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VALUE CHANGES IN NATIONAL CURRENCY IN FOREIGN-DEPENDENT ECONOMIES & TURKEY EXAMPLE IN THE CONTEXT OF CRISES

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ABSTRACT

In this paper, the status of devaluation realized in general economic policies to decrease current account deficit and increase exports in terms of increasing or not decreasing current account deficit is defined and used as the “Devaluation Paradox.” In this context, in this paper, the effects of devaluation, inflation, unemployment, and current account deficit variables on national currency in foreign-dependent economies have been investigated. For this purpose, changes that took place before and after devaluation have been compared. The change in the value of the Turkish Lira and its relation to inflation in the COVID-19 process have been evaluated with Consumer Price Index (CPI) and Producer Price Index (PPI) data. In addition, it has been aimed to reveal the relationship of national currency value with import and outflow of foreign currency. Within the scope of Turkey’s example, based on the effects experienced in the COVID-19 process, the changes in the national currency, increases in the general level of prices and transformation in unemployment have been evaluated. As a result, it has been tried to demonstrate the negative effects of foreign dependency on production and consumption, considering it an experience from which lessons should be taken regarding the global economic crisis process resulting from the pandemic. This paper aimed to reach optimal recommendations for determining economic policies, which need to be revised.

Keywords: Devaluation, Inflation, Current deficit, COVID-19, Devaluation paradox

INTRODUCTION

The economic status of a country is determined by the relationship between economic variables, and especially in developing countries, the problem of current account deficit is among the most important issues. Unemployment, inflation, income distribution, and the value of national currency are among indicators related to the economy. In this paper, the effects of inflation, real wage, and employment on the devaluation of national currency have been discussed.

Firstly, the reasons for the devaluation of the national currency have been theoretically evaluated by reviewing the relevant literature and giving examples. Then, the issue of devaluation experienced in foreign-dependent economies in terms of production and consumption has been defined as the “Devaluation Paradox” and explained. In addition, the effect of the relationship between foreign currency inflow and the amount of export on closing the current account deficit before and after devaluation has been discussed. Devaluation of national currency experienced in foreign-dependent economies is explained by the increase in imports with the effect of

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inflation in the country and the increase in the outflow of foreign currency as a result of transferring more sources abroad. Among the outcomes created by the effect of devaluation, a decrease in real wages and unemployment problems that increase as a result of the pressure on employment have been examined. In our research, after the impact levels of the variables used have been determined, within the framework of the analyses performed on the example of Turkey, the devaluation of the Turkish national currency under the effect of the global COVID-19 crisis has been evaluated by using export and import data. As we know, (COVID-19) pandemic emerged in late 2019 and many countries initially adopted partial or complete lockdown measures to restrict the transmission of the disease, as effective drugs or vaccines were unavailable till then. Imposing lockdown drastically reduced anthropogenic and commercial activity. All types of large and small industries and markets were closed; all sorts of public and commercial transportation, except for the essential ones, along with railways and flights were completely shut off (Sen *et al.* 2021; Ojediran, 2021). To this end, by using CPI and PPI data, findings obtained regarding the effect of inflation have been discussed. Briefly, it has been explained that the devaluation of the national currency has not led to closing the current account deficit. All in all, it has been aimed to determine the most appropriate economic policies against the increase in imports, increase in inflation, and decrease in real wages that occur as a result of the devaluation of national currency in foreign-dependent economies to first prevent the existing problems and then to take necessary precautions regarding the future.

Literature Review

The value of the national currency is depreciated with the expectation that foreign demand for national goods will increase as a result of cheapening prices of national goods. Thus, it is aimed to reduce the current account deficit through an increase in exports. In closing the deficit in the balance of payments, countries usually apply policies of devaluating their national currencies. The effect of the increase in the value of the foreign currency on increasing exports and decreasing imports varies depending on the flexibility in the supply and demand for goods of foreign trade (Prati *et al.*, 2011).

