*Araştırma Makalesi*

# Türkiye's Unique Circle: Is Competitive Exchange Rate a Solution?*

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**Abstract:** As in most cases, need to be questioned Türkiye's monetary policy tools for economic development in the country's savings. With the decisions taken after 2015, this understanding has created a unique circle in a way that will greatly advance the country's economy. The economic management in the country is being trained in this negative situation. In this study, the mutual causality relationship between the exchange rate, inflation and interest, which are the main targeting areas of the monetary policy, which puts the savings rate and the country's economy in a corrosive cycle, is tried to be explained with the method developed by Toda-Yamamoto (1995). According to results of this analysis the competitive exchange rate strategy does not have a significant effect on savings. It is possible to conclude that reverse savings may be the cause of the competitive exchange rate. In other words, the preference for a competitive exchange rate strategy due to the lack of savings can be seen as significant in this study. In Türkiye, like many other developing countries, steps to achieve economic development must be viewed not only through the lens of monetary policy but also from the perspective of planning that ensures policy coherence, given the country's chronic issues.

**Keywords:** Competitive Exchange Rate, Savings, Toda-Yamamoto Causality Test, Planning
**Jel Codes:** C32, E21, O21, O24

## *Türkiye'nin Özgün Sarmalı: Rekabetçi Kur Çözüm mü?*

**Öz:** Çoğu gelişmekte olan ülke gibi tasarruf etmekte güçlük çeken Türkiye'nin ekonomik gelişim için yalnızca para politikası araçlarını kullanıyor oluşunun sorgulanması gerekmektedir. Bu anlayış çerçevesinde alınan kararlarla birlikte ülke ekonomisini büyük sorunlara sürükleyen bir özgün sarmal oluşturmuş, artık ekonomik sıkıntılara geçici çözümler bulmak bile güç duruma gelmiştir. Ülkedeki ekonomi yönetimi, içine düşülen bu olumsuz durumda çıkış yolu olarak para politikasını arz yönlü bir yaklaşımla rekabetçi kur stratejisi üzerinden yürütmeye karar vermiştir. Bu çalışmada, tasarruf oranıyla ülke ekonomisini yıpratıcı bir döngüye sokan para politikasının temel hedefleme alanları olan, döviz kuru, enflasyon ve faiz arasındaki karşılıklı nedensellik ilişkisi, Toda-Yamamoto (1995) tarafından geliştirilen yöntemle açıklanmaya çalışılmaktadır. Analiz sonuçlarına göre, rekabetçi kur stratejisinin, tasarruflar üzerinde anlamlı bir etkisi bulunmamaktadır. Tersine tasarrufların rekabetçi kurun nedeni olabileceği yönünde bir bulguya ulaşmak mümkündür. Pek çok gelişmekte olan ülke gibi kronik sorunları olan Türkiye'de ekonomik gelişim için atılacak adımlar, yalnızca para politikasına bağlı değil politikalar bütünlüğünü sağlayacak olan planlama perspektifinden olmalıdır.

**Anahtar Kelimeler:** Rekabetçi Kur, Tasarruflar, Toda-Yamamoto Nedensellik Analizi, Planlama
**Jel Kodları:** C32, E21, O21, O24

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## 1. Introduction

It is possible to describe the world economy through a dual structure, as developed countries and others, since the early years of modern capitalism. Developing countries are often dragged into the exchange rate-inflation-interest circle, as their efforts to catch up with the more developed countries are hindered by the narrow framework of monetary policy in the neoliberal period (Bilson, 1979; Bond, 1980). Although price-dependent supply-side approaches, such as providing advantages in terms of trade, are often presented as solutions in mainstream economics, many heterodox studies suggest that demand-side solutions, such as increasing savings for development, should also be considered (Thirlwall, 1979; Thirlwall and Hussain, 1982). When considering demand-oriented policies, one of the first things that comes to mind is increasing domestic savings. Certainly, efforts to regulate savings on a country scale bring about planning discussions as well.

Despite achieving high growth rates during periods of intense capital inflows driven by high interest rate policies and privatizations under IMF programs, Türkiye, as a developing country, has struggled to break out of its shell. During these years, an economic policy focusing on consumption rather than productive activities that would make growth sustainable was implemented (Boratav, 2015). In the current state of international trade, it is quite common for services to have an increased share in the economy due to the development of service activities resulting from the fragmentation of production (Jones et al., 2001, p. 1). This fragmentation in production is only possible by leveraging activities in the service sector because the integration of international legal systems, deregulations in the service sector, increased global awareness of production capacity, liberalization of service trade and technological advances collectively lead to international fragmentation and outsourcing (Kierzkowski and Chen, 2010, p. 59). However, the expected increase in employment in the service sector in both developed and developing countries due to this transformation, occurring primarily through a shift from the industrial sector, and the failure to reduce unemployment in Türkiye, despite its integration into global trends, suggests that while global integration may foster economic growth, it does not necessarily have a positive impact on employment.

The policy of devaluing the domestic currency, which was used to reduce the current account deficit, which is another chronic problem at the point where growth that cannot create employment begins to stall, has created many difficulties. The paradigm shift declared by the country's economic management in the last quarter of 2021, amidst the deepening currency crisis, although labeled as a new economic model or the "Chinese Type Growth Model", the transition to the aforementioned competitive exchange rate understanding began after the announcement by the Fed that liquid assets pumped into markets would be reduced following the 2007-2008 global financial crisis, while the rapid erosion of the Turkish lira mainly occurred after 2015. Despite initial attempts to combat subsequent currency attacks with financial instruments, statements[1] by the relevant minister at the time indicate that the real purpose of these interventions was not to strengthen the Turkish lira but to gradually weaken it. Subsequent changes in the ministry and Central Bank (CB) management[2] have shown that moves temporarily halting the decline in the Turkish lira were transient, and the same strategy was being pursued. Now, putting aside the debate on whether this strategy was consciously chosen from the beginning or was reluctantly chosen because of poor performance, we will focus on the steps taken during this period and their consequences.

