330.03	14,457.61	931,605.92	660,279.05
2017	60.07	45.51	15,082.49	16,150.77	906,005.17	735,021.54
RESULTS					5,509,172.04	3,891,176.84

Hungary's bank deposits:

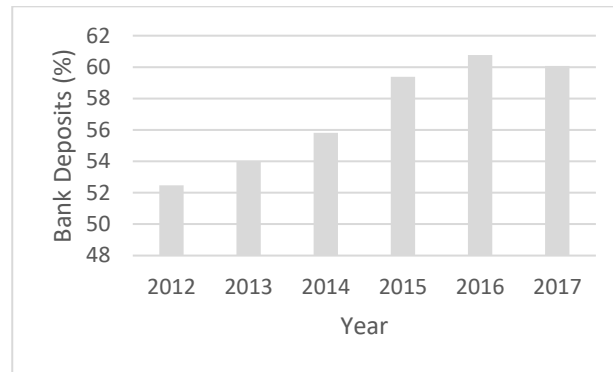


Figure 1. Hungary's bank deposits (Globaleconomy.com)

Figure 1 presents the situation of bank deposits in Hungary's financial system, as a percent of GDP, for the period from 2012 to 2017. Moreover, in the next scheme are presented the GDPs of Hungary, for the same period.

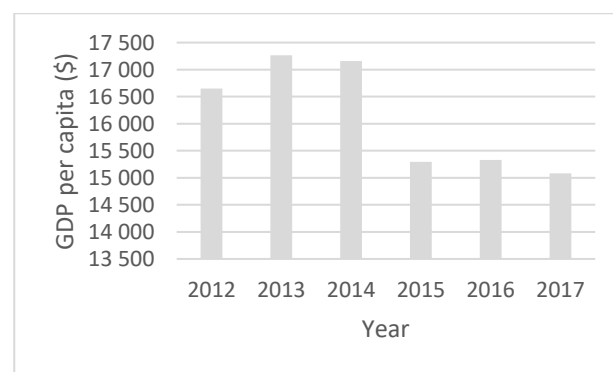


Figure 2. Hungary's GDP per capita (Globaleconomy.com)

Figure 1 presents the condition of GDPs of Hungary's economy for the period from 2012 to 2017. Also, in the next scheme are presented the GDPs of Hungary, for the same period.

According to the prior results, the index of Hungary's c_y is 3,891,176.84\$

According to prior results:

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

Calculating the general index of the cycle of money for the case of Hungary and of the global view:

The general index of c_y for Hungary is $g_{cy\ Hungary} = 0.4139$

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

Therefore, it is concluded that Hungary's index cycle of money is close to the global average cycle of money. Then, the dynamic of Hungary's economy complies with the global average and its structure is near to the initial hypothesis:

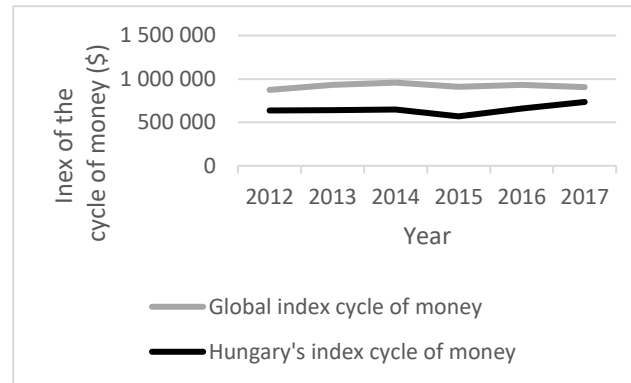


Figure 3. Graph of the index of the cycle of money (Author's scheme)

Based on the prior scheme, it is concluded that the index of the cycle of money in Hungary's economy complies with the global average of the index of the cycle of money, which is 0.5, as a global constant. Hungary's index of the cycle of money is 0.4139, so Hungary confirms the global average of the cycle of money. The countries that are near 0.5 have a well-structured economy, according to the theoretical background of the cycle of money. This conclusion means that the economic structure of Hungary has an appropriate distribution of money to its economy, then international transactions are not fully overpassed by the local banking system. Also, the international and the bigger companies do not substitute a lot of the local medium and small enterprises. Besides the government, should protect more small and medium enterprises to avoid losing money from transactions of bigger enterprises. The authorities should apply the fixed-length principle, then higher taxes should be put on the bigger companies. In that way, the distribution of money inside the economy will be increased, and social welfare will be boosted.

