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The Effects of Currency Protectionism on the Exports of the Trade Partners - A Composite Index

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Abstract

The competitive exchange rate devaluation (or currency protectionism) is a phenomenon of global political economy, which goes hand in hand with trade activities. The causes, consequences and effects of monetary protectionism for the concerned countries have been thoroughly analyzed on the basis of existing literature. An important element of analysis is the different effects of the implementation of protectionist policy measures on trading partners. An example of currency protectionism nowadays is the currency competition between the US and China. Although the US is the "hegemon" of the modern international economic-political system, China's continuous, upward and rapid economic course has weakened the primacy of the US, with consequences that are perceived in the global economic system. Of course, China has been accused of practices of economic "mercantilism." On the basis of these mercantilist accusations, a kind of war broke out with the US. But the main question is this: how are the exports of trading partners affected by this currency competition? To be able to answer this question more fully, a quantitative tool should be created that can interpret the effects of currency competition on trading partners. This study will try answering this question by using the case study of U.S. - China currency competition. The methodology applied is the creation of a Composite Index.

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1. Introduction

Monetary protectionism (competitive exchange rate devaluation) is common because of the current form of the international monetary system - floating exchange rates - that allows exchange rates to fluctuate freely. But, what is monetary protectionism? The answer is that monetary protectionism is the "beggar-thy-neighbor" policy. The "beggar-thy-neighbor" policy is the policy of devaluation, which creates the framework in which the weaker currency boost growth in the domestic market at the expense of the increase in production and employment of other countries abroad (Corsetti, Pesenti, Roubini, & Tille, 1999). Research, such as Caballero, Farhi, and Gourinchas (2015); Eggertsson, Mehrotra, and Summers (2016) and Gourinchas and Rey (2016) have shown that governments around the world choose to implement "beggar-thy-neighbor" policies, with the aim of attracting global demand at the expense of their trading partners. The purpose[1] of monetary protectionism is to devalue the value of domestic currencies in order for countries to stimulate their economies[2] by gaining trade advantages[3] (Włodarczyk, 2014).

Currently the international community has witnessed American accusations regarding China's manipulation of exchange rates. The accusations are based on China's characterization as a "currency manipulator" by reports from the U.S. Treasury Department[4] (U.S. Department of the Treasury, 2019) which

[1] The balance of payments imbalances are often the motives of "economic nationalism" (D'Costa, 2006).
[2] There is a wealth of literature that proves the relationship between the volume of exports and economic growth, such as Krueger (1978); Chenery (1979); Tyler (1981); Kavoussi (1984); Balassa (1985); Chow (1987); Fosu (1990); Salvatore and Hatcher (1991).
[3] See: Goldstein and Lardy (2006).
[4] An important observation is the one mentioned by Bénassy-Quéré, Bussière, and Wibaux (2018) about currency manipulation. In particular, they state that only the case of prolonged devaluation of the currency in relation to the "equilibrium" exchange rate can be described as currency manipulation. In fact, - continuing - Bénassy-Quéré et al. (2018) argue that no country has ever declared a "currency manipulator" by the International Monetary Fund.

oversees China (among other trading partners) as one of the largest trading partners. Mertens and Shultz (2017) also mention how the Chinese currency was handled, i.e., observe that China's central bank (PBOC) had to intervene in the currency markets. If China's central bank had not intervened in times of excessive global demand, market forces would have pushed the RMB into a higher appreciation. China's central bank had to sell the Yuan for US dollars to meet excess demand and thus prevent its currency from revaluing.

The assumption of this study is that the effects of monetary competition on the exports of trading partners are determined by the combination of three pillars. A combined analysis of inflation, productivity and interdependence determines whether the effects on a country are significant or not. With the U.S. - China currency dispute as a case study, this study will build a quantitative tool suitable for quantifying the consequences of currency protectionist policies on the exports of trading partners. The quantitative tool is the *Composite Index of the Effect of Currency Protectionism.*

The remainder of this paper is structured as follows: in the second part, the theoretical framework of the pillars for the index is cited. In the third part of this paper the methodology is cited. In the end, concludes with the presentation of the composite index. This research it was based on the creation of a composite index (quantitative method of analysis).