[1] The most detailed information on the competitive exchange rate strategy is available in the BloombergHT (2020) interview.

[2] Between November 2015 and December 2022, a total of 3 Ministers of Treasury and Finance and 5 Presidents of the Central Bank have served.

## 2. Unique Circle[3]

With the successive moves made in monetary policy during the change mentioned in the previous title, the country's economy began to go beyond the common predictions in the literature. One of the most prominent differences is that the circle into which developing countries are often drawn after encountering foreign exchange shortages resulting from balance of payments problems has diverged for Türkiye.

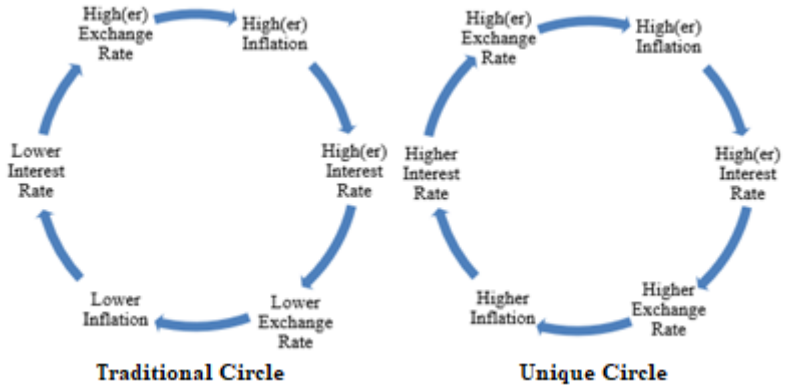


**Figure 1.** Exchange Rate-Inflation-Interest Rate Circle
**Source:** Created by author.

In the traditional type[4] of this circle, which is given in Figure 1, along with its specific form for Türkiye, when interest rates are increased in order to curb inflation, which occurs as a result of rising exchange rates as a result of foreign exchange shortages, increasing the general price level, exchange rates decrease slightly due to capital flows entering the country, and this reduces inflation. Then, after a while, to avoid being dragged into stagnation, when interest rates are reduced again, the circle returns to its starting point. However, after 2016, it was not possible to achieve an improvement in the economy with such a monetary policy in Türkiye. Raising interest rates was not enough to lower exchange rates, and with the continuing increase in Exchange rates, inflation continued to rise. Interest rates were increased again during the exchange rate attack in 2018, but it did not stop the rise in the exchange rate. In the second half of 2019, with the slowdown in inflation due to base effects and temporary solutions to the foreign exchange need the mechanism was exited. However, due to the unstoppable rise in the exchange rate, despite the attempt to return to the traditional structure with changes in economic management towards the end of 2020, the unique circle continued to operate due to demand-related issues in the country. At the end of 2021, the policy rate was removed from being a determinant in monetary policy[5], and then dramatic increases occurred in the other two variables. The basic policy proposal of monetarism, which can be considered as the contemporary version of the quantity theory of money, suggests that money supply should be tightened as much as possible to cope with inflation (Itoh and Lapavitsas, 2012, p. 195). In this unique model of the country in the mentioned period, there is a paradoxical situation where, contrary to mainstream economic policies, money supply is increased to stimulate investments.

[3] This statement, which is included in the title, is intended to underline that rather than the fact that the negative divergence that Turkey has been in recently is unique, the process has resulted in a different outcome than the repeated consequences of the neoliberal prescription applied in developing countries. Otherwise, similar results have been encountered in many developing countries, including Türkiye, after previous unsuccessful attempts.
[4] The vicious circle, modeled by Bilson (1979) with 2 countries, was tested with many countries by Bond (1980). The first circle in the figure above was created by the author of this study to visualize the 'vicious circle that countries face. Also second circle was created by the author according to the proposition of the study.
[5] At the meeting with economists on January 22, 2022, the then minister said, "We trivialized the policy interest." (as reported by Gürses, 2022). Even if it was not a conscious choice, this statement indicates that there is no longer any significance to the policy rate in the functioning of the economy.

Keynes (2012, pp. 129-133) emphasizes the importance of interest rates as a policy tool, but he also notes that during periods of contraction, if expectations about the economy are negative, reductions in interest rates alone may not be sufficient to stimulate investments. According to him, lowering interest rates cannot enable investors to borrow and embark on new investments. In other words, you can lead horses to water, but you cannot force them to drink water. These words are applicable not only to interest rates but also to many decisions in economic policy. For example, in Türkiye, economic management has implemented the competitive exchange rate policy believing that it would provide significant advantages in foreign trade. However, today, providing cheap raw materials and labor alone will not be sufficient to keep capital interested in order to gain an advantage in trade. With the changing production and financial structure, there is a need to search for areas where competitiveness can be achieved and to capitalize on the opportunities found, which also requires a well-educated workforce. However, it seems that the "traditional" method of international competition, which aims only to provide cost advantages, has been preferred in Türkiye. In this way, the aim is to first reduce the current account deficit by exporting products created with a cost advantage, and then to achieve high growth rates with the momentum gained, ultimately reaching the status of a developed country. However, the peak values reached in the current account deficit in the years when the strategy was implemented raise doubts about the effectiveness of the strategy.

