

Index of the Cycle of Money - The case of Thailand

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Abstract

This paper seeks to make clear how the concept of the cycle of money works in an actual case scenario like this of the economic system of Thailand. The index of the cycle of money suggests how an economic system ought to counteract a monetary crisis and examines how well-structured a country's economy is. The estimations of the index of the cycle of money of Thailand are compared with the global average index of the cycle of money. The estimations reveal that Thailand is above the average global value. Thailand's results show that it is a well-structured economy and can face an economic crisis. The applied methodology stands on the analysis of the theory, mathematical, statistical, and econometrical results. The current work is important as it represents the strength of Thailand's economy to a potential crisis. The results could be achieved by the application of the theory of the cycle of money to a country's economy. Prior real case scenario conclusions are from Latvia, Bulgaria, and Serbia. This theory shows that companies with high capital should invest in manufacturing and high technology sectors having fewer taxes, for better distribution of money to the economy and smaller companies to cover the rest economic sectors. These results are from a project for multiple countries and this is the only study until the present time about this country's index of the cycle of money. The period that is used for compilations is the global recession period of 2012 - 2017.

Keywords: the cycle of money, Thailand, index of the cycle of money.

JEL Classification Code: C, F, H

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1. Introduction

In the last decades, Thailand has made remarkable progress in economic development, moving from a low-income to an upper-middle-income country in less than a generation. Thailand sustained strong growth and impressive poverty reduction. Thailand's economy grew at an average annual rate of 7.5% in the years of 1960-1996 and 5% during 1999-2005 following the Asian Financial Crisis. This growth had resulted in a great range of jobs that helped pull millions of people out of poverty. For this reason, the facet of Thailand is used to identify its strength to the period of general recession, 2012 -2017 (OECD, 2020).

This paper examines the dynamic of the economy, of Thailand, using the concept of the cycle of money. The theoretical background of the cycle of money supports that the dynamic of an economy is based on the idea of the number of times that money is used in an economy. An economy should be considered not as a closed system, but as a system with fragments (Choi, Furusawa, & Ishikawa, 2020; Goswami & Purkayastha, 2020; Irawan, Kinanti, & Suhendra, 2020; Merle, Al-Gamrh, & Ahsan, 2019; Waworuntu & Hadisaputra, 2016). An economy with fragments means that the economy interacts with other economies but simultaneously protects its money. An amount of money in many cases gets out from an economy to external banks or other economies. The mainstream is that the bigger companies and the international companies in most cases save their money to external banks and economic heavens. Therefore, according to this theory, the tax authorities should put an additional tax on this kind of company to reduce the losses to the economy. Moreover, the smaller companies and the freelancers should be taxed with lower tax rates. Then, it would be plausible to increase the dynamic of the economy. Also, the factories, the know-how services of big companies, the health care system, and the educational system comprise a special case for the economy, as they belong to those cases where the taxes improve the quality of the economy. The factories and the big know-how companies increase the cycle of money, as they do not substitute the activities of the small-medium companies and the freelancers (Ainsworth & Shact, 2014; Boland, 2014; Caldara, Iacoviello, Molligo, Prestipino, & Raffo, 2020; Feinschreiber, 2004; Gihman, Skorohod, Gihman, & Skorohod, 1972; IMF, WB, & WTO, 2017; Kushner, 1974; United Nations, 2012; Wijnbergen, 1987; Wilson, 1986). The educational and health care systems improve the quality of the economy, making the whole economy better. Therefore, this paper seeks to make clear how the concept of the cycle of money works in an actual case scenario like this of the economic system of Thailand. The index of the cycle of money suggests how an economic system ought to counteract a monetary crisis and examines how well-structured a country's economy is. The estimations of the index of the cycle of money of Thailand are used for a comparison with the global average index of the cycle of money. The results reveal that Thailand is above the average global value and therefore could face an economic crisis, as it is a well-structured economy.

The concept of the cycle of money reveals that the taxes return to the economy, in the case of the education and the health care system (these are exclusions from the mainstream where taxes support the economy). But, the mainstream is that the tax authorities should maintain the taxes to the lowest level. For small and medium companies, the government should protect them with very low taxes and contemporaneously should put greater taxes on the larger companies. But, there is a type of big and international companies that should have low tax rates, as these types of companies do not substitute the activities of smaller companies. These types of big companies are factories and technological know-how companies. Then, the principal idea is to have a financial system, with the best allocation of production. (Helpman & Krugman, 1989) Larger companies should not provide similar products and services, like that of smaller companies, as they can make investments in economic fields that smaller companies cannot support. In that way, an economic system

achieves its best level. Additionally, the idea of the cycle of money shows that with the appropriate allocation of production units and of taxes the money is cycled inside the economy achieving the maximum dynamic of the economy (Constantinos Challoumis, 2021, 2018d, 2019a, 2019c, 2020a, 2021a). This paper is about Thailand's index of the cycle of money. The research is based on an actual case scenario of a country's economic system. Therefore, the principal hypothesis of this paper aims to estimate the index of the cycle of money of Thailand and to answer the question if it's near the worldwide general index of the cycle of money, according to the simple index or the general index of the cycle of money. The cycle of money of Thailand should be similar or close to the worldwide general index of the cycle of money to be able to counteract a potential depression. The applied approach is based totally on mathematical estimations from the relevant theory. The results confirm that Thailand's economic system is properly established, as it follows the general international index of the cycle of money (the value of 0.5) which represents the average global case. The countries near 0.5 and above it have an appropriate distribution of money to their financial system. Consequently, Thailand's economic system is considered as well established, standing on the results of this paper. The question about the way the index of the cycle of money works in the case of Thailand is answered from the structure of its economy and the way that the money is distributed to its economy. Besides, it needs some improvements to have an even better index cycle of money. Therefore, Thailand should decrease taxes for small and medium enterprises, to achieve better reuse of money in the country's economic system, and to increase taxes to big and international (OECD, July 2017).