2. The theoretical framework of the pillars for the Composite Index

The pillars of the composite index under construction are three (3). It is, firstly, the *inflation rate*, secondly, *productivity*, thirdly, *interdependence.* These three pillars can explain the impact of the currency protectionist policies of two countries on the exports of their trading partners. It is necessary to present the pillars separately in order to understand their choice.

The first pillar is the inflation rate. The choice of the first pillar is based on the exchange rate pass-through (ERPT). The phenomenon of the exchange pass-through is very crucial. Either fixed, or floating the stability of the exchange rate is more proper. The exchange rate pass-through is actually the influence of exchange rate variations on national inflation, so the pass-through is important factor regarding the monetary policy (Takhtamanova, 2008). Authors such as Dornbusch (1987); Betts and Kehoe (2001); Devereux and Yetman (2010); Bailliu and Fujii (2004); López-Villavicencio and Mignon (2016); Taylor (2000); Gust, Leduc, and Vigfusson (2010); Benigno and Faia (2016); Gagnon and Ihrig (2004); Coulibaly and Kempf (2010); Campa and Goldberg (2002); Menon (1996); Carranza, Galdon-Sanchez, and Gomez-Biscarri (2009); Sadeghi, Feshari, Barzegar Marvasti, and Ghanbari (2015) indicate the importance of exchange rate pass-through. Essentially, the exchange rate pass-through is based on the size of inflation. The appropriate monetary policy of a country and the imported inflation can be the two reasons that the exchange rate pass-through is critical. Inflation is the first pillar of the composite indicator because it helps to determine the effect of monetary protectionism. Inflationary pressure - especially when it is a continuous and persistent phenomenon[5] - do not help the exports of a state. Inflation has a negative impact on both the cost of production (increase in cost inflation, through intermediate goods) and on the overall economic functioning of the state. In particular, Clark (1995) states that an increase in the prices of raw materials will increase the prices of both intermediate and certain finished products. Pirzada (2017) on the role of intermediate goods, states that the prices of final products are determined on the basis of an increase. Note that intermediate goods (imported inflation) are not the only factor that makes inflationary pressures negative for a country's exports. The country's unstable macroeconomic environment leads to inflationary pressures (for example, fiscal policy can affect inflation). Haggard and Kaufman (1990) report that political factors lead to inflation. Aisen and Veiga (2005) and Aisen and Veiga (2008) report that a higher degree of political instability creates higher inflation rates. Changes in exchange rates lead to changes in the general price level and inflation (Deravi, Gregorowicz, & Hegji, 1995). Kamber and Wong (2018) point out, among other things, that domestic policy and key inflows of goods, in terms of inflation, are more important in the long term. In particular, they state that inflation in the long term appears to be essentially a monetary phenomenon largely determined by domestic monetary policy, despite the foreign shocks. Whether inflation is due to inputs or to macroeconomic factors, it is certain that it has a direct impact on competitiveness and has therefore been chosen as the first pillar of the indicator. Essentially, the choice of inflation was made because it affects the exchange rate pass-through of currency shocks.

The second pillar is productivity. As McDonnell (2018) states, the only sustainable form of growth is the growth resulting from productivity growth. Bárány and Siegel (2019) find – when it comes to sectoral productivity fluctuations – that sector work that increases the technological change is critical. Of course, the most important thing in investigating the effects of currency shocks is not so much the difference in the industry as the difference in technological inputs and productivity. De Gregorio and Wolf (1994) report that essentially fluctuations in terms of trade and differential productivity growth between sectors are the major determinants of real exchange rates. Tille, Stoffels, and Gorbachev (2001) explain the role of productivity in exchange rates. Productivity growth not only helps growth, but can keep the country from being more

[5] Some countries, with the aim of controlling the amount of money, use measures such as capital controls and/or foreign reserves. In particular, reserves, among other aspects, also act as 'shock absorbers' in terms of fluctuations in international trade, such as fluctuations in imports due to trade shocks (Akinwunmi & Adekoya, 2016). With regard to capital controls, these are used to restore monetary autonomy to a fixed exchange rate regime and are used as terms of trade manipulation in a flexible exchange rate regime (Devereux & Yu, 2018).