Undoubtedly, the pandemic and the Russia-Ukraine war had negative effects on the problems in the economy. However, it does not seem rational to attribute the development of a country, especially a large one like Türkiye, solely to the condition that all factors will have positive trends. The fact that the country is more affected by these external developments compared to the rest of the world is largely due to being trapped within the narrow framework of monetary policy, where the exchange rate is kept high and interest rates are kept low to increase domestic investments and attract foreign capital., and adjustments are made only based on their impact on inflation. The analysis in the next section will provide an opportunity to question the effectiveness of the implemented monetary policy.

## 3. Conceptual Framework

In the introduction, we mentioned heterodox approaches that propose increasing savings as a way for developing countries, which now have more limited opportunities due to the advantages capital has gained in the neoliberal era, to break free from the impasse they find themselves in. Before moving on to the empirical study based on these approaches, it would be beneficial to take a broad perspective on the role of savings in economic policy.

The only function of entrepreneurs, who have a passive role in classical and neoclassical models, is to determine and organize the production techniques that will ensure profit maximization by transforming capital savings into investment. However, in Keynesian economics, there is an important distinction between capital savings decisions and entrepreneurs' investment decisions. Entrepreneurs play a significant role in determining the growth path of an economy with their investment decisions. The assumption in classical and neoclassical models that savings completely and automatically turn into investment covers this distinction (Foley et al., 2019, pp. 218-219). According to Yeldan (2009, pp. 102-103) who states investment behavior is passive and dependent on savings. This assumption is that investment and saving are both functions of the rate of interest and that the two continually equalize each other, providing equilibrium in the market for loanable funds, this view contradicts Keynesian theory, which sees investment behavior as independent of desired saving.

In its simplest form, when there is a deficit in the current and capital account balances, which are the sources of investments derived from the national income account, more savings are required to increase the level of investment. In other words, for a country

to increase its investments, must either borrow or increase its savings, to the extent that it has a current account deficit and budget deficit. Therefore, it is essential for developing countries with structural current account deficit problems to increase their savings. Otherwise, the measures taken to address these deficits may reduce the welfare of households. In addition, although the derived investment equation provides information about the direction of the relationship between its components, it does not convey anything about causality between them. For this reason, uncertainties about the policies to be implemented to address any deterioration in any of the items in the equation will not be resolved.

Keynes (1936, pp. 63-64) suggests that a sensitive decision should be made about whether the total savings required by the economy for investment should be directed towards foreign investments or domestic productive markets. Such a decision should not be left entirely to the private entrepreneur and their drive for maximum profit. Considering that savings are a function of income and the existence of inequalities in income distribution, it can be said that as total income increases, the uppermost segment will increase their savings at an increasing rate to increase their share in income. This will lead to the emergence of idle production capacities and a decrease in demand for loanable funds, leading to unemployment and recession. However, the occurrence of such a crisis can be prevented if there are public expenditures that will stimulate effective demand.

Keynesian economics has been the starting point for two different traditions in growth studies. The neoclassicals solved the self-consistent equilibrium condition by using a production function with continuous substitution probabilities and provided for an "adjustment" in case of deviation from the equation. The second group, formed by the Post-Keynesian understanding, focused on the need for the adaptive element to be the savings rate. Since the saving rate is a function of income differences, this theory also serves as an income distribution theory and is related to growth (Yeldan, 2009, pp. 104-105). There is a traditional assumption that labor savings are zero or close to zero. However, this does not exclude the possibility that individual workers savings. For example, in theories that model the economy with different life stages, workers save for their retirement during their youth and middle age (Foley and Michl, 2015, p. 101).

In the early Post-Keynesian understanding, which divided total income into its components based on profit and wage distribution, it was accepted that the tendency to save existed for both workers and capitalists. This implies that changing the distribution ratios can alter the savings-investment balance. However, since capitalists will earn profits according to the amount of investment they make, they will save entirely when savings are fully converted into investment. Conversely, workers will spend what they earn. This indicates that the total savings level in the economy is independent of worker savings. Changing the savings rate in the economy in the long term is considered undesirable for the capitalist system, as it would lead to a redistribution of earnings from production to the detriment of capital (Fine and Dimakou, 2016, pp. 90-93).

In the neoclassical understanding, it is ignored that money, finance and debt do not play an active role in determining the equilibrium income level and real interest rate. That is, the theory fails to distinguish between saving and financing. In a modern monetary economy, credit mechanisms separate investments from pre-existing savings, and modern banking separates loans from pre-existing deposits. In fact, it is loans that create deposits, while investments facilitate the emergence of savings. These investments are managed by effective demand and capitalists' profit expectations. As a result, they are financed and realized independently of savings. Moreover, in a modern economy, the interest rate is a monetary phenomenon and there is no stable "natural" interest rate that is compatible with full employment. Contrary to the monetarist view, there is no mechanism in the economy to ensure the natural interest rate, which results in the absence of such an interest rate (Akyüz, 2018, pp. 430-431).