2. Literature Review

Thailand made economic and social progress over the past decades, using a strong policy framework, an appropriate business climate, and estimating citizens' well-being. Fiscal policy has aimed at financial relief to affected households and enterprises. The size of the fiscal measures included in the various packages has been sizable by ample fiscal space, formed on its past prudence, and measures to contain the deficit and public debt before the recent COVID - 19 crisis. After the exit from lockdown measures, fiscal resources should be reallocated to boost public investment and foster long-term growth potential. As trade integration would entail job displacement and wage adjustment, policies will need to be put in place to mitigate the impact on affected workers. Moreover, since opening markets would stimulate demand of the manufacturing sector for more sophisticated business services, it would increase the demand for skilled workers, exacerbating the existing skills imbalances (OECD, 2020). Following the concept of the cycle of money for lower taxes to big capital, companies form manufacturing and factory activities, the free market will act better for the small and medium companies. 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. Similar results are concluded and for the cases of Serbia and Bulgaria. These results are based on the theoretical approach of the theory of the cycle of money, where this theory suggests that to an economy the taxes return to the society; basically, this happens in the case of the education and the health system. 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. The arm's length principle is the principle where the authorities apply the taxes to international and to groups of companies. The arm's length principle is the method that the tax authorities estimate the tax obligations of the companies which participate in international transactions (Amanor-Boadu, Pfromm, & Nelson, 2014; C. Challoumis, 2019, 2020; Constantinos Challoumis, 2018, 2018c, 2018b, 2019b, 2020b, 2021b; Cornelsen & Smith, 2018; Fan, Yang, & Jia, 2020; John, 2018; OECD, 2020; Olcina, Tur, & Escriche, 2020; Prestianawati, Mulyaningsih, Manzilati, & Ashar,

2020; Saraiva et al., 2020; Silveira Porto & Viriato Memória, 2019; Stone, 2008; Zamudio & Cama, 2020).

For the authorities using the arm's length principle, it is tough to obtain the controlled transactions, as the international companies offer similar data with that of the uncontrolled transactions and they hide with a purpose to avoid paying taxes. Therefore, the government needs to apply the fixed-length principle. The fixed-length principle indicates that the companies of controlled transactions manage transactions and achieve avoiding tax paying. Then, according to the fixed-length principle, international companies should pay plus a fixed amount of tax. In that way, the cycle of money is enhanced, because the larger companies generally send the money out from the society and the economy and save them in international banks. Therefore, that money is lost from society, decreasing consumption (Bourdin & Nadou, 2018; Constantinos Challoumis, 2021, 2018d, 2019a, 2019c, 2020a, 2021a; Driver, 2017; Dybowski & Adämmer, 2018; Khan & Liu, 2019; Marques, 2019; Mialhe, 2017; Ortun, Lopez-Valcarcel, & Pinilla, 2017; Shamah-Levy et al., 2019; Taub, 2015). Then, according to the fixed-length principle, the local companies which save their money in local banks should have lower tax rates.

In conclusion, the fixed-length principle serves the theory of the cycle of money, where the small and medium companies pay lower taxes than the larger companies, which substitute their commercial activities. On the other hand, the arm's length principle estimates the taxes standing on methodologies provided by the companies that make international transactions. In that way, the large companies cover the activities of the smaller companies. Finally, the mainstream is that small and medium companies boost 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. Therefore, the money distributed inside the economy increases the cycle of money many times. The reason why money increases the cycle of money is obvious according to eq. (4) of the general index of the cycle of money (Dybowski & Adämmer, 2018; Koethenbuerger, 2011; Limberg, 2020; Mancuso & Moreira, 2013; Ortun et al., 2017; Prestianawati et al., 2020; Rashid, Warsame, & Khan, 2020; Siegmeier et al., 2018; Sikka, 2018; TUTER, 2020; Van de Vijver, Cassimon, & Engelen, 2020; Wright, Smith, & Hellowell, 2017).

A prior application of the theory of cycle money could be found in the case of Latvia, which belongs to the range of 0.5 meaning that is a well-structured economy and would not collapse to a strong economic crisis. In the case of Thailand the index of the cycle of money is above the value of 0.5, anticipating that Thailand could also face a strong economic crisis, but with a little bit slower rhythm. The countries that are above the value of 0.2 can counteract potential crises (Arai, Naito, & Ono, 2018; Bartels, 2005; Castro & Scartascini, 2019; Constantinos Challoumis, 2021, 2018d, 2019a, 2019c, 2020a, 2021a; Ewert, Loer, & Thomann, 2021; Holcombe, 1998; Kiktenko, 2020; Koethenbuerger, 2011; Martinez & Rodríguez, 2020; Ratten, 2019; Ruiz, Jurado, Moral, Uclés, & Viruel, 2017).

3. Methodology

3.1 Mathematical and theoretical background

The methodology applied for the current study is presented below, being in the same line with the presented theory. The calculations of the cycle of money are clarified by the following mathematical types:

$$c_y = c_m - c_a \quad (1)$$

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

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

$$g_{cy\ Country} = \frac{c_{y\ coyntry's}}{c_{y\ Average} + c_{y\ coyntry's}} \text{ or } \frac{i_{cy\ coyntry's}}{i_{cy\ Average} + i_{cy\ coyntry's}} \quad (4)$$

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

The c_m is the velocity of financial liquidity, c_α is the velocity of escaped savings and c_y is the cycle of money. 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. In addition, $g_{cy\ Country}$ symbolizes the general index of c_y of the country, $i_{cy\ coyntry's}$ or $c_{y\ coyntry's}$ is the index of c_y of the country, and $i_{cy\ Average}$ or $c_{y\ Average}$ is the global index of i_{cy} . The x_m is the condition of the economy (GDP), the a is the lost savings from the economy, and the m is about the money which is maintained in the economy. Finally, $g_{cy\ Average}$ is the general global index of c_y , and is obtained as a global constant (Amanor-Boadu et al., 2014; Constantinos Chaloumis, 2019, 2018a, 2019d, 2019e; Prestianawati et al., 2020; Saraiva et al., 2020; Zamudio & Cama, 2020).