In the case of the demand flexibility for foreign trade goods being infinite and on the condition of Marshall – Lerner, depending on the sum of the flexibility of foreign demand for exported goods and the flexibility of domestic demand for imported goods being greater than 1 or equal to 1, changes in real foreign exchange values create a positive effect on foreign trade balance (Bagnai & Manzocchi, 1999). On the condition of Marshall – Lerner regarding foreign trade performance, and the sum of absolute values of export and import being greater than 1, it is possible for import or export, or both of them, to increase. Except for this assumption, this condition falls short in explaining decreasing current account deficit. Only an indirect explanation can be provided to show its effect on the current account deficit. In other words, meeting the Marshall – Lerner condition in all probabilities does not necessarily mean decreasing the current account deficit. On the other hand, if the income effect of devaluation on foreign trade becomes greater than the expenditure effect, a decrease in the current account deficit can be possible.

According to the absorption approach, which explains the effect of devaluation on foreign trade with the change in the national income, if the total domestic production exceeds the total domestic expenditures, since these products will be exported, there will be a surplus in the



foreign trade balance; otherwise, there will be a deficit. The reason for this is that the total domestic expenditures exceeding the total domestic production will be balanced with imports. In the absorption approach, how devaluation will affect foreign trade balance is explained with underemployment or full employment in the economy. When there is underemployment in the economy, since devaluation will increase net exports (if the demand for export goods is flexible), it will also increase production. When there is full employment, since it is not possible to increase production, devaluation increasing the foreign demand for domestic goods leads to inflation. Therefore, in the case of full employment, it is not a proper preference to devalue the national currency as it will increase the foreign trade deficit (Machlup, 1979; Husted & Melvin, 1990). According to the monetarist approach, when the supply of money exceeds the demand for money, a foreign payment deficit occurs. Accordingly, devaluation eliminates the foreign payment deficit by providing a balance in money supply and demand. When the increase in the demand for nominal money resulting from devaluation and domestic prices is not met with domestic resources, an inflow of foreign currency accelerates, and the balance of payments gives a surplus, but the devaluation leads to an increase in expenditures reduces this increase. According to this approach, foreign balance is ensured in the case of monetary balance. When the Cooper paradox is considered within the context of the IS-LM-BT imbalance model, devaluation's monetary "spread" effect is integrated into the open economic model in which fake trade can be made at the imbalance price and there is an imbalance at the macro level, Devaluation made for the spread of economy through market integration (ignoring Marshall – Lerner condition) improves trade balance (Cooper paradox), but it also downsizes the domestic economy (Wang & Wang, 1985). In the case of Marshall - Lerner condition being met, devaluation both disrupting trade balance and leading to the expansion of the economy contradicts Cooper's observations of devaluation in developing countries. Cooper states that the first effect of devaluation on the economy of a developing country will probably be deflationist (monetary stringency).

In the comprehensive literature on devaluation, it has been emphasized that the depreciation of money has effects on the trade balance. In addition, it is also explained that the J curve varies according to different countries.

On the other hand, the trade balance is negatively affected as a result of the depreciation of the national currency in the short term, but some studies demonstrate that the J curve hypothesis is valid in the long term (Hooy & Chan, 2008; Bahmani-Oskooee & Mitra, 2009; Kamwi, 2011). Some studies shows that there are developments in trade balances, but that the J curve hypothesis is invalid in the short and long term, or there is a weaker relationship (Rose & Yellen, 1989; Hameed & Kanwai, 2009).

MATERIALS AND METHODS

Comparison of Before and After Devaluation in Foreign-Dependent Economies

The transactions registered in the current account are divided into various categories such as trade in goods (import-export), trade in services (tourism income-expenditure), foreign contracting services, foreign currency from labor abroad, international banking and insurance incomes, international transport, license fees, commission and rental income-expenditures, etc.), and unilateral transfers (transactions made in the form of international donations and grants).



Therefore, the current account balance gives the balance of foreign currency income and expenditures of the real sectors' trade in goods and production factors. Foreign deficit or current account deficit, which is one of the main account groups of the balance of payments, occurs as a result of being unable to meet the foreign trade deficit resulting from the difference between imports and exports with service incomes, investment incomes, and current transfers (Butler, 2021; Stubbington & Samson, 2021; Turak, 2021; Wong *et al.*, 2021). In this paper, other conditions affecting the current account deficit have been assumed to be constant, and (under the Ceteris-Paribus assumption) only trade in goods (export-import) has been discussed.