Since export is, in a sense, send out of goods and services produced in the country but not consumed, imports are savings made by other countries. Therefore, it is possible

to see all foreign investments, whether it is foreign direct investment or portfolio investment, as savings made by other countries. Like many developing countries, the savings gap in Türkiye is compensated by foreign savings. Somel (2014, s. 214) attributes the decrease of savings, which is a function of income, despite the increase in national income, to the fact that foreign savings, which come with imports and capital inflows, do not reinforce domestic savings, but instead substitute them. In other words, foreign savings coming to the country reduce the domestic savings effort. All these views lead us to question why Türkiye, as a developing country, mainly relies on monetary policy tools to increase savings as one of the conditions for growth. Therefore, in the empirical study below, the relationship between savings and variables that are of primary fields of interest to monetary policy will be analyzed.

Studies in the literature generally focus on the effects of savings on investments or growth, or the effect of capital inflows or total income on savings.[6] In addition to these, many studies examine the relationship between savings, budget deficit and current account deficit (Kouassi et al., 2004; Türkay, 2013). However, as we have mentioned equations above, causality analysis is necessary since savings are derived together with these two variables. In this study, we found no research that includes all the variables that we will examine concerning the relationship between savings and all other. Studies that tested the relationship between one or two of these variables were encountered less frequently.

Aizenman et al. (2019, pp. 30-31) showed in their analysis that the real interest rate, although insignificant in the basic model, has a positive effect on private savings. However, they noted that this weak positive effect can be easily manipulated by uncertain economic conditions. Furthermore, they argued that implementing a low-interest policy in developed economies could lead to a permanent global imbalance.

Ceylan (2018, p. 65) states that inconsistent results are frequently encountered in studies examining the relationship between inflation and savings. The variability in spending approaches in the countries and periods studied is considered the main factor causing the inconsistency in the direction of this relationship. Undoubtedly, uncertainties in the monetary economy have an important role in the formation of this inconsistency.

According to Balmumcu and Süslü (2015), the fact that fiscal policy, which can actually play an important role in economic growth, is built on indirect taxes to maintain the income-expenditure balance as envisaged in the classical theory, affects the price structure in the market. This reduces the effects of interest on consumption decisions and lowers the effectiveness of monetary policy. Money and finance issues play a key role in regulating the relations between developed and developing countries through institutions such as the IMF and World Bank in the bilateral system of the world. Developing countries that have access to capital through these institutions must implement restrictive demand policies due to the savings and investment policies for free trade imposed by countries that have the privilege to manage and direct the institutions (De Brunhoff and Foley, 2006, pp. 202-203).

## 4. Econometric Study

With the empirical study that will implement in this chapter, the effect of Türkiye's the competitive exchange rate preference, which is a supply-oriented approach aimed at reducing production costs, on savings will be examined through causality analysis in terms of the mutual relationship between variables. Through this analysis, it will be possible to evaluate both how savings are affected by monetary policies and how monetary policy is affected by savings. Additionally, since the causality test, we will apply will provide results regarding the relationship between independent variables, it will also be possible to comment on the causality between interest rates and inflation, which has been a topic of debate in Türkiye in recent years.

[6] For a detailed literature summary on this subject, see Bulut and Karakaya (2018).

### 4.1 Data and Model

In this chapter of the study, a causality analysis was conducted to examine the mutual relationship between variables and evaluate the effect of Türkiye's competitive exchange rate preference on savings in terms of reducing production costs. Through this analysis, it is possible to evaluate how monetary policies affect savings and vice versa. The aim is to explain the relationship between exchange rates, inflation, interest, and savings, which are the main target areas of monetary policy and contribute to the wearing cycle of the country's economy. The study uses quarterly data between 2004 and 2019, leaving sufficient time for the effects of the 2001 financial crisis in Türkiye to dissipate, and excluding the pandemic period, which significantly impacted consumption patterns. Conducting the study to include periods prior to the policy change will allow us to question whether there is a rationale for the shift in terms of savings. Similarly, the exclusion of the post-pandemic period, during which economic stagnation increased in the country, stems from the investigation of the causality of the shift in policy rather than the consequences of the policy. Moreover, significant changes have occurred, particularly from the second half of 2021 onwards, where the interest rate has become disconnected from the economy, and major shifts have taken place in inflation and exchange rates, which have the potential to distort any analysis.

All variables in the study were obtained from The Central Bank of the Republic of Türkiye (CBRT) Electronic Data Delivery System (EDDS) and were used as percentage changes compared to the previous period of the same quarter. The forms of the data used in the analysis are included in the appendix. The "savings" (SAV), which is the ratio of savings to GDP, was calculated using the investment-savings equation mentioned above. Periodic fluctuations in the Turkish Lira, as reflected in the real effective exchange rate index, were included in the analysis as the "competitive exchange rate" (CER) variable, while changes in the CPI compared to the same quarter of the previous year were used as the "inflation" (INF) variable. Finally, the policy interest rate was adjusted for inflation using the Fisher Equation[7] and included in the study as the "real interest rate" (RIR). However, since the CBRT did not provide pre-2011 interest rate statistics, we calculated these rates by weighting the decisions of the Monetary Policy Committee meetings according to the days in which they remained in effect. In addition, the savings rate (SAV) data was seasonally adjusted using the TRAMO/SEATS method (Maravall, 2006). All analysis was carried out using EViews 10 with the names of the variables mentioned above.