The proper hypothesis is to establish the connection between the index of global average c_y , the bank deposits and the GDP per capita, with an econometric approach. Then is confirmed the initial hypothesis that the cycle of money of country is above the global average index of the cycle of money. The eq. (4) and (5) mean that an economy close to the value of 0.5 can face immediately an economic crisis. Results close to this value represent an appropriate index of the cycle of money, revealing an adequate economic structure of the society and then the fine distribution of money between the citizens - consumers. Equation (1) is the term of the cycle of money which used to define the $c_{y\ coyntry's}$ and $c_{y\ Average}$ of eq. (2). The cycle of money to a quantity value is expressed by GDP, basically is an expression of $\frac{\partial(GDP)}{\partial(S+I+X)}$, according to $\frac{dx_m}{dm}$ and $-\frac{\partial(GDP)}{\partial(S'+I'+M)}$ based on $\frac{dx_m}{da}$. Then, $c_y = d(GDP) = \frac{\partial(GDP)}{\partial(S+I+X)} d(S + I + X) - \frac{\partial(GDP)}{\partial(S'+I'+M)} d(S' + I' + M)$, formed on $c_y = \frac{dx_m}{dm} - \frac{dx_m}{da}$, of eq. (2). Then, S is the savings, I is the investments and X is the exports. Then, S' , is about the savings which are oriented to banks out of the country's economy, I' , is about the investments which oriented to banks out of the country's economy, and M are the imports. Therefore, the cycle of money expresses the GDP as the following one: $Y = S_T + I_T + (X - M)$, or $Y = (S - S') + (I - I') + (X - M)$ or $Y = \Delta S + \Delta I + (X - M)$. According to the theoretical background, for the lost money from the economies, the problem of controlled transactions could be administrated, if an organization could identify the money transitions between the economies, by a comparison of the global economies, by ΔS , ΔI , and $(X - M)$. Then, $c_{ytotal} = \sum_{i=1}^n \sum_{t=1}^m c_{y,i,t} = \sum_{i=1}^n \sum_{t=1}^m [\frac{\partial(GDP)}{\partial(S+I+X)} d(S + I + X) - \frac{\partial(GDP)}{\partial(S'+I'+M)} d(S' + I' + M)]_{i,t}$. But, because data from an organization for these activities don't exist follows the application of the index of the cycle of money. The cycle of money is an expression of the minus between the differential equations of the volume of money that is used in an economy and the volume of money that are lost from the economy. This is the reason why the theory of the cycle of money supports the higher tax of companies that make controlled transactions and the bigger companies because with that way the smaller companies are using an amount of money multiple times. An exemption is for the high technology companies and the factories, where their activities cannot substitute by smaller companies.

3.2 Data analysis

The data used in the current work are based on real magnitudes of the economy and rates of them per GDP. The period of 2012 - 2017 is a period of general recession, especially in Europe, therefore is scrutinized this period for multiple countries. According to the OLS test, is presented the following equation:

$$i_{cy} = c + \beta_1 b_d + \beta_2 GDP + \beta_3 \log i_{cy \text{ Average}} \quad (6)$$

To the prior table, the variables are defined before, except c which is the constant, and β_1, β_2 and β_3 are the multipliers. According to the prior methodology are excluded the country's results.

4. Results - The case of Thailand

Standing on the prior methodology the following results were extracted. Table 1 includes the parameters of bank deposits, GDPs, and the indexes of the cycle of money. The econometrical estimations formed on eq. (6). This section reveals the dependence of Thailand's index of the cycle of money using the bank deposits of Thailand's economy and the GDP per capita of Thailand's economy. The bank deposits of the global average case and the global GDP per capita are used for the comparison of Thailand's economy, in terms of its GDP, and the country's bank deposits. Then, for these variables are used yearly data for the period of 2012 - 2017:

The same conclusions arise from an econometric point of view also, with the dependent variable to be the index of the cycle of money:

Table 1 Thailand's regression analysis (OLS)

Variables	OLS		
	Coefficient	std. error	p-value
Constant	-5.89459e+06	697495	0.0137 **
Thailand's bank deposits	13959.6	240.705	0.0003 ***
Thailand's GDP per capita	103.655	5.04665	0.0024 ***
Global index of the cycle of money (log)	326525	58708.6	0.0308 **

Note: 1. ***statistically significant at 1% level, ** statistically significant at 5% level, *statistically significant at 10% level.

2. OLS test.

Source: Author's estimations

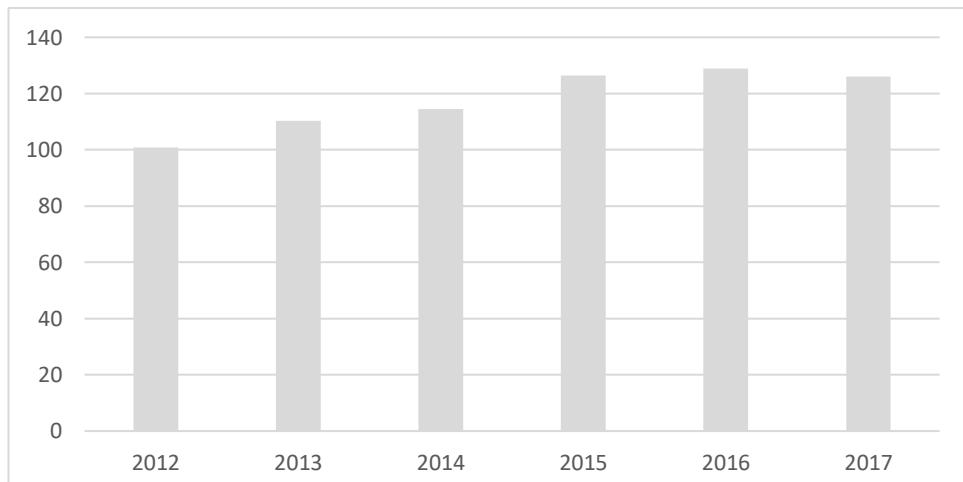
The result of adjusted R^2 is 0.99 because as expected there is a strong relation between the bank deposits and the GDP. The Breusch-Pagan test showed that doesn't exist heteroscedasticity, as $P(\text{Chi-square}(3) > 0.745504) = 0.862452$. The Durbin-Watchon test has a value of 2.492265. The indexes reveal Thailand's distribution of money and the form of its economic structure (see Table 2). Formed on those estimations and the theoretical background the condition of the economic structure of the country is determined and if Thailand belongs to well-structured economies. According to these results, it's plausible to clarify the condition of the cycle of money in Thailand:

Table 2 Thailand's index of the cycle of money

Year	Bank Deposits Global Average (%)	Bank Deposits Thailand (%)	Global GDP per Capita (\$)	Thailand GDP per Capita (\$)	Index of Global Average Cy (\$)	Index of Thailand's Cy (\$)
2012	52.48	100.8	16,653.01	15,439.87	873,949.96	1,556,338.90
2013	53.96	110.34	17,266.62	15,783.03	931,706.82	1,741,499.53
2014	55.81	114.41	17,159.02	15,869.88	957,644.91	1,815,672.97
2015	59.38	126.45	15,295.71	16,301.54	908,259.26	2,061,329.73
2016	60.77	128.84	15,330.03	16,797.77	931,605.92	2,164,224.69
2017	60.07	126.12	15,082.49	17,420.56	906,005.17	2,197,081.03
RESULTS					5,509,172.04	11,536,146.84