Devaluation Paradox

While devaluation does not cause a real increase in foreign currency income, due to inefficient and irrational use of resources, a decrease in real wages and frictional unemployment problems emerge. This situation means producing more for the same income, loss of the value of labor and money, a decrease in purchasing power, and a decrease in real wages for the country. If the necessary monetary and fiscal policies cannot be implemented following the devaluation, an increase in inflation becomes inevitable due to not being able to control the total demand, and import is triggered. An increase in foreign exchange rates again in the country continues the “devaluation, inflation-current deficit” crisis already experienced by worsening the problems like a new mutation (MEI, 2022).

The effect of the relationship between the inflow of foreign currency and export volume in the pre-devaluation period on closing the current account deficit is presented in **Figure 1**. When the points showing the inflow of foreign currency of 1 USD obtained with 1 item of export are combined, Point A is obtained. When the points of 2-dollar inflow of foreign currency and 2-item export are combined, Point B is obtained, and when the points of 3-dollar inflow of foreign currency and 3-item export are combined, Point C is obtained. When the points A, B, and C are combined, the hypotenuse (side c) of a right triangle is obtained.

The effect of the relationship between the inflow of foreign currency and export volume in the post-devaluation period on closing the current account deficit is presented in **Figure 2**. In the post-devaluation period, with the assumption that while 1 USD was equal to 1 TL, it was depreciated to 1 USD being equal to 2 TRY, as an inflow of foreign currency of 1 USD is achieved with 2 items of export, when these points are combined, Point A is obtained. When a 2-dollar inflow of foreign currency is combined with a 4-item export quantity, and a 3-dollar inflow of foreign currency is combined with a 6-item export quantity, Points B and C are obtained, respectively. And, when points A, B, and C are combined, the hypotenuse is obtained.



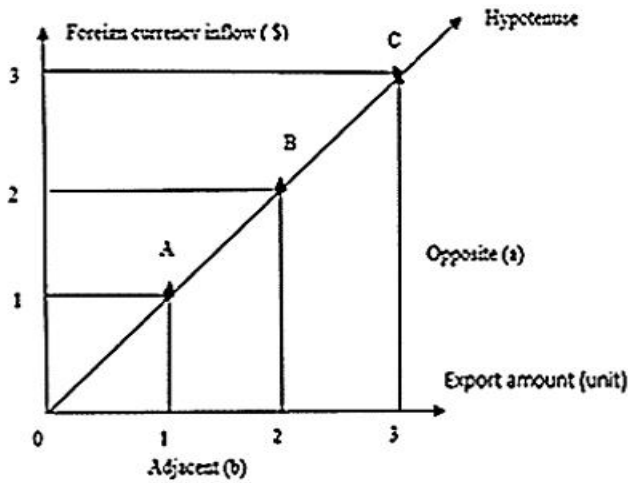


Figure 1. Before devaluation

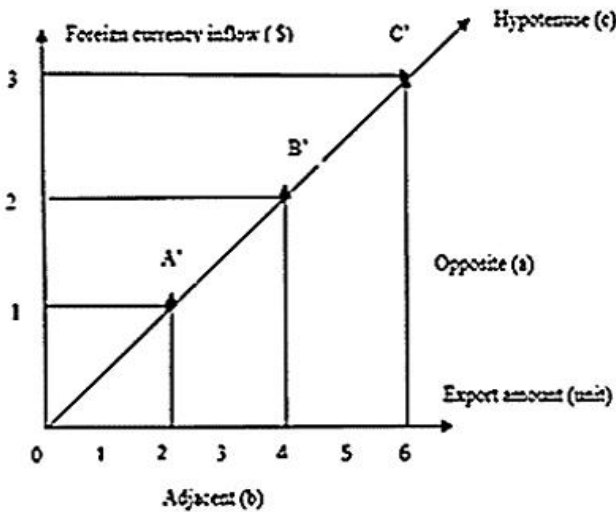


Figure 2. After devaluation

In **Figure 1**, if the perpendicular side of the right triangle is $(a) = 3$, the adjacent side is $(b) = 3$, and the hypotenuse is (c) , according to the formula $c^2 = a^2 + b^2$, $c^2 = 3^2 + 3^2 = 18$.