vulnerable to exchange rates. Balassa (1964) and Samuelson (1964) have shown in their research that productivity growth will lead to an appreciation of the exchange rate if it concentrates only on the tradable sector of the economy, whereas if productivity growth is equally strong in non-tradable trading sectors, then it will not affect the real exchange rate. Berka, Devereux, and Engel (2017) essentially report that levels of relative productivity are the instrument that affects real exchange rates. the Berman, Martin, and Mayer (2009) note that productivity is related to currency fluctuations. That is, when a devaluation of the exchange rate occurs, businesses, which are of high efficiency, choose to increase their export price and not the volume they export, that is, what they highlight is that high-yielding enterprises absorb exchange rate fluctuations in their offers (on their products). Considering that technological progress (R&D)[6] it is a key component of productivity change then it can be said that the technological gap between value-added products (technological inputs) versus products with fewer or no technological characteristics is significant in terms of the reaction of products to currency fluctuations[7]. In particular, Lall (2000) and Aysan and Hacihasanoglu (2007) point out that the competitiveness of medium to higher technology industries is higher than the others. Bogale (2017) for example, cites the differences in the responsiveness of products with different technology content to exchange rate fluctuations. According to Çaloúkan (2015) technology helps produce special goods with less input (new cheaper goods). Caceres, Cerdeiro, and Mano (2019) report that, comparing types of tradable goods, foreign products (electronics and other manufacturing goods) are particularly difficult to substitute for domestic production. Gan and Cheng (2020) studying the changes in the exchange rate of the Chinese currency on the effect of China's exports, point out that the appreciation of the Chinese currency has had a negative impact on industries with a low technological level. Kılıç, Bayar, and Özekicioğlu (2014) define the role played by R&D expenditure, i.e., that it is an essential feature of both high-tech exports and the exchange rate. As Ustabaş and Ersin (2016) point out, the technological upgrade of products is a key component of achieving a comparative advantage. Essentially, the choice of productivity was made because it affects the level of competitiveness.

The third pillar is interdependence. As Keohane and Nye (1973) report, the more economic interdependence increases, the more the field of political-economic ties increases the risk of contagion of political or economic asymmetries. The trade relationship – interdependence of states between them is one of the main reasons for the contagion of monetary crises (Berger & Wagner, 2002). Blundell-Wignall, Atkinson, and Roulet (2013) report that economic interdependence is an important economic situation, but one that carries risks. In particular, they state that market integration may lead to an expansion of trade in goods and services, with profits from trade, but greater interdependence is ambiguous. It can carry many risks. Marçal (2014) for example, states that a country's economic sizes play an important role, especially if that country is an important economic factor in the international economy. In particular, it notes that the application of a competitive devaluation of a country's exchange rate can have a long-term impact on the exchange rate of the other countries if it permanently affects the level of a country's key variables, i.e., if it is a countless global economy. Kohn (1975) states that the mode of transmission is the exchange rate regime. Kang (2016) mentions the effect of commercial interdependence. Due to the high trade dependency, further currency appreciation may not help boosting international trade through the consequent devaluation of the other currencies of trading partners. Goldberg and Tille (2008) point out that the dollar as the dominant currency plays an important role in other countries' productivity disruptions. In particular, they say the impact of productivity disruptions is influenced by the international role of the central currency. Dornbusch (1982) states that, regardless of the exchange rate regime, there will be a transmission of real shocks in some form, and mainly this is through the current account balance[8]. Forbes (2001) investigates trade relations as the main channel for the influx of currency crises. It considers that there are three instruments which allow the transfer of monetary disturbances. The first is the effect of competitiveness, which means that, when one country devalues its currency, it damages the competitiveness of the other, the second is income, that is, exchange rate shocks damage the country's income through imports, and the third are cheap exports, which means that the devaluation of the currency makes exports cheap. Essentially, the choice of commercial interconnection was made because it affects the level of asymmetric or symmetrical interdependence. The Figure 1 shows the three pillars of the Composite Index.