Source: Author's Conclusion

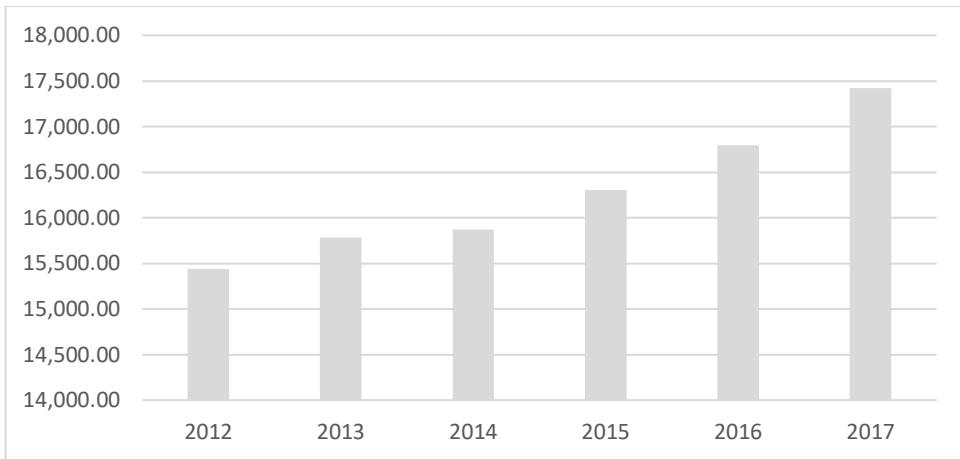
Thailand's bank deposits:



Source: Globaleconomy.com

Figure 1. Thailand's bank deposits

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



Source: Globaleconomy.com

Figure 2. Thailand's GDPs per capita

Figure 1 presents the condition of GDPs of Thailand's economy for the period from 2012 to 2017. Also, the next scheme (fig. 2) presents the GDPs of Thailand, for the same period.

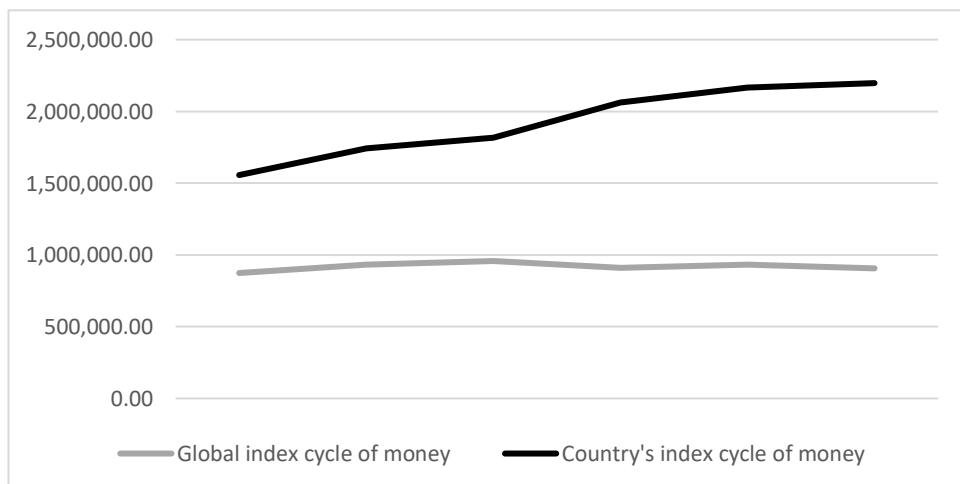
According to prior results, the index of Thailand's C_y is 11,536,146.84 \$. We obtain from the prior results that:

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

Calculating the general index of the cycle of money for the case of Thailand and the global view we arrive at:

- The general index c_y for Thailand is $g_{cy\ Country} = 0.68$
- The general index of c_y global view is $g_{cy\ Average} = 0.5$

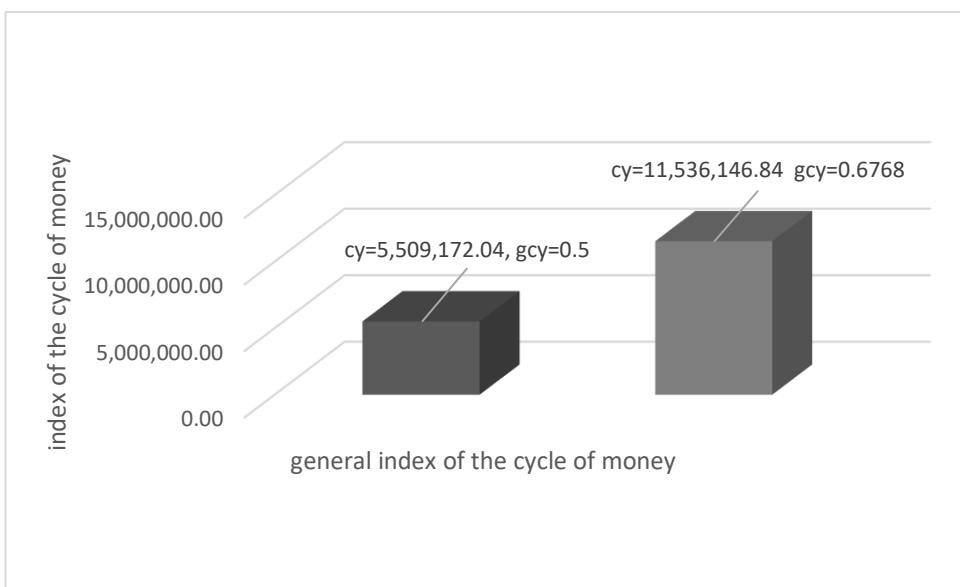
Therefore, it is concluded that Thailand's index cycle of money is above to the global average cycle of money. Then, the dynamic of Thailand's economy complies with the global average and its structure is near to the initial hypothesis. Then we receive the next scheme:



Source: Author's Conclusion

Figure 3. Graph of the index of the cycle of money

Formed on the prior scheme, the conclusion is made that the index of the cycle of money of Thailand's economy is under but close to the global average of the index of the cycle of money, which is 0.5 (considered as a global constant). The countries that are near 0.5 have a well-structured economy - standing on eq. (5), according to the theoretical background of the cycle of money. This conclusion means that the economic structure of Thailand has an upper distribution of money to its economy, then international transactions do not fully do not use the local banking system. Also, the international and the bigger companies substitute the local medium and small enterprises. Besides, the government should protect more the small and medium enterprises to avoid losing money from transactions of bigger companies. 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. The general index of the cycle of money appears to the following figure:



Source: Author's Conclusion

Figure 4. The cycle of money indexes

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. The affiliation between the global average indexes and Thailand's index is represented. Thailand is part of the countries which are above to the global average index of the cycle of money, both for the simple index and general index.