If $c = \sqrt{18}$, the hypotenuse (c) is ≈ 4.243 .

Based on this, to calculate $\sin A$, if $\sin A = \text{Perpendicular } (a) : \text{Hypotenuse } (c)$, $\sin A$ is found as $\sin A = 3 : 4.243 \approx 0.707$

In **Figure 2**, to calculate the hypotenuse, according to $c^2 = a^2 + b^2$ formula, $c^2 = 3^2 + 3^2 = 18$.

If $c = \sqrt{18}$, the hypotenuse is found as $(c) \approx 4.243$.

Here, to calculate $\sin A$, if $\sin A = a : c$,

$\sin A$ is found as $\sin A = 3 : 6.708 \approx 0.4472$

The slope of the curve forming in the graphs depends on the devaluation flexibility of the inflow of foreign currency. When the percentage change in the national currency is lower than the

percentage change in export volume, in other words, when the percentage of increase in export volume is greater than the percentage of the devaluation of the national currency, the curve becomes more perpendicular.

When the devaluation flexibility of foreign currency inflow is between 0-1 other than being greater than 1, this inelastic situation does not create an effect of closing the current account deficit. To put it differently, if the percentage change (increase) in foreign currency inflow resulting from the increase in export volume is greater than 1 with respect to the devaluation percentage of the national currency, it creates an effect of decreasing the current account deficit. When this ratio is smaller than 1, there becomes no decrease in the current account deficit, and the nominal export volume increase can create a real increase in the current account deficit.

In economies that use foreign resources (energy, raw materials, technology, machinery, etc.) in the production of export goods, when Sin A value becomes smaller, the current account deficit increases. There is a negative correlation between Sin A value and current account deficit. Also, a decrease in the value of Sin A leads to a decrease in real wages and an increase in frictional unemployment.

The Reflections of the Crises of COVID-19 and the War between Russia and Ukraine on the Devaluation of TRY in Turkey

The recent crises experienced in the world are the global economic crisis triggered by COVID-19, which initially started in China in December 2019 and then in Turkey in March 2020, and the economic crisis which started with the attack of Russia on Ukraine in February 2022. Due to the restrictions across the world to protect from the pandemic, along with other countries, Turkey's economy has been negatively affected. Before overcoming the effects of this crisis and completing the recovery process, the sanctions imposed on Russia by the Western states as a response to the Russian aggression in Ukraine have caused an increase in the prices of oil and food with the effect of being dependent on foreign resources, especially for energy. As in Turkey, an increasing trend in inflation rates and a decreasing trend in growth rates have started in the economies of other countries. Turkey has encountered higher rates of inflation, which could not be solved for years.

The pandemic shock has affected Turkey's economy in terms of both supply and demand, as it has affected other countries' economies. The depreciation of the national currency has increased the cost of loans with the effect of the inflation. While dollarization of the economy has been triggered, its negative effect on the foreign exchange rate has been tried to be balanced with the foreign currency sales of the Central Bank. This situation has clearly shown that the current policies are not sustainable and deficits would continue to increase (Çakmaklı *et al.*, 2021; Kidera, 2021).

The Nominal Effective Exchange Rate (NEER) is the weighted average value of the Turkish Lira (TRY) with respect to the currencies of the countries which have an important share in Turkey's foreign trade. The weighted averages are determined by considering the mutual foreign trade flows of the countries. REER, on the other hand, is obtained by removing the relative price effects on NEER. REER indices are calculated by taking the weighted geometric average of the rate of Turkey's price level to the price levels of the countries with which it has foreign trade relations. An increase in REER indicates a real appreciation of TRY, which means the prices of Turkish goods has increased with respect to foreign goods.