The above mentioned three pillars can explain the different effects that two countries' currency protectionism has on their trading partners. The first pillar expresses a country's exchange rate pass-through, the second pillar can express the economic and commercial strength of a country and the third pillar indicates the symmetrical or asymmetric dependence of a country with the countries involved on currency protectionism. The next section describes the methodology to be followed.

[6] See Sveikauskas (2007).
[7] For the relationship between the exchange rate and the productive sectors, see: Agiomirgianakis and Sfakianakis (2012); Song and Li (2008); Patsouratis, Frangouli, and Anastasopoulos (2005); Akatsuka and Leggate (2001); Karlis, Polemis, and Georgakis (2016); Ong and Izan (1999); Bahmani-Oskooee and Sohrabian (1992); Cho, Sheldon, and McCorriston (2002); Kandilov (2008); Grobar (1993); Branson and Love (1988); Salman, Fuchs, and Zampatti (2015); Thorbecke and Kato (2017); Sato, Shimizu, Shrestha, and Zhang (2013); Auer and Saure (2011).
[8] See: Aristovnik (2006); Calderon, Chong, and Loayza (2002); Lane and Milesi-Ferretti (2012); Debelle and Faruqee (1996); Herrmann (2009); Arratibel, Furceri, Martin, and Zdzienicka (2011); Mirdala (2016); Cesaroni and De Santis (2015); Shibamoto and Kitano (2012).

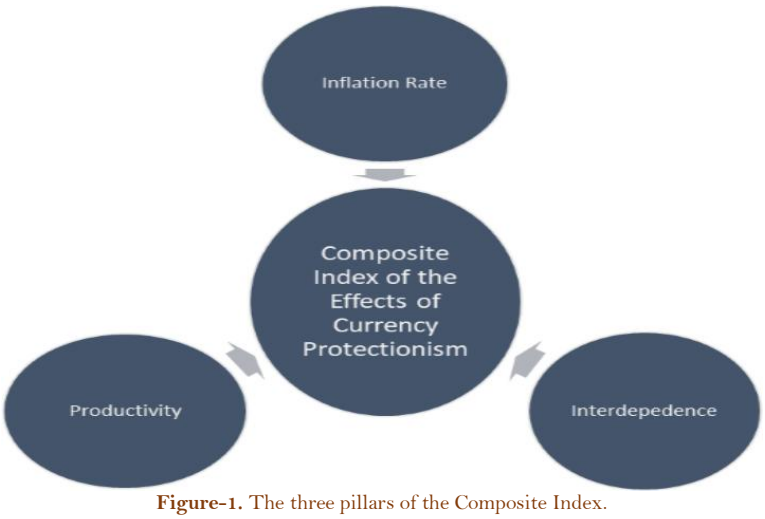

Figure-1. The three pillars of the Composite Index.

3. Methodology

The primary objective of the study is to construct a Composite Index that measures the effects of the currency protectionism on the exports of the trade partners quantitatively. The methodology to be followed will be based on a quantitative method. The index to be created is a composite indicator. Nardo et al. (2005) indicate what a composite index is. In particular, they state:

"... a composite indicator is the mathematical combination of individual indicators representing different dimensions of a concept, the description of which is the objective of the analysis ..."

Freudenberg (2003) argues that composite indicators are an increasingly applied tool for comparing countries' performance at specific levels. Examples include competitiveness, globalization, innovation, etc. The construction of the composite index will be followed by the *OECD Handbook on Constructing Composite Indicators* (OECD, 2008) which is an appropriate reference for methodological proposals. The method of Normalization that will be used to build the Index is the Min-Max Normalization Method. According to the OECD (2008):

"Min-Max normalizes the indicators so that they have the same range [0,1] by subtracting the minimum value and dividing by the range of the index values …"

The Min-Max Normalization equation method is as follows:

$$C = (Value - Min) / (Max - Min) \quad (1)$$

The method of normalization and concentration used by the World Economic Forum to construct the Global Competitiveness Report is used. In particular, the World Economic Forum applies the Min-Max method (ranging from 0 to 100) for the normalization of each sub-index. The normalization methodology followed by the World Economic Forum is as follows, according to Schwab (2019) each sub-index is upgraded according to the following formula:

$$Score_{i,c} = (Value_{i,c} - wp_i / frontier_i - wp_i) * 100 \quad (2)$$

where $Value_{i,c}$ is the value of sub-index i of country c, the worst performance (wp_i) is the lowest acceptable value for sub-index i and $frontier_i$ corresponds to the highest value (at best possible result) for sub-index i.