To decide which causality test to apply in the study, it is necessary to look at the results of unit root tests first. As can be seen from Table 1 which included Augmented Dickey-Fuller (ADF) (Nelson and Plosser, 1982) and Phillips-Perron (PP) (Phillips and Perron, 1988) test results, some variables are stationary when the first difference is taken, i.e., in the form of I(1), while some variables are stationary at the level, i.e., in the form of I(0). These results show us that the causality test developed by Toda and Yamamoto (1995) is applicable for analysis (Amiri and Ventelou, 2012, p. 542). To start applying the TY test, a Vector Autoregressive (VAR) model must first be created[8] in accordance with the characteristics of the series to be used in the study (Dritsaki, 2017, p. 123). The fact that some variables are stationary at level 1 means that the maximum degree of integration ($d_{max}$) we will use for this test is equal to 1. On the other hand, it was seen that the unit root test results of all variables gave the strongest result in the form of "none" (containing neither a constant term nor a trend). Despite this, the Vector Autoregressive (VAR) model was established to include constant terms. This is because the stability levels were

[7] Calculated with the $Real\ Interest\ Rate = \frac{(1+Nominal\ Interest\ Rate)}{(1+Inflation\ Rate)} - 1$ formula. "Expected inflation" in Fisher's original equation was used as "actualized inflation" due to large deviations in inflation forecasts in the country. It is thought that the quarterly averages in the quarterly data used in the study also include rational expectations, since interest rate changes are made monthly, or even in shorter periods in some periods, and inflation data are calculated monthly.

[8] The impulse response function plots of the model are included in the appendix at the end of the study.

observed to be the same in the forms with constant terms in all tests, and theoretically, the variables in the model had explanatory variables other than the ones used in the model.

**Table 1.** Unit Root Test Results (%1 significance level)

| | $H_0$: The series contains a unit root. | | | | | |
|---|---|---|---|---|---|---|
| | ADF | | | PP | | |
| Variable | t value | critical value | prob. | t value | critical value | prob. |
| SAV I(1) | -6,7787 | -3,5402 | 0,0000 | -6,7698 | -3,5402 | 0,0000 |
| CER I(0) | -8,2833 | -3,5384 | 0,0000 | -8,2833 | -3,5384 | 0,0000 |
| INF I(1) | -7,0711 | -3,5461 | 0,0000 | -5,2410 | -3,5402 | 0,0000 |
| RIR I(1) | -6,5252 | -3,5402 | 0,0000 | -6,4543 | -3,5402 | 0,0000 |

To determine the appropriate lag length (k) to be used, we examined the lag structure table of the model we created in the form of a VAR estimated with two lags. As shown in Table 2, three information criteria marked with asterisks, including AIC at the third lag length, give the most appropriate result (Akaike, 1974). Therefore, it would be appropriate to use k as 3. For this reason, the model was re-estimated with a lag length of 4 ($k + d_{max}$).

**Table 2.** Lag Length for VAR Model

VAR Lag Order Selection Criteria
Endogenous variables: SAV CER INF RIR Exogenous variables: C
Sample: 2004Q1 2019Q4 Date: 06/09/23 Time: 01:06 Included observations: 59

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | 407.1382 | NA | 1.37e-11 | -13.66570 | -13.52485 | -13.61072 |
| 1 | 550.1054 | 261.7027 | 1.85e-13 | -17.96967 | -17.26542* | -17.69476* |
| 2 | 564.8129 | 24.92804 | 1.95e-13 | -17.92586 | -16.65821 | -17.43102 |
| 3 | 583.2699 | 28.78036* | 1.83e-13* | -18.00915* | -16.17810 | -17.29438 |
| 4 | 593.6434 | 14.76901 | 2.30e-13 | -17.81842 | -15.42397 | -16.88372 |
| 5 | 611.9838 | 23.62497 | 2.26e-13 | -17.89776 | -14.93991 | -16.74313 |

* Indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error AIC: Akaike information criterion
SC: Schwarz information criterion HQ: Hannan-Quinn information criterion

At this stage, a range of tests must be performed to test the reliability of the VAR model. The first of these is the inverse root distribution of autoregressive characteristic polynomials, which is checked to determine whether the error-lagged terms are stationary. As can be seen from Figure 2, all inverse roots remain within the unit circle. Therefore, we can conclude that our model is stationary and that the lags do not create deviations that would undermine its significance (Çalışkan et al., 2017, p. 52).

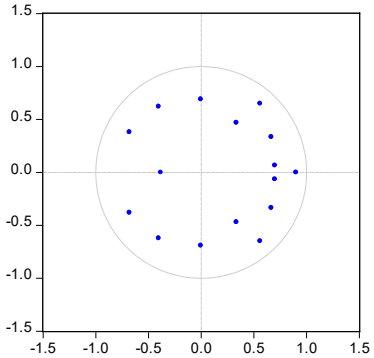


**Figure 2.** Inverse Roots of Characteristic Polynomial

The test results, in which we checked whether the error terms of the VAR model we built provide a normal distribution, are given in Table 3. The Doornik-Hansen (2008) test results showed us that the error terms are not normally distributed at the 5% significance

level. However, we continued the analysis without making any adjustments because the normal distribution was acceptable at the 10% significance level obtained from the test result, and other reliability assumptions were met.

**Table 3.** VAR Model Normal Distribution Test

VAR Residual Normality Tests Included observations: 60
Orthogonalization: Residual Correlation (Doornik-Hansen)
Null Hypothesis: Residuals are multivariate normal
Sample: 2004Q1 2019Q4 Date: 06/09/22 Time: 01:13 Included observations: 60

| Component | Jarque-Bera | df | Prob. |
|---|---|---|---|
| 1 | 0.497056 | 2 | 0.7799 |
| 2 | 3.859448 | 2 | 0.1452 |
| 3 | 9.933809 | 2 | 0.0070 |
| 4 | 3.499735 | 2 | 0.1738 |
| Joint | 17.79005 | 8 | 0.0229 |

Table 4 shows the results of the LM test (Breusch and Pagan, 1980) performed to check whether the delay series modeling contains autocorrelation problem or not. The probability values that appear for the 3rd delay length determined from the model and the 4th delay length required for the TY test are greater than 0.05, which prevents the rejection of the null hypothesis ($H_0$) stating that "there is no autocorrelation between the series". Therefore, it can be said that the model does not have an autocorrelation problem.