The continuous decrease in the percentage change in the real effective foreign exchange rate in the COVID-19 process means that TRY is increasingly depreciating. Also, the increasing percentage change in CPI and PPI points to increasing inflation (Ewing, 2018; CNBC, 2021; MEE, 2022). The increase in the prices of imported goods in foreign trade is higher than the increase in the prices of exported goods means the production of the same quantity of goods is increasingly becoming more expensive. The increase in consumer prices in the pandemic period as a result of the excessive rise in producer prices in Turkey, which has a foreign-dependent economy, has weakened the purchasing power of employees. The pressure created on the workforce and employment by the slowing of production due to reasons such as the increase in wages being lower than the inflation and unpaid leaves has an effect that increases unemployment. In the table below, the changes experienced in Turkey's foreign trade are presented. The effects experienced in import and export volumes in the pandemic period and the war process between Russia and Ukraine can be seen in the table. In 2020, when the effects of COVID-19 were felt intensively in Turkey, in the January-December period of foreign trade, the foreign trade deficit increased by 69% compared to the same period of 2019, when the pandemic was not effective. The export-import coverage ratio, which was 86% in 2019, receded to 77.2% in 2020. It is seen that with the effect of the gradual removal of the pandemic restrictions in the January-December period of 2021, a recovery period was started, and the foreign trade deficit started to decrease, albeit very little (Table 1).

Table 1. Export and import volumes in Turkey

	Export	Import	Foreign Trade Balance
January - December Period			
January-December 2019	180.833	210.345	-29.512
January-December 2020	169.482	219.397	-49.879
January-December 2021	225.264	271.423	-46.158
January – March Period			
January-March 2021	50.023	61.067	-11.044
January-March 2022	60.288	86.681	-26.393

Source: TCMB, 2022; SBB, 2022; OECD, 2022

The foreign trade deficit increases in the January-March period of 2022 in comparison to the same period of 2021. The change ratio that occurred within approximately 40 days was -15.2%, and this development was a consequence of the western sanctions imposed on Russia due to its aggression in Ukraine.

The effect of the shrinkage created in the world economies by the COVID-19 pandemic which affected the world in 2020 socially and economically can be seen in these results. On the other hand, entering into a normalization process starting from June 2020 became effective in the start of a decrease in the foreign trade deficit in Turkey's economy, as well as in the world economies. However, before the negative effects of the restrictions on the international trade due to COVID-19 and the problems experienced in the world economies that were foreign dependent, including Turkey, were eliminated, Russia attacked Ukraine on 24 February 2022, and as a response to this aggression, the Western states started to impose sanctions on Russia. In

Turkey, which is especially dependent on Russia in terms of oil and natural gas imports, the increasing oil prices caused higher rates of inflation and increasing foreign trade deficits (T.C.T.B., 2022).

More consumption of energy with the effect of increased obligatory digitalization in the pandemic process brought along an increase in energy import. In Turkey, which has an economy dependent on factors necessary for production such as energy, raw materials, machinery, technology, etc., mutations also continued to be effective in 2021 in the intertwined relationship of inflation-current deficit-unemployment, devaluation of national currency? The increase in exports in these periods of the pandemic crisis also triggered imports, and increased cost inflation led to an increase in producer prices in Turkey, as it is dependent on foreign resources in procuring certain products. Hence, in Turkey, during the pandemic period, the national currency depreciated and inflation increased at the same time.

These results in which the current account deficit continued and foreign trade balance could not be achieved are supported by the results of studies conducted in this regard. For instance, in the study conducted by Shahbaz, Jalil, and Islam (2012), it was stated that when a current account deficit is present and foreign trade balance is not achieved, the increases in wages fall below the inflation rate, and this brings along a continuous decrease in real wages in dollars. This result shows the negative effect created in foreign trade balance as a result of the devaluation of national currency in an economy resulting from high import dependence. In similar studies conducted by economists such as Cecere & Mazzanti (2017), Shahbaz, Chaudhary & Shahzad (2018), and Shahbaz, Gozgor & Hammoudeh (2019), it has been reported that due to the necessity of the energy factor, in countries such as Turkey which are dependent on foreign energy resources, increases in the consumption of energy cause an increase in the amount of foreign currency paid for energy import.