According to Ochel and Röhn (2006) the Min-Max Normalization method is followed by Fraser Institute: Economic Freedom of the World (EFW index) and World Economic Forum (WEF) Growth Competitiveness Index (GCI). Regarding the concentration stage, the procedure applied by the World Economic Forum is followed. In other words, the process of finding the average is followed. The procedure is mentioned in the Global Competitiveness Report.

Talukder, Hipel, and vanLoon (2017) mention:

"Commonly applied aggregation options include additive aggregation (arithmetic mean), […] The arithmetic mean is a linear function. The normalized […] indicators are summed to compute the arithmetic mean ..."

The formula for evaluating arithmetic mean is the following:

$$\boldsymbol{x} = \sum_{i=1}^{n} \boldsymbol{x} / \boldsymbol{N} \quad (3)$$

According to Mazziotta and Pareto (2013) there is no general method to construct a composite index, but they mention four steps to form an index, which are first the definition of the phenomenon, second the selection of a group of individual indicators, third the normalization of the individual indicators and lastly the aggregation of the normalized indicators. The index consists of three (3) pillars. The criteria for each pillar were based on literature analysis. This formed the basis for developing of the composite index. The Figure 2 shows the function of the Index.

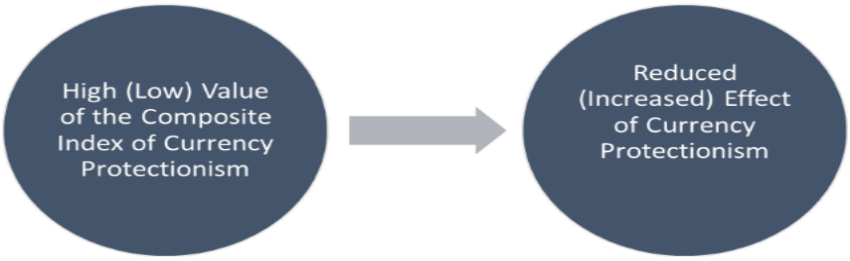

Figure-2. Schematic Display of the Function of the Index.

The indicator of the first pillar is the percent (%) Inflation, Consumer Price Index (CPI) because it can explain the intensity of the exchange rate pass-through[9]. The best value of this indicator is the lowest. The worst value is the highest. The indicators of the second pillar are the Total Factor Productivity (index - level at current purchasing power parities) and the percentage (%) of the High-Tech Exports, due to the fact that these indicators are able to explain the economic strength of a country[10]. The best value of these two indicators is the highest. The worst value is the lowest. The indicator of the third pillar is the percentage of the country's exports and the imports to/from US and China separately, because this indicator is capable of explaining the trade connection of two trading partners and the existence of high unilateral commercial dependence[11]. The best value of this indicator is the lowest. The worst value is the highest. This indicator is calculated for both countries involved separately. The countries selected are four (4) and are *Switzerland, Brazil, Norway, and, South Africa.* The countries were selected indicatively on the basis of a main criterion. The criterion is that it should be of a different economic level. The criterion is that it should be of a different economic level. Actually, two developed countries (Switzerland and Norway) and two developing (Brazil and South Africa) (United Nations, 2021). The choice of countries was also based on the availability of data.

The year under review is *2019* and was chosen because it is the year immediately after the implementation of protective measures by both countries and before the pandemic. The year under review provides a more effective investigation of the issue under consideration. Although China has been described as a currency manipulator in other periods, it is useful to investigate the chosen year because it is in the context of a generalized economic conflict. The function of the composite index is as follows*: the higher the value of the composite index, the smaller the effect of currency competition (i.e., USA - China) on the exports of the countries concerned.* In other words, the index indicates an inversely proportional relationship. The next section will show the results and present the composite index. The composite index mainly calculates the intensity of the effects of currency protectionism on the exports of trading partners and not the type, because the effects vary, i.e., be negative or positive[12]. The next section will show the results and present the composite index.