5. Additional data

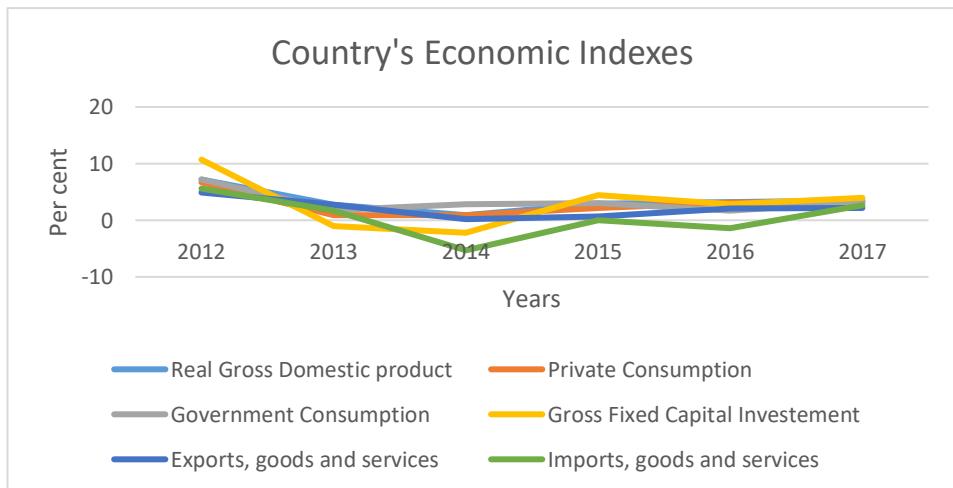
An analysis with rates is used to identify additional country's rates, to have a complete view of the country's economy. The reason that used rates, is because also the general index of the cycle of money is expressed as rate of GDP in the bibliography. The scrutiny could be formed using a series of factors between multiple factors of Thailand's economy. A table is submitted below with indicators of Thailand's economy:

Table 3 Thailand's economic indexes

Country's Economic Indicators	2012	2013	2014	2015	2016	2017
Real Gross Domestic product	7.2	2.7	0.9	2.9	3.2	3.5
Private Consumption	6.7	0.9	0.9	2.2	3.1	3.1
Government Consumption	7.2	1.8	2.8	3	1.7	3.2
Gross Fixed Capital Investment	10.7	-1	-2.2	4.4	2.8	4
Exports, goods and services	4.9	2.7	0.2	0.7	2.1	2.2
Imports, goods and services	5.6	1.7	-5.3	0	-1.4	2.6
Index of the cycle of money	0.64039	0.65146	0.654693	0.69414	0.69907	0.70803

Source: Author's Conclusion

According to table 3, it is received the following diagram:



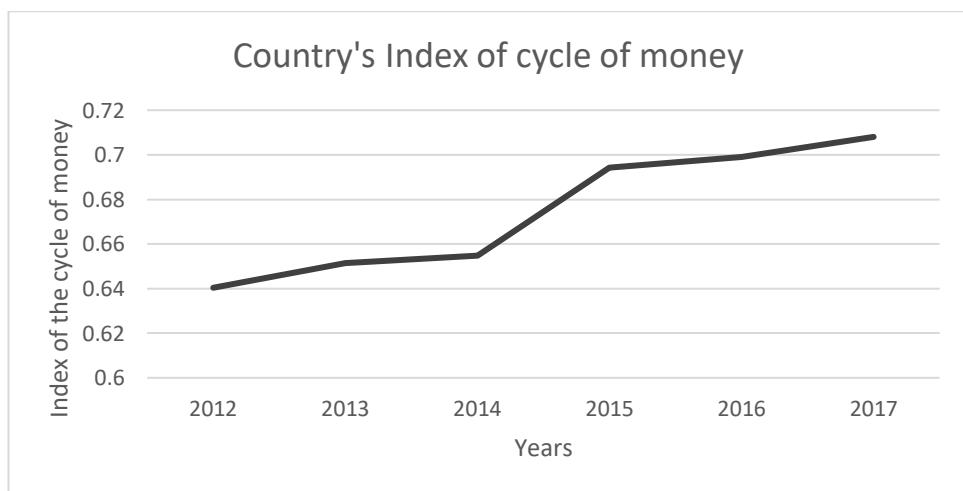
Source: Globaleconomy.com

Figure 5. Country's economic indexes

According to figure 5, it is obvious that from the year 2012 to 2014 all the indexes are declined. Then, from the year 2015 to 2017 all economic indicators are increased. The minimum point of Gross Fixed Capital Investment is in the year 2014, and the same happens with the imports, but the consumption increased in 2014, this allowed the cycle of money of the country to maintain and not to fall. In 2017 all economic indexes have increased, but with the imports be at the lowest level, keeping with that way the distribution of money to the economy at a high level. In the year 2015, the increase in the Gross Fixed Capital Investment and the increased consumption caused an instantaneous increase in the distribution of money. Besides, in 2013 the imports were higher than the Gross Fixed Capital Investment, and this had as a result to stabilize the growth of the cycle of money. Private consumption was a key contributor to growth, by increased incomes in the agriculture and services sectors. Private consumption spending received a boost from tourism and services connected with tourism. Higher output and prices for palm oil, and higher paddy yields, enforced incomes in the agricultural sector, which accounts for the largest share of employment in the country. Tax

deductions in support of domestic tourism and year-end expenditures also contributed to private consumption growth. Net exports were the largest contributor to growth, with a continued expansion of tourism and lower imports. According to World Bank, public investment remains a key growth driver for the Thai economy supports Transportation Action Plan despite slow capital budget execution. The Government introduced the Transportation Action Plan to enhance public infrastructure investment and strengthen investor confidence in the Thai economy. This Plan is linked to the 20-year National Strategy and the 12th National Economic and Social Development Plan which aims at transport modality shifts, increased connectivity, and enhanced mobility. The Action Plan consists of multiple investment projects spread across seven fiscal years. The significant area is the double-track rail network which consists of projects accounting for approximately half of the total project investment cost. The second is the Mass Transit Development (urban railway network). The third one is the Motorway and Expressway (OECD, 2020). Net exports were a contributor to growth, mainly driven by a continued expansion of tourism, strengthened recovery in the US and Europe, and lower imports. Tourist arrivals increasing by 8.9 percent in 2016, despite a decline in the number of Chinese tourists due to measures to curb illegal tour operators implemented at the end of the year. Service export growth totalled 9.3 percent through 2016. Besides, sustaining high growth in tourism Merchandise exports also showed signs of improvements, automobiles and parts, electrical appliances, and electronics products. These are a result of increased demand from Europe, the US, and Japan, as well as the relocation of production bases hard disk drives from China, of pneumatic tires, solar cells, and. Therefore, the increased consumption, the increased fiscal policy, the investments, the temporary lower taxes, and the increased consumption led to the growth of the cycle of money.