According to the hyper-globalist approach, the effect of the international trade on working conditions and its results such as the increase in the imbalance of income distribution multiply the problems and concerns about globalization. Due to the reflection of a financial crisis occurring in a country on other countries which have trade connections with this country, it is claimed that crises have also become globalized. The problems encountered because the countries preferred obtaining certain products used in production from other countries were first felt when the COVID-19 pandemic started in China. Similar effects were also created when Russia stopped oil and gas exports to other countries as a reaction to the sanctions applied by the western states due to the war between Russia and Ukraine. In response to the undesired experiences felt by countries due to the effect of foreign dependency, a search for new alternatives to create other opportunities was started instead of being dependent on Russia for oil and gas imports (UNCTAD, 2018; UNCTAD, 2019). In Turkey, firstly exports decreased, and although an increase was achieved later, with the devaluation of the national currency, inflation increased and real wages decreased as a result of being dependent on foreign resources.

The changes encountered in the values of the Consumer Price Index (CPI), Producer Price Index (PPI), and Real Effective Exchange Rate (REER) as a result of global crises are examined in **Table 2** in terms of their effects on the COVID-19 pandemic process and the process of the war between Russia and Ukraine. In the table, the annual changes that took place in 2021 show the effect of the COVID-19 crisis, while the changes in 2022 show the reflection of the Russian-Ukrainian war. To exemplify, CPI and PPI percentages, which started to show a tendency to



increase in 2020 and increased at lower rates compared to the previous year, increased to 36.8% (CPI) and 79.89% (PPI) in December 2021 compared to the previous year. However, in March 2022, CPI increased by 61.14% and PPI by 114.97%.

Table 2. The effects of exchanges rates on CPI, PPI and REER of Turkey

	CPI	PPI	REER
Impact of COVID-19			
December - 2019 / Annual percentage exchange	11.84	7.36	76,17
December - 2020 / Annual percentage exchange	14.60	25.15	62,22
December - 2021 / Annual percentage exchange	36.08	79.89	48,10
Impact of Russia-Ukraine War			
March 2020 / Annual percentage exchange	11.86	8.50	73,10
March 2021 / Annual percentage exchange	16.19	31.20	65,25
March - 2022 / Annual percentage exchange	61.14	114.97	54,01

Source: TCMB, 2022; SBB, 2022

In a process in which the tendency towards recovery has just started and the negative effects of the global crisis resulting from the pandemic have not been eliminated, the effects of the new crisis that started in February 2022 as a result of the Russian aggression in Ukraine have led to the multiplication of economic problems. REER, which expresses the depreciation of the national currency, shows the lowest level of the last quarter of the century in December 2021 with the effect of COVID-19. REER in March 2022 approached the decrease level created by the pandemic crisis in two years in only 40 days after the start of the war.

In **Figure 3**, the Real Effective Exchange Rate Index, which shows the value of the Turkish Lira, is displayed in terms of the effects of the economic crises experienced as a result of both COVID-19 and the Russian-Ukrainian war. It is seen in the figure that with the effect of both crises, the REER level went down to its lowest level in the last 20 years.