**Table 4.** VAR Model Autocorrelation Test

VAR Residual Serial Correlation LM Tests
Sample: 2004Q1 2019Q4 Date: 06/09/22 Time: 23:41 Included observations: 60

| Lag | LRE* stat | df | Prob. | Rao F-stat | df | Prob. |
|---|---|---|---|---|---|---|
| 1 | 19.49451 | 16 | 0.2439 | 1.246328 | (16, 110.6) | 0.2454 |
| 2 | 21.38391 | 16 | 0.1642 | 1.378466 | (16, 110.6) | 0.1655 |
| 3 | 17.80712 | 16 | 0.3353 | 1.130098 | (16, 110.6) | 0.3369 |
| 4 | 14.85135 | 16 | 0.5356 | 0.930476 | (16, 110.6) | 0.5371 |
| 5 | 32.50361 | 16 | 0.0086 | 2.200659 | (16, 110.6) | 0.0088 |

Similarly, it is possible to say that the model does not contain a variable variance problem, since the probability value found in the White (1980) variable variance test performed on error terms is greater than 0.05. The results are shown in Table 5.

**Table 5.** VAR Model Heteroscedasticity Test

VAR Residual Heteroskedasticity Tests (Levels and Squares)
Sample: 2004Q1 2019Q4 Date: 06/09/22 Time: 23:43 Included observations: 60

| Joint test: | Chi-sq | df | Prob. |
|---|---|---|---|
| | 324.2422 | 320 | 0.4234 |

After all the tests applied to the VAR model, a system of equations with four predetermined lag lengths was created to perform the TY test. The system in Table 6 was estimated using the seemingly unrelated regression (SUR) method, which prevented the residuals between the equations from being correlated. As can be seen, in this system of equations, each variable is estimated along with its own and other variables' lags, enabling us to establish causal relationships (Rambaldi and Doran, 1996).

**Table 6.** TY Causality Test Equation System

| |
|---|
| SAV=C (1) *SAV (-1) +C (2) *SAV (-2) +C (3) *SAV (-3) +C (4) *SAV (-4)<br>+C (5) *CER (-1) +C (6) *CER (-2) +(7) *CER (-3) +C (8) *CER (-4)<br>+C (9) *INF (-1) +C (10) *INF (-2) +C (11) *INF (-3) +C (12) *INF (-4)<br>+C (13) *RIR (-1) +C (14) *RIR (-2) +C (15) *RIR (-3) +C (16) *RIR (-4) +C (17) |
| CER=C (18) *SAV (-1) +C (19) *SAV (-2) +C (20) *SAV (-3) +C (21) *SAV (-4)<br>+C (22) *CER (-1) +C (23) *CER (-2) +C (24) *CER (-3) +C (25) *CER (-4)<br>+C (26) *INF (-1) +C (27) *INF (-2) +C (28) *INF (-3) +C (29) *INF (-4)<br>+C (30) *RIR (-1) +C (31) *RIR (-2) +C (32) *RIR (-3) +C (33) *RIR (-4) +C (34) |
| INF=C (35) *SAV (-1) +C (36) *SAV (-2) +C (37) *SAV (-3) +C (38) *SAV (-4)<br>+C (39) *CER (-1) +C (40) * CER (-2) +C (41) *CER (-3) +C (42) *CER (-4)<br>+C (43) *INF (-1) + C (44) * INF (-2) +C (45) *INF (-3) +C (46) *INF (-4)<br>+C (47) * RIR (-1) + C (48) * RIR (-2) +C (49) *RIR (-3) +C (50) *RIR (-4) +C (51) |
| RIR= C (52) *SAV (-1) +C(53) *SAV(-2)+C(54)*SAV(-3)+C(55)*SAV(-4)<br>+C (56) *CER (-1) +C (57) *CER (-2) +C (58) *CER (-3) +C (59) *CER (-4)<br>+C (60) *INF (-1) +C (61) *INF (-2) +C (62) *INF (-3) +C (63) *INF (-4)<br>+C (64) *RIR (-1) +C (65) *RIR (-2) +C (66) *RIR (-3) +C (67) *RIR (-4) +C (68) |

To ensure the reliability of the results of the system of equations we created before the TY test, the equation system first underwent a normality test. The very high probability value observed in Table 7 indicates that the null hypothesis ($H_0$), which states that the error terms in the equation system are normally distributed, cannot be rejected.

**Table 7.** TY Equation System Normal Distribution Test

| System Residual Normality Tests | | | |
|---|---|---|---|
| Orthogonalization: Residual Correlation (Doornik-Hansen) | | | |
| Null Hypothesis: residuals are multivariate normal | | | |
| Sample: 2005Q1 2019Q4 Date: 06/09/22 Time: 01:13 Included observations: 60 | | | |
| 1 | 5.908781 | 2 | 0.0521 |
| 2 | 9.066048 | 2 | 0.0107 |
| 3 | 8.173862 | 2 | 0.0168 |
| 4 | 4.192173 | 2 | 0.1229 |
| Joint | 27.34086 | 55 | 0.9994 |

Then the autocorrelation test was applied to the error terms of the system. As can be seen from the probability values in Table 8, there is no autocorrelation problem in the equation system, even after the 4th lag length (Escanciano and Lobato, 2009, p. 146).