Moreover, it is presented below the country's index of the cycle of money to be able to proceed to comparisons between the indexes.



Source: Author's Conclusion

Figure 6. Country's index of the cycle of money

The interpretation is that this financial system belongs to the upper level of the cycle of money, then there is an upper dynamic, because the structure of the economy may be improved, with decreasing taxes to the small and the medium companies, and increase of taxes to the bigger companies. Moreover, the bigger companies have to provide economic

activities that smaller businesses can't support, then the authorities ought to imply low taxes to know-how companies and factories.

6. Contribution

Therefore, large companies must no longer replace smaller businesses' activities. The investments of a country are boosted by the increase in the distribution of money. A country with a well-based economic system is a country with a good cycle of money and therefore it can face an economic crisis. Thailand's economic system is under, but near the index of common GDP per capita, from 2012 to 2017 using the index of average GDP per capita. Then companies with high capital should invest in the manufacturing and high technology sector having fewer taxes, for better distribution of money to the economy and smaller companies to cover the rest economic sectors. Therefore, the question arises if the authorities can proceed to more structural changes to the economy, to achieve even better results, following the concept of the cycle of money. The objective of this study is to define the country's general index of the cycle of money. Therefore, according to the adjusted methodology, which uses mathematical and econometrical estimations revealed the country's economy has an upper value than the average rate, of 0.5. This means that country has a well-structured economy and appropriate distribution of money making it strong to face effectively a possible economic crisis.

7. Conclusion

Formed on the outcomes of the table, Thailand may be under, but near the worldwide average index of the cycle of money. Using figure 2 and figure 3 the index of the cycle of money is above to the worldwide average of the index of the cycle of money, displaying that Thailand's distribution of money is to an upper rate. The cycle of money of the country permits a good distribution of money. The losses of the local banks are to a low degree, because an amount of money is excluded from the local financial system by worldwide transactions (see table 2). The current model complies with the initial assumption, showing the distribution of money to Thailand's economy. Thailand's economic system had a tendency in the last years to have better reuse of money within the financial system than in the past, as it tends to have closer characteristics to a financial system that complies better with the idea of the cycle of money. Finally, Thailand's financial dynamic is upper the worldwide average cycle of money.

References

Ainsworth, R. T., & Shact, A. (2014). Transfer Pricing: Un Practical Manual China. SSRN Electronic Journal. Retrieved from <https://doi.org/10.2139/ssrn.2375785>

Amanor-Boadu, V., Pfromm, P. H., & Nelson, R. (2014). Economic feasibility of algal biodiesel under alternative public policies. *Renewable Energy*, 67. Retrieved from <https://doi.org/10.1016/j.renene.2013.11.029>

Arai, R., Naito, K., & Ono, T. (2018). Intergenerational policies, public debt, and economic growth: A politico-economic analysis. *Journal of Public Economics*, 166. Retrieved from <https://doi.org/10.1016/j.jpubeco.2018.08.006>

Bartels, L. M. (2005). Homer Gets Tax Cut: Inequality and Public Policy in the American Mind. *Perspectives on Politics*, 3(1). Retrieved from <https://doi.org/10.1017/S1537592705050036>

Boland, L. A. (2014). The methodology of economic model building: Methodology after Samuelson. Retrieved from <https://doi.org/10.4324/9781315773285>

Bourdin, S., & Nadou, F. (2018). French tech: A new form of territorial mobilization to face up to global competition? *Annales de Géographie*, 2018(723–724). Retrieved from <https://doi.org/10.3917/ag.723.0612>

Caldera, D., Iacoviello, M., Molligo, P., Prestipino, A., & Raffo, A. (2020). The economic effects of trade policy uncertainty. *Journal of Monetary Economics*, 109. Retrieved from <https://doi.org/10.1016/j.jmoneco.2019.11.002>

Castro, E., & Scartascini, C. (2019). Imperfect Attention in Public Policy: A Field Experiment During a Tax Amnesty in Argentina. *IDB Discussion Paper*, (April).

Challoumis, C. (2019). Transfer Pricing Methods for Services and the Policy of Fixed Length Principle. *Economics and Business*, 33(1), 222–232. Retrieved from <https://doi.org/https://doi.org/10.2478/eb-2019-0016>

Challoumis, C. (2020). Analysis of the Theory of Cycle of Money. *Acta Universitatis Bohemiae Meridionalis*, 23(2), 13–29. Retrieved from <https://doi.org/https://doi.org/10.2478/acta-2020-0004>

Challoumis, Constantinos. (2018). Analysis of the velocities of escaped savings with that of financial liquidity. *Ekonomski Signali*, 13(2), 1–14. Retrieved from <https://doi.org/10.5937/ekonsig1802001c>

Challoumis, Constantinos. (2019). The arm's length principle and the fixed length principle economic analysis. *World Scientific News*, 115(2019), 207–217. Retrieved from <http://www.worldscientificnews.com/wp-content/uploads/2018/11/WSN-115-2019-207-217.pdf>

Challoumis, Constantinos. (2021). Index of the Cycle of Money - The Case of Latvia. *Economics and Culture*, 17(2), 5–12. Retrieved from <https://doi.org/10.2478/jecc-2020-0015>

Choi, J. P., Furusawa, T., & Ishikawa, J. (2020). Transfer pricing regulation and tax competition. *Journal of International Economics*, 127. Retrieved from <https://doi.org/10.1016/j.inteco.2020.103367>

Constantinos Challoumis. (2018a). Identification of Significant Economic Risks to the International Controlled Transactions. *Economics and Applied Informatics*, 2018(3), 149–153. Retrieved from <https://doi.org/https://doi.org/10.26397/eai1584040927>

Constantinos Challoumis. (2018b). The Impact Factor of Health on the Economy Using the Cycle of Money. *Bulletin of the Transilvania University of Brașov*, 11(60), 125–136. Retrieved from http://rs.unitbv.ro/Bulletin/Series V/2018/BULETIN I/15_Challoumis.pdf