4. Results and Presentation of the Index

This section will show the composite index. To be able to examine the effects of currency protectionism, the following steps will be taken. First, the normalization of the data will occur. Then, the average of the normalized data will be found. Finally, the prices of the index will also be compared with the percentage change in the exports of the countries concerned so that the composite index can be validated. Table 1 shows the values of the selected indicators Switzerland, Brazil, Norway, South Africa, for the year 2019.

Table-1. The Values of the selected indicators of Switzerland, Brazil, Norway, South Africa, for the year 2019.

	Switzerland	Brazil	Norway	South Africa
Inflation, Consumer Price Index (CPI)* (Average, %)	0.36	3.74	2.17	4.13
Total Factor Productivity** (Level at Current Purchasing Power Parities, Index 2009=100)	104.60	86.10	83.00	83.20
High-technology exports*** (%, of manufactured exports)	12.90	13.20	22.60	4.89
Trade Partner Share**** (US) - Product Exports, (%)	13.98	13.25	4.31	7.00
Trade Partner Share**** (China) - Product Exports, (%)	6.87	28.11	4.13	10.73
Trade Partner Share**** (US) - Product Imports, (%)	6.81	17.15	7.91	6.57
Trade Partner Share**** (China) - Product Imports, (%)	5.48	19.89	10.16	18.47

Source: Inflation.eu (2021); FRED (2021a); World Bank (2021); WITS (2021).

[9] See: Carrière-Swallow, Gruss, Magud, and Valencia (2016).
[10] See: Truong (2016) and Isaksson (2007).
[11] See: Bärtschi (1978).
[12] See: Kataria and Gupta (2018); Gantman and Dabós (2018); Vogiazas, Alexiou, and Ogan (2019).

To be able to complete the construction of the index, the normalization of the values and calculation of the average follow. Table 2 shows the normalized values and the average. The average of the values is essentially the values of the composite index.

Table-2. The normalization of the values and the calculation of the average for Switzerland, Brazil, Norway, and, South Africa.

	Switzerland	Brazil	Norway	South Africa
Inflation, Consumer Price Index (CPI) (Average, %)	100.00	10.34	51.99	0.00
Total Factor Productivity (Level at Current Purchasing Power Parities, Index 2009=100)	100.00	14.35	0.00	0.93
High-technology exports (%, of manufactured exports)	45.23	46.92	100.00	0.00
Trade Partner Share (US) - Product Exports, (%)	0.00	7.55	100.00	72.18
Trade Partner Share (China) - Product Exports, (%)	88.57	0.00	100.00	72.48
Trade Partner Share (US) - Product Imports, (%)	97.73	0.00	87.33	100.00
Trade Partner Share (China) - Product Imports, (%)	100.00	0.00	67.52	9.85
Average	75.93	11.31	72.41	36.49

Table 3 shows the values of the composite index from the largest value to the smallest. That is, from the country that has the highest value in the index, to the country that has the smallest.

Table-3. The Values of the Composite Index.

	Switzerland	Norway	South Korea	Brazil
Values of the Composite Index	75.93	72.41	36.49	11.31

The Figure 3 shows the Composite Index for countries Switzerland, Norway, South Africa and Brazil.