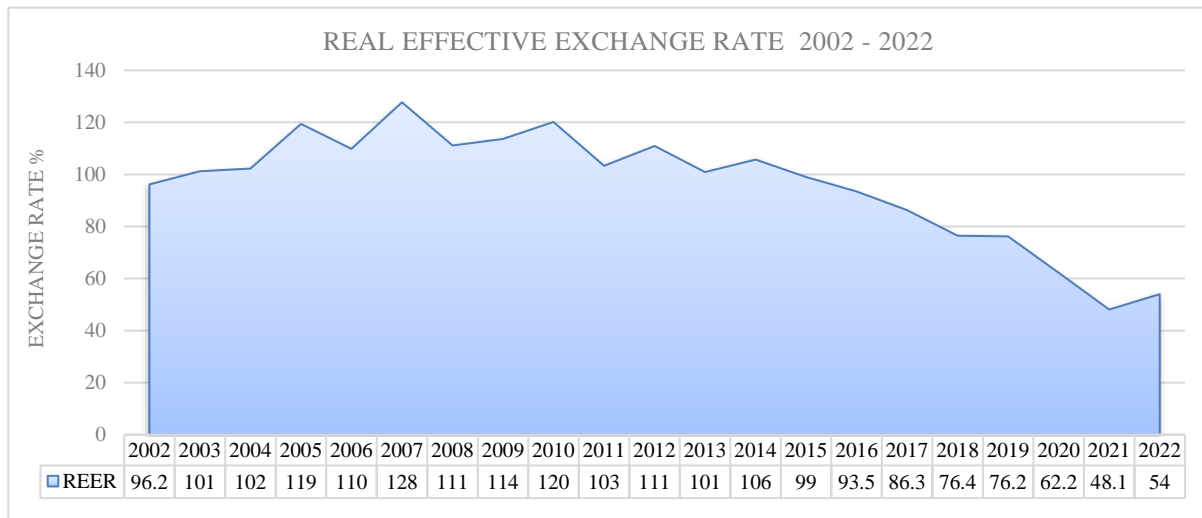


Figure 3. Created by the author

The depreciation of the national currency creates a negative effect on production and leads to inflation also affecting employment negatively. When investments decrease and production areas do not increase, the increasing workforce cannot be employed, leading to an increase in the unemployment rate.

CONCLUSION

In this paper, the factors affecting the change in the value of the national currency in foreign-dependent economies have been evaluated in the context of the effects of the crises created by COVID-19 and the war between Russia and Ukraine as the two important crises experienced in recent years on Turkey. First of all, opinions on the subject included in the literature have been discussed. Forecasts regarding the results obtained from studies adapted according to different theoretical approaches have been explained. Within the scope of the analysis of the subject, in the materials and methods part, the effects experienced before and after devaluation created in foreign-dependent economies in periods of crises have been examined through the devaluation paradox. In this regard, especially in the COVID-19 process, developing technologies related to domestic renewable energy transformations, reducing dependency on imported energy, efficiency, and ensuring reasonable prices and adequate employment has gained considerable importance (Dietmar, 2008; Chang *et al.*, 2018; Fang & Zheng, 2019; Economidou *et al.*, 2020; Ohshita *et al.*, 2021). Thus, along with the decrease in foreign currency outflow, a contribution is made to the qualification of the workforce and employment, and the contribution to ensuring the sustainability of the trio of production-export-cost, reducing risks, and closing the deficit in the balance of payments is strengthened. In addition, it is deemed necessary to increase competitiveness by ensuring the increase in production through domestic resources that will decrease foreign dependence and by increasing the added value of the products without depreciating the national currency. Therefore, it is believed that it is possible to increase the inflow of foreign currency without devaluation by attaching importance to national-regional clustering that will trigger employment and ensure both cost minimization and an increase in exports (ILO, 2020; FR, 2021; Reuters, 2021; S&P, 2021). This is because in addition to an increase in exports, raising the added value of the product will lead to demand for high-price products, and thus the inflow of foreign currency will be increased without depreciating the national currency.

As a result, it is recommended to plan domestic economic policies that aim to decrease foreign dependence through creating domestic resources, increasing the added value of domestic products, and orientation towards renewable energy resources (Kumar & Majid, 2020). Decreasing foreign dependence and current account deficit without devaluating the national currency is also important in terms of expanding employment. The specialties of the employees working in clusters increase the value of labor and saves the workforce from unemployment and low wage pressure (Irhan, 2020). Hence, in the COVID-19 process and afterwards, training the workforce in terms of energy efficiency and employing them in energy clusters is considered necessary for reducing foreign dependence and protecting the value of the national currency. With the domestic renewable energy efficiency, while foreign dependence will be reduced in production inputs, it is also predicted that it will have a braking effect on the problems of current account deficit-inflation-unemployment and devaluation of the national currency. The effects



of a pandemic or war can create psychological problems. Conspiracy theories abound on the subject. Apart from social and economic effects, psychological problems come to the fore. People need support in this regard (Aljehany & Allily, 2022; Furnham & Horne, 2022; Karatas et al., 2022). In conclusion, it is recommended to determine new economic policies for the solution of current account deficit-inflation-unemployment problems without devaluating the national currency in the globalization process of the new technological society. Moreover, it is deemed necessary to attach importance to national economic policies in which foreign dependence on production and consumption is reduced, and there are lessons to be taken from the processes of COVID-19 and the Russia-Ukraine war.

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