Constantinos Challoumis. (2018c). The Keynesian Theory and the Theory of Cycle of Money. *Hyperion Economic Journal*, 6(3), 3–8. Retrieved from [https://hej.hyperion.ro/articles/3\(6\)_2018/HEJ nr3\(6\)_2018_A1Challoumis.pdf](https://hej.hyperion.ro/articles/3(6)_2018/HEJ nr3(6)_2018_A1Challoumis.pdf)

Constantinos Challoumis. (2018d). The Role of Risk to the International Controlled Transactions. *Economics and Applied Informatics*, 2018(3), 57–64. Retrieved from <https://doi.org/https://doi.org/10.26397/eai1584040917>

Constantinos Challoumis. (2019a). The Issue of Utility of Cycle of Money. *Journal Association SEPIKE*, 2019(25), 12–21. Retrieved from https://5b925ea6-3d4e-400b-b5f3-32dc681218ff.filesusr.com/ugd/b199e2_dd29716b8bec48ca8fe7bfcfd47cdd2e.pdf

Constantinos Challoumis. (2019b). The cycle of money with and without the escaped savings. *Ekonomski Signali*, 14(1), 89–99. Retrieved from <https://doi.org/336.76 336.741.236.5>

Constantinos Challoumis. (2019c). The Impact Factor of Education on the Public Sector and International Controlled Transactions. *Complex System Research Centre*, 2019, 151–160. Retrieved from https://www.researchgate.net/publication/350453451_The_Impact_Factor_of_Education_on_the_Public_Sector_and_International_Controlled_Transactions

Constantinos Challoumis. (2019d). The R.B.Q. (Rational, Behavioral and Quantified) Model. *Ekonomika*, 98(1). Retrieved from <https://doi.org/10.15388/ekon.2019.1.1>

Constantinos Challoumis. (2019e). Theoretical analysis of fuzzy logic and Q. E. method in econo-mics. *IKBFU's Vestnik*, 2019(01), 59–68. Retrieved from <https://doi.org/30.42>

Constantinos Challoumis. (2020a). Impact Factor of Capital to the Economy and Tax System. *Complex System Research Centre*, 2020, 195–200. Retrieved from https://www.researchgate.net/publication/350385990_Impact_Factor_of_Capital_to_the_Economy_and_Tax_System

Constantinos Challoumis. (2020b). The Impact Factor of Costs to the Tax System. *Journal of Entrepreneurship, Business and Economics*, 8(1), 1–14. Retrieved from <http://scientificia.com/index.php/JEBE/article/view/126>

Constantinos Challoumis. (2021a). Index of the Cycle of Money – the Case of Bulgaria. *Economic Alternatives*, 27(2). Retrieved from <https://www.unwe.bg/eajournal/en>

Constantinos Challoumis. (2021b). Index of the cycle of money - The case of Serbia. *Open Journal for Research in Economics (OJRE)*, 4(1). Retrieved from <https://centerprode.com/ojre.html>

Cornelsen, L., & Smith, R. D. (2018). Viewpoint: Soda taxes – Four questions economists need to address. *Food Policy*, 74. Retrieved from <https://doi.org/10.1016/j.foodpol.2017.12.003>

Driver, C. (2017). Advertising's elusive economic rationale : public policy and taxation. *Journal of Economic Surveys*, 31(1). Retrieved from <https://doi.org/10.1111/joes.12122>

Dybowski, T. P., & Adämmer, P. (2018). The Economic effects of U.S. presidential tax communication: Evidence from a correlated topic model. *European Journal of Political Economy*, 55. Retrieved from <https://doi.org/10.1016/j.ejpoloco.2018.05.001>

Ewert, B., Loer, K., & Thomann, E. (2021). Beyond nudge: advancing the state-of-the-art of behavioural public policy and administration. *Policy and Politics*, 49(1). Retrieved from <https://doi.org/10.1332/030557320X15987279194319>

Fan, Y., Yang, S., & Jia, P. (2020). Preferential Tax Policies: An Invisible Hand behind Preparedness for Public Health Emergencies. *International Journal of Health Policy and Management*. Retrieved from <https://doi.org/10.34172/ijhpm.2020.139>

Feinschreiber, R. (2004). *Transfer Pricing Methods, An Applications Guide*. John Wiley & Sons, Inc.

Gihman, I. I., Skorohod, A. V., Gihman, I. I., & Skorohod, A. V. (1972). The Solution of Stochastic Differential Equations. In *Stochastic Differential Equations*. Retrieved from https://doi.org/10.1007/978-3-642-88264-7_3

Goswami, M., & Purkayastha, B. S. (2020). A Fuzzy Based Approach for Empirical Analysis of Unstructured Data. *Journal of Computational and Theoretical Nanoscience*, 17(9). Retrieved from <https://doi.org/10.1166/jctn.2020.9080>

Holcombe, R. G. (1998). Tax policy from a public choice perspective. *National Tax Journal*, 51(2). Retrieved from <https://doi.org/10.1086/ntj41789332>

IMF, WB, & WTO. (2017). *Making Trade an Engine of Growth for All: The Case for Trade and for Policies to Facilitate Adjustment*. IMF.

Irawan, F., Kinanti, A., & Suhendra, M. (2020). The Impact of Transfer Pricing and Earning Management on Tax Avoidance. *Talent Development & Excellence*, 12(3s).

John, P. (2018). Theories of policy change and variation reconsidered: a prospectus for the political economy of public policy. *Policy Sciences*, 51(1). Retrieved from <https://doi.org/10.1007/s11077-017-9297-x>

Khan, S., & Liu, G. (2019). Socioeconomic and Public Policy Impacts of China Pakistan Economic Corridor on Khyber Pakhtunkhwa. *Environmental Management and Sustainable Development*, 8(1). Retrieved from <https://doi.org/10.5296/emsd.v8i1.13758>

Kiktenko, O. V. (2020). Economic features of public policy implementation in the education system. *State and Regions. Series: Economics and Business*, 2(113). Retrieved from <https://doi.org/10.32840/1814-1161/2020-2-30>

Koethenbuerger, M. (2011). How do local governments decide on public policy in fiscal federalism? Tax vs. expenditure optimization. *Journal of Public Economics*, 95(11–12). Retrieved from <https://doi.org/10.1016/j.jpubeco.2011.06.006>

Kushner, H. (1974). Stochastic Differential Equations (I. I. Gihman and A. V. Skorohod). *SIAM Review*, 16(2). Retrieved from

https://doi.org/10.1137/1016045

Limberg, J. (2020). What's fair? Preferences for tax progressivity in the wake of the financial crisis. *Journal of Public Policy*. Retrieved from https://doi.org/10.1017/S0143814X18000430