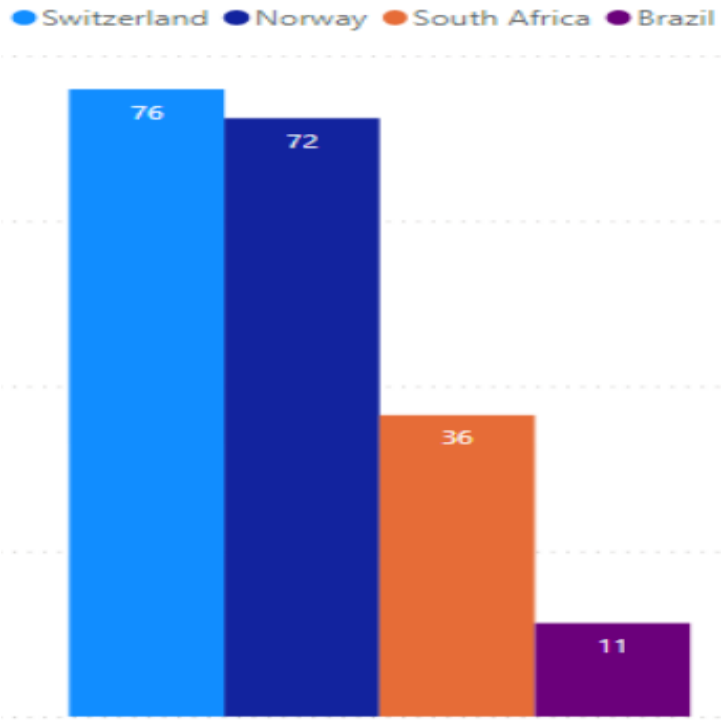

Figure-3. The Composite Index for the countries Switzerland, Norway, South Africa and Brazil.

It is difficult to make a complete validation of the composite index that was built because there is no satisfactory continuous time frame regarding the currency war (protectionist policies) of the US and China. However, to be able to obtain a satisfactory validation of the index, a comparison of the prices of the index with the percentage change[13] in the Real Effective Exchange Rate[14] of the concerned countries can be made for

[13] See: Anderson (2019).

the years 2017-2020. Figure 4 shows the Schematic Representation of the Comparison of the Composite Index of The Effect of Monetary Competition with the Real Effective Exchange Rate. The Figure 4 shows the schematic representation between the Composite Index of the Effect of Currency Protectionism and the Real Effective Exchange Rate.

Figure-4. The Schematic representation of the comparison of the Composite Index of the Effect of Currency Protectionism with the Real Effective Exchange Rate.

Table 4 shows the Real Effective Exchange Rate of the countries Switzerland, Brazil, Norway, South Africa.

Table-4. Real Effective Exchange Rate (REER) - Switzerland, Brazil, Norway, South Africa.

	Switzerland (Index 2010=100)	Brazil (Index 2010=100)	Norway (Index 2010=100)	South Africa (Index 2010=100)
2017	106.15	86.36	86.06	79.5
2018	103.15	77.24	86.25	80.76
2019	104.30	75.83	84.15	78.18
2020	108.35	60.19	78.51	70.34

Source: FRED (2021b).

Table 5 shows the values of the composite index and the median of the percentage change in Switzerland, Brazil, Norway and South Africa. As mentioned above, the indicator involves an inverse relationship. That is, the largest value of the index should be paralleled with the smallest percentage change in exports of goods and services.

Table-5. Values of the Index with the median of the Percentage Change in Real Effective Exchange Rate for Switzerland, Brazil, Norway, and South Africa.

Comparison of the Values of the Index with the median of the percentage change in Real Effective Exchange Rate for the countries concerned	
Switzerland	Value of the Index: 75.93 - Median of the Percentage Change of Real Effective Exchange Rate: 1.11
Norway	Value of the Index: 72.41 - Median of the Percentage Change of Real Effective Exchange Rate: 2.43
South Africa	Value of the Index: 36.49 - Median of the Percentage Change of Real Effective Exchange Rate: 3.19
Brazil	Value of the Index: 11.31 - Median of the Percentage Change of Real Effective Exchange Rate: 10.56

The results of this analysis are that Switzerland with the highest value in the composite index has the least influence from the currency protectionism of the US and China. Because firstly it has the least interconnection with the countries involved, secondly it has a very low percentage in inflation rate, and thirdly it has the highest value in productivity. As far as the Norway is concerned, the relatively low interconnection of the country with the countries involved, the relatively low inflation rate and the country's high exports in the field of high technology rank it in second place. South Africa has high inflation rate and very low technological capacity. The relatively high interconnection of the country with the countries involved ranks it in the third place. Finally, although Brazil has a satisfactory price in its productivity and share in high-tech exports, high inflation rate and very high interconnection with the countries involved rank it in last place. The next section sets out the conclusions of this research effort.