**Table 8.** TY Equation System Autocorrelation Test

| System Residual Portmanteau Tests for Autocorrelations | | | | | |
|---|---|---|---|---|---|
| Null Hypothesis: no residual autocorrelations up to lag h | | | | | |
| Sample: 2005Q1 2019Q4 Date: 06/09/22 Time: 01:12 Included observations: 60 | | | | | |
| Lags | Q-Stat | Prob. | Adj Q-Stat | Prob. | df |
| 1 | 2.074465 | 1.0000 | 2.109626 | 1.0000 | 16 |
| 2 | 7.579646 | 1.0000 | 7.804640 | 1.0000 | 32 |
| 3 | 13.00987 | 1.0000 | 13.52067 | 1.0000 | 48 |
| 4 | 25.02489 | 1.0000 | 26.39390 | 1.0000 | 64 |
| 5 | 50.24555 | 0.9963 | 53.90734 | 0.9889 | 80 |
| 6 | 63.98657 | 0.9951 | 69.17514 | 0.9823 | 96 |
| 7 | 81.32801 | 0.9871 | 88.80697 | 0.9481 | 112 |
| 8 | 95.97969 | 0.9844 | 105.7127 | 0.9252 | 128 |
| 9 | 107.1515 | 0.9906 | 118.8560 | 0.9380 | 144 |
| 10 | 114.7794 | 0.9973 | 128.0095 | 0.9703 | 160 |
| 11 | 127.2541 | 0.9978 | 143.2847 | 0.9663 | 176 |
| 12 | 143.3759 | 0.9965 | 163.4369 | 0.9335 | 192 |

### 4.2 TY Causality Test

After all applications, the TY test was completed by testing the significance of the coefficients of the equation system whose reliability was proven. In this test, to determine the direction of causality, it is checked whether the independent variables influence the dependent variable with all their lags. For example, whether the competitive rate is the determinant of savings or not, according to the result[9] of the Wald test, in which the coefficients of all lags of the CER variable in the SAV equation in Table 3 (C(5), C(6), C(7) and C(8)) are tested to be equal to zero, can be said (Toda and Yamamoto, 1995, pp. 229-233). If this test result is less than 0.05, it will be possible to say that there is a causal relationship between the competitive exchange rate and savings. The Wald test results for all variables are given in Table 9.

**Table 9.** Wald Test Results

| Variable | | Critical Value | Prob. | Causality Relationship |
|---|---|---|---|---|
| SAV | CER | 7,1531 | 0,0672 | NO |
| | INF | 24,1419 | 0,0000 | YES |
| | RIR | 21,1815 | 0,0001 | YES |
| CER | SAV | 18,4210 | 0,0004 | YES |
| | INF | 11,3744 | 0,0099 | YES |
| | RIR | 10,8341 | 0,0127 | YES |
| INF | SAV | 7,6772 | 0,0532 | NO |
| | CER | 14,3900 | 0,0024 | YES |
| | RIR | 2,0538 | 0,5613 | NO |
| RIR | SAV | 8,6246 | 0,0347 | NO |
| | CER | 2,7201 | 0,4368 | NO |
| | INF | 10,6608 | 0,0137 | YES |

Finally, the causality relationships in the table above are visualized in Figure 3, including whether the aspects of the relationships are unilateral or bilateral.


**Figure 3.** Causality Relations of Variables

### 4.3 Evaluation of Test Results

As can be seen in Figure 3, which reveals the results of the causality analysis the competitive exchange rate strategy does not have a significant effect on savings. Conversely, it is possible to find evidence suggesting that savings may be the cause of the competitive exchange rate. In other words, the preference for the competitive exchange rate strategy due to a lack of savings can be seen as significant in this study. The study concluded that interest rates have a one-way and weak effect on savings. This result

[9] EViews results are determined according to the 4 degrees of freedom that we set up in the equation. However, the test results are smaller than they should be. Therefore, we calculated the probability values for the Chi-Square distribution of the test statistics in the program with 3 degrees of freedom using MS Excel.

supports the findings of Aizenmann et al. (2019). However, a contradiction arises from the way the real interest rate, i.e., monetary policy that has a one-way causal relationship with both the competitive rate and savings is utilized. Because the policy supporting the competitive exchange rate will negatively affect savings. Rodrik (2008) has demonstrated that a competitive exchange rate strategy can create a competitive advantage only in developed economies and very small countries. Devaluation is ineffective on real variables in countries with very high or very low import dependency, it will only influence prices. Moreover, when companies do not anticipate continuous price increases, efforts to increase exports will also be insufficient (McCombie and Thirlwall, 2001, pp. 51-55). For this reason, despite the cheapening of export goods due to the depreciation of the national currency, the current account deficit in Türkiye continues to increase. In this case, the role of energy dependence and changes in international trade patterns is significant. Moreover, McCombie and Thirlwall (2001, p. 75) already state that even if a certain improvement is achieved in the short term, the depreciation of the exchange rate will not be effective in overcoming the balance of payments constraint in the long term.