Mancuso, W. P., & Moreira, D. C. (2013). Tax benefits: Are they worth it? A study of public policies formulation. *Revista de Sociología e Política*, 21(45). Retrieved from https://doi.org/10.1590/S0104-44782013000100009

Marques, E. C. L. (2019). Notes on networks, the state, and public policies. *Cadernos de Saude Publica*, 35. Retrieved from https://doi.org/10.1590/0102-311x00002318

Martinez, M. C. V., & Rodríguez, M. C. M. (2020). Public policies of electronic governance and corruption in Mexico. *Public Policy and Administration*, 19(3). Retrieved from https://doi.org/10.5755/j01.PPAA.19.3.27769

Merle, R., Al-Gamrh, B., & Ahsan, T. (2019). Tax havens and transfer pricing intensity: Evidence from the French CAC-40 listed firms. *Cogent Business and Management*, 6(1). Retrieved from https://doi.org/10.1080/23311975.2019.1647918

Mialhe, N. (2017). Economic, Social and Public Policy Opportunities enabled by Automation. *Field Actions Science Reports*. The Journal of Field Actions, (50-53).

OECD. (2020). OECD Economic Surveys: Thailand 2020. OECD. Retrieved from https://doi.org/https://doi.org/10.1787/ad2e50fa-en

Olcina, G., Tur, E. M., & Escrivé, L. (2020). Cultural transmission and persistence of entrepreneurship. *Small Business Economics*, 54(1). Retrieved from https://doi.org/10.1007/s11187-018-0089-2

Ortun, V., Lopez-Valcarcel, B. G., & Pinilla, J. (2017). Tax on Sugar Sweetened Beverages in Spain. *SSRN Electronic Journal*. Retrieved from https://doi.org/10.2139/ssrn.3004464

Prestianawati, S. A., Mulyaningsih, S., Manzilati, A., & Ashar, K. (2020). Re-thinking Tax Leakage: Is it the Impact of Public Policy Failure? Retrieved from https://doi.org/10.2991/aebmr.k.200606.024

Rashid, H., Warsame, H., & Khan, S. (2020). The Differential Impact of Democracy on Tax Revenues in Developing and Developed Countries. *International Journal of Public Administration*. Retrieved from https://doi.org/10.1080/01900692.2020.1741616

Ratten, V. (2019). Sport entrepreneurship and public policy: future trends and research developments. *Journal of Entrepreneurship and Public Policy*, 8(1). Retrieved from https://doi.org/10.1108/JEPP-D-18-00099

Ruiz, J. C., Jurado, E. B., Moral, A. M., Uclés, D. F., & Viruel, M. J. M. (2017). Measuring the social and economic impact of public policies on entrepreneurship in Andalusia. *CIRIEC-España Revista de Economía Pública, Social y Cooperativa*, 1(90).

Saraiva, M. B., Ferreira, M. D. P., da Cunha, D. A., Daniel, L. P., Homma, A. K. O., & Pires, G. F. (2020). Forest regeneration in the Brazilian Amazon: Public policies and economic conditions. *Journal of Cleaner Production*, 269. Retrieved from https://doi.org/10.1016/j.jclepro.2020.122424

Shamah-Levy, T., Romero-Martínez, M., Cuevas-Nasu, L., Gómez-Humaran, I. M., Avila-Arcos, M. A., & Rivera-Dommarco, J. A. (2019). The Mexican national health and nutrition survey as a basis for public policy planning: Overweight and obesity. *Nutrients*, 11(8). Retrieved from https://doi.org/10.3390/nu11081727

Siegmeier, J., Mattauch, L., Franks, M., Klenert, D., Schultes, A., & Edenhofer, O. (2018). The fiscal benefits of stringent climate change mitigation: an overview. *Climate Policy*, 18(3). Retrieved from https://doi.org/10.1080/14693062.2017.1400943

Sikka, P. (2018). Combating corporate tax avoidance by requiring large companies to file their tax returns. *Journal of Capital Markets Studies*, 2(1). Retrieved from https://doi.org/10.1108/jcms-01-2018-0005

Silveira Porto, G., & Viriato Memória, C. (2019). Incentives for technological innovation: A study of the public policy of tax exemption in Brazil. *Revista de Administracão Pública*, 53(3). Retrieved from https://doi.org/10.1590/0034-761220170340

Stone, D. (2008). Global public policy, transnational policy communities, and their networks. *Policy Studies Journal*, 36(1). Retrieved from https://doi.org/10.1111/j.1541-0072.2007.00251.x

Taub, R. (2015). New Deal Ruins: Race, Economic Justice, and Public Housing Policy. *Contemporary Sociology: A Journal of Reviews*, 44(4). Retrieved from https://doi.org/10.1177/0094306115588487x

TUTER, C. (2020). Persepsi masyarakat terhadap isu pajak lingkungan di kabupaten kepulauan sian tagulandang biaro (SITARO). *Jurnal Ekonomi Dan Bisnis Airlangga*, 30(1). Retrieved from https://doi.org/10.20473/jeba.v30i12020.1-13

United Nations. (2012). Practical Manual on Transfer Pricing for Developing Countries (2017). United Nations.

Van de Vijver, A., Cassimon, D., & Engelen, P. J. (2020). A real option approach to sustainable corporate tax behavior. *Sustainability (Switzerland)*, 12(13). Retrieved from https://doi.org/10.3390/su12135406

Waworuntu, S. R., & Hadisaputra, R. (2016). Determinants of transfer pricing aggressiveness in Indonesia. *Pertanika Journal of Social Sciences and Humanities*, 24(July).

Wijnbergen, S. Van. (1987). Tariffs, Employment and the Current Account: Real Wage Resistance and the Macro-Economics of Protectionism. *International Economic Review*, 28(3). Retrieved from https://doi.org/10.2307/2526574

Wilson, J. D. (1986). A theory of interregional tax competition. *Journal of Urban Economics*, 19(3). Retrieved from https://doi.org/10.1016/0094-1190(86)90045-8

Wright, A., Smith, K. E., & Hellowell, M. (2017). Policy lessons from health taxes: A systematic review of empirical studies. *BMC Public Health*. Retrieved from https://doi.org/10.1186/s12889-017-4497-z

Zamudio, A. R., & Cama, J. L. N. (2020). Assessment of fiscal effort and voluntary tax compliance in Peru. *Revista Finanzas y Política Económica*, 12(1). Retrieved from https://doi.org/10.14718/REVFINANZPOLITECON.V12.N1.2020.3121