5. Conclusion

Two factors determine the effectiveness of the exchange rate: The first is that, in order for a country's products to be competitive, their price must be slightly devalued in foreign markets (the exchange rate depreciated in relation to the country's rate – the sale of the final products). Simultaneously, the second factor should also apply, namely that intermediate goods imported by the country (generally the inputs for the final

[14] Real Effective Exchange Rate – (REER), is considered the optimal means of measuring a country's commercial competitiveness. The increase in REER means that exports are becoming more expensive and imports are becoming cheaper, so an increase shows a loss of trade competitiveness (IMF, 2019).

goods) should be imported at a relatively devalued price, so that the country can export the final products at an undervalued – competitive price (the exchange rate appreciated in relation to the exchange rate of the country – purchase of intermediate goods). Essentially, the effects of currency protectionism are exacerbated or mitigated for a trading partner on the basis of the pillars of the composite indicator built in this study.

This research study constructed a composite index. The index is the *Composite Index of the Effects of Currency Protectionism*. This study is an attempt to quantify a key phenomenon of international economic relations. The index can demonstrate the magnitude of the impact of two countries' currency protectionism on trade partners' exports. A key observation to be made is that the composite protectionism currency index indicates the intensity of the consequences and not the type of impact. In other words, a country may have a small impact on the currency protectionism of two of its trading partners, but this effect may have a negative impact. This is because the index does not look at the total exports of a country but at the percentage of commercial interconnection.

The pillars of the composite index can demonstrate the magnitude of the effects of currency protectionism for the following reasons. Firstly, the price of inflation proves whether the exchange rate is stable. It also shows whether the exchange rate pass-through is significant or not. A stable exchange rate can also be competitive because it helps the ramparts in the international economic system and assists in the exports of a country. Secondly, a country's productivity signals how competitive it can become. The higher the productivity can be, the stronger competitively it becomes. Basically, it makes its exports strong. Thirdly, trade interconnection may indicate interdependence with trading partners. The greater the trade interconnection, the greater the interdependence. How commercially interconnected the country is also shows how symmetrically or asymmetrically it is dependent.

Does currency protectionism impact economic growth? The index presented explains the effect that currency protectionism has on a country's exports. Essentially, it explains whether currency protectionism impacts a country's competitiveness. If we consider that a country's competitiveness can be correlated with economic growth, then it can be said that the composite indicator of the effect of monetary protectionism can explain the effects that currency protectionism also has on a country's economic development.

Although the use of exchange rate strategic devaluations is an easy tool for economic policy, it nevertheless has important consequences, both on the international economy and on international politics. The international economic system is essentially an area of interaction, the character of which may be confrontational or characterized by cooperation. Every country that chooses to be part of the international economic system will have to choose the appropriate and optimal economic policy to be able to cope successfully with the maelstrom of international economic relations. The phenomenon of competitive devaluations is not new. Currency protectionism will exist as long as there are different currencies in the world with divergent power each, as long as there is a lack of an international, regulatory, and, universal monetary system and a different production capacity for countries around the world. Only the creation of strong economic foundations can build for any country the appropriate firewall against monetary protectionism.

The results of the analysis can make the composite indicator an effective and satisfactory tool for interpreting the impact of currency protectionism on trade partners' exports. Further analysis of case studies is required, but it can be said that the theoretical framework and the results of the index are strong criteria for the reliability and functionality of the composite indicator built in this study. This used the case of the U.S. and China currency war. The use of the composite index can be applied to any currency dispute between countries and to interpret the implications for any trading partner.

In conclusion, the reasons for the usefulness of this composite indicator are, firstly, its general application, because the interpretation of the results is not limited to specific countries but to the entire international economic system and, secondly, to the broad framework of interpretation, due to the fact that the choice of pillars covers - as far as possible - the spectrum of international economic and commercial relations. This research provides a preliminary exploration on the effects of the currency protectionism on the exports of the trade partners.

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