In the general index of the cycle of money:

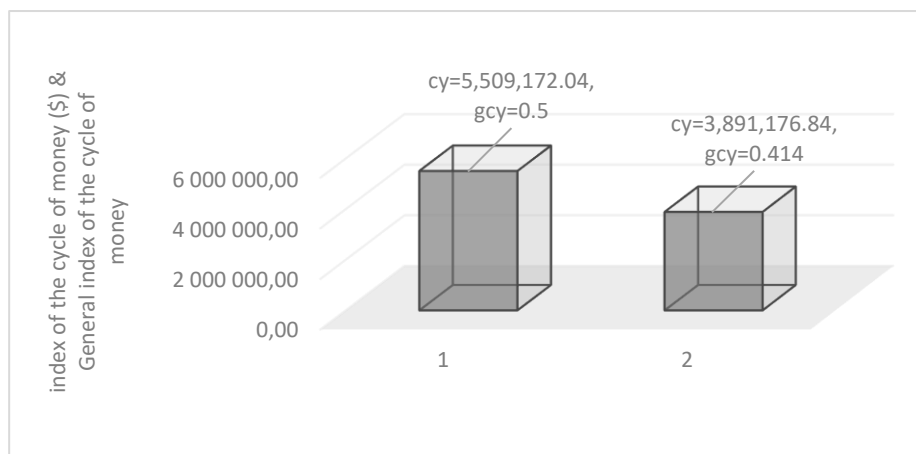


Figure 4. The cycle of money indexes (Author's scheme)

The prior scheme presents the combination of the index of the cycle of money with the case of the general index of the cycle of money. It is obtained the affiliation between the global average indexes and Hungary's index. It is concluded that Hungary is part of the countries that are representative of the global average index of the cycle of money, both for the simple index and the general index.

5. Conclusions

Based on the outcomes of the table, it is concluded that Hungary is close to the worldwide average index of the cycle of money. Using Fig. 2 and Fig. 3 the index of the cycle of money belongs to the worldwide average of the index of the cycle of money, displaying that Hungary's financial system is well-based. In this case, the cycle of money in the country is at a suitable degree that permits the economic system to feature a good enough distribution of money inside the economic system. The losses of the local banks are to a very good degree because cash isn't excluded from the local financial system by worldwide transactions ([4]; [11]; [54]; [70]; [77]; [84]). The interpretation is that the financial system belongs to the average cycle of money, then to the common monetary dynamic, the monetary structure may be improved by decreasing taxes to the small and the medium monetary units, making use of a higher tax for large businesses. Larger agencies cover the manufacturing and the offerings that would be supplied with the aid of smaller businesses. The growth of the cycle of money is to distribute and redistribute the cash to the financial system, diminishing the losses of the local banks' deposits and keeping off big agencies to hold big quantities of cash overseas that in no way come back to the financial system, as stored to worldwide accounts.

Moreover, if the bigger agencies have to estimate manufacturing that smaller businesses can't provide, then the authorities ought to have low taxes on excessive technological units and factories. Therefore, large agencies have to no longer replace smaller businesses' activities. Then, large agencies ought to no longer provide goods and services that may be supplied with the aid of smaller agencies. The intake and the overall investments of a country are elevated with the aid of using the growth of the distribution of money ([9]; [13]; [15]; [57]; [72]; [81]). A country with a well-based economic system is a country with a cycle of money to a very good degree concluding that this country can face without problems monetary shocks and disturbances to a monetary crisis. The utility of the fix-length principle boosts the index of the cycle of money, with the aid of using the higher taxes on the agencies that take part in worldwide transactions and substitute activities of smaller agencies. Hungary's economic system is near the index of common GDP per capita, from 2012 to 2017 using the index of average GDP per capita([16], [18]; [19]; [21]; [22]; [24]; [27]).

Thus, the model complies with the initial hypothesis of the dependence of the index of the cycle of money with the money that is saved to the local banks and the GDP per capita, showing the distribution of money to the economy ([1]; [2]; [7]; [10]; [14]; [53]; [55]; [58]; [62]; [66]; [69]; [74]; [85]; [87]). Finally, it is obtained that Hungary's structure of the economic system has a tendency in the last years to have better reuse of money inside the financial system than in the past, as tends to have closer characteristics to a financial system that complies with the idea of the cycle of money. Hungary's financial dynamic belongs to the worldwide average cycle of money, displaying that is a well-structured economic system.

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