Despite being declared within a heterodox understanding[10], one of the main reasons why the strategy of devaluing the national currency to gain advantage in foreign trade and thus reduce the current account deficit and achieve sustainable growth cannot be successful is its highly orthodox method. Based on this information, there is no evidence to support the effectiveness of the strategy beyond expectations and wishes. Because the flexible exchange rate system makes it difficult to maintain the depreciation in the exchange rate at a competitive level in the long term. Moreover, this depreciation, along with the inflation it may cause due to its impact on the value of imported goods, may be the cause of a vicious circle that further devalues the domestic currency (McCombie and Thirlwall, 2001, pp. 77-79). The most significant factor contributing to this situation, as Ceylan (2018) stated, is the uncertainty in the monetary economy. To overcome this, in line with the findings of Balmumcu and Süslü (2018), comprehensive fiscal policies aligned with monetary policies must be implemented to mitigate their negative effects. However, Kouassi et al. (2004), whose results have similarity to this study, argued that the uncertainties in foreign trade have a significant impact on the economy. Therefore, in addition to coherent monetary and fiscal policies, numerous precautions need to be taken. This brings us closer to the planning approach that we will discuss in the conclusion section.

Moreover, as can be seen in Figure 3 again, the one-way relationship between real interest rates and inflation reveals that the interest rate is a consequence of inflation. The belief that in the opposite of this finding and the decisions taken in this direction have trapped the country within the narrow framework of monetary policy.

Certainly, it is possible to conduct a similar analysis by breaking down the periods to reveal the effects of monetary policy implementations. However, this study aims to find an answer to why Türkiye may have embarked on such a path. The findings indicate that while the chosen strategy is not suitable for overcoming the country's chronic problems, there is also no causality to take this path.

## 5. Conclusion and Discussion

It would not be mistaken to see every economic decision made by a developing country in terms of growth and development. In this sense, it is quite possible to interpret Türkiye's shift in direction towards a competitive exchange rate strategy as an attempt to escape its current position. However, it should not be forgotten that breaking away from a system that requires a consistent, transparent, and equitable development effort can have exhausting consequences. Recent events in Argentina demonstrate that policies can fail, and despite high-interest rates and IMF interventions, the economy may not recover

[10] The former Minister of Treasury and Finance who on duty during the relevant period made an overemphasized statement about this issue at the Economic Transformation and New Paradigms summit on September 29, 2022 (Yeşilyurt, 2022).

when conditions deteriorate drastically. While it is possible to implement a long-term structural transformation in which every aspect is designed and all possibilities are considered and to get results from it, it is less likely to realize a structural transformation that progresses with daily policies and whose goals are constantly changing. Therefore, if it is aimed to change a structure, all possibilities, including the cost of abandonment, should be taken into consideration. The fact that attempts to relax the balance of payments constraint through major exchange rate adjustments may be hindered by real wage resistance and the resulting depreciation suggests that there is little room for a single country to improve its growth rate through exchange rate adjustments (McCombie and Thirlwall, 2001, p. 56).

Developing countries often resort to inflationary policies in their efforts to create compulsory savings. However, instead of suppressing consumption with monetary policy in this way, savings should be increased through effective fiscal policies (Nurkse, 1952, pp. 268-269). Despite the disadvantaged position due to chronic capital shortage in developing countries, ways to leverage advancements in financial technologies should be explored to use monetary policy tools more effectively. Similarly, Akyüz (2008, p. 28), who says that it is not easy to control capital flows directly or indirectly with financial regulations, suggests that monetary policy for exchange rate and price stability should be used in harmony with fiscal policy. Nevertheless, the possibility of making such interventions is much more limited in countries that are structurally lacking in savings, in a current account deficit and a currency strait, and have excessive dependence on foreign capital due to the high level of external debt of the public and private sectors. Such countries are more vulnerable to the caprice of international capital and need fundamental changes more than financial regulations or circular macroeconomic policies. In cases where current account deficits cannot be regularly financed with capital inflows, production levels need to be regulated to ensure the import-export balance. This is because low interest rates, which would stimulate domestic investment, can only be sustained with a healthy balance of payments (McCombie and Thirlwall, 2001, p. 82).

According to Rostow (1960, p. 38), who argues that chronic low saving is a reason for developing countries to stagnate, saving rates must be increased rapidly by intervening in the market mechanism to end this stagnation. Furthermore, to facilitate this transition, a policy, institutional, and societal framework should be established that enables the conversion of these savings into investment in certain manufacturing sectors, making the transition possible and robust. However, how can savings in developing countries, which consistently remain low in self-operating markets, be increased? This necessitates some form of intervention in the market mechanism. Kazgan (2000, p. 272) suggests that economists working on development can easily diagnose their ideological attitudes based on who will benefit from the results of the proposed interventions.

Planning, which will ensure that all practices that go beyond these policies and beyond are carried out harmoniously, is an approach that should be remembered. Of course, what we're talking about here is not old-fashioned, static planning that puts supply targeting at the center. What is suggested is that developing countries, which already have too many handicaps in the economic struggle, will take advantage of every opportunity they encounter, from foreign trade policy to industrial policy, from fiscal policy to monetary policy, from agricultural policy to employment policy, and even gender policies. It is a dynamic planning that will ensure coordination in all areas.

Recently, it seems that Türkiye's economic management has also accepted that a competitive exchange rate strategy is not a solution, since they are to keep the depreciation of the domestic currency under control and are intensively using fiscal policy in addition to monetary policy. However, this approach will at best provide short-term relief and alignment with the global order. For a development initiative that will also consider the welfare of large part of society, demand-side policies that improve domestic distribution relations within a planning-oriented framework should be developed. In this way, the

source of savings that will ensure the continuity of investments will be generated domestically, reducing dependence on external sources.

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**APPENDIX**

Impulse Response Function Plots of VAR Model