“The effectiveness of exchange rate channel in Azerbaijan: an empirical analysis”

AUTHORS
Shahriyar Mukhtarov
Serhat Yüksel
Elvsevar Ibadov
Hamid Hamidov

ARTICLE INFO
Shahriyar Mukhtarov, Serhat Yüksel, Elvsevar Ibadov and Hamid Hamidov (2019). The effectiveness of exchange rate channel in Azerbaijan: an empirical analysis. Banks and Bank Systems, 14(1), 111-121.
doi:10.21511/bbs.14(1).2019.10

DOI
http://dx.doi.org/10.21511/bbs.14(1).2019.10

RELEASED ON
Tuesday, 26 February 2019

RECEIVED ON
Saturday, 19 January 2019

ACCEPTED ON
Wednesday, 13 February 2019

LICENSE
This work is licensed under a Creative Commons Attribution 4.0 International License

JOURNAL
"Banks and Bank Systems"

ISSN PRINT
1816-7403

ISSN ONLINE
1991-7074

PUBLISHER
LLC “Consulting Publishing Company “Business Perspectives”

FOUNDER
LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES
52

NUMBER OF FIGURES
2

NUMBER OF TABLES
7

© The author(s) 2022. This publication is an open access article.
Abstract

The main purpose of this study is to make an analysis to understand whether the exchange rate channel is effective in Azerbaijan. In this framework, quarterly data between 2001:01 and 2017:02 is examined in this study. Furthermore, VAR method is taken into the consideration in the analysis process. The findings show that exchange rate channel is very important for Azerbaijani economy. In other words, the exchange rate channel is working on the total output and price axis. Hence, it is recommended that necessary actions should be taken by a central bank regarding the effective usage of exchange rate channel to contribute to industrial production and employment.

Keywords

- monetary transmission mechanism
- exchange rate channel
- VAR
- Azerbaijani economy

JEL Classification

- E40
- E50
- E52
- E58

INTRODUCTION

Central banks try to keep the value of domestic currencies stable for many reasons. Especially, in small and open economies, the exchange rate changes have a big impact on inflation. For example, the depression situation creates higher inflation as a result of high import prices and export demand. As a result, governments and policy makers pay more attention to currency exchange. In this case, it creates pressure on the central bank to apply different policies (Mishkin, 2001, p. 7).

The exchange rate channel explains the effect of exchange rates on the real economy, in particular with the changes in both aggregate demand and supply. The level of exchange rates for imported goods and services in terms of national currencies, and therefore for inflation, the size and the time of the devaluation and the structural characteristics of the economy. Generally, as the share of imports and the size of the devaluation increase, the efficiency of the exchange rate channel also goes up. Also, after the devaluation, which is experienced during a recession period, the transmission channel decreases (Horvarth & Maino, 2006, cited in Örnek, 2009).

Since the changes in the exchange rate in the flexible exchange rate regime affect aggregate demand and aggregate supply, it is also possible to say that it is a determinant of future price movements. When the exchange rate is fixed, the effectiveness of the monetary policy declines considerably even if it does not fully disappear. If the exchange rate is held in a broad band, protection of the effectiveness of the monetary policy can be maintained, especially if there is full substitution be-
between domestic and foreign assets. However, if there is no full substitution, the monetary policy activity is completely out of the scope (Canbazoğlu & Karaalp, 2012, p. 57).

Azerbaijan can be defined as a small open and developing economy. Moreover, as an oil producer and exporter, Azerbaijani economy improved significantly in recent years. In this period, the demand for energy has increased very much. This situation led to increase in oil prices as well. Owing to this issue, GDP growth went up in oil exporting countries, such as Azerbaijan. In addition to this situation, local currency appreciated and in spite of increasing demand, there was not a significant rise in inflation rates.

The rapid decrease in oil prices since the second quarter of 2014 led to an important decline in foreign exchange revenues. Although the country had a current account surplus for a long period, there was a current account deficit in 2015. Both the current account deficit and the reduction of government spending have significantly reduced the foreign exchange supply. On the other hand, the psychological impact of devaluations in neighboring countries has caused a sharp increase in demand for foreign currency (especially for American dollar), and the dollarization trend has strengthened. In such an environment, the Central Bank took a decision to make devaluation in February 2015 to reduce pressure on the currency market and national currency. However, the sharp decline in oil prices since July has increased the expectation that the exchange rate will reduce with the pressure on the national currency. It was decided that the “free exchange rate” regime will be adopted in December 2015 because of these reasons. Therefore, recent developments can be accepted as an important indicator for the Azerbaijani economy due to the relationship between US dollar exchange rate and oil prices.

In this study, it is aimed to make an analysis to understand whether exchange rate channel is functioning effectively or not in Azerbaijan by using VAR method. It is believed that this study has significant contributions to the literature. Firstly, it focuses on an important topic for developing countries. In addition, standard Granger causality and impulse-response tests under VAR approaches are firstly used in this concept.

Within this scope, first of all, exchange rate channel will be defined and its effect on the economy will be discussed. After that, similar studies in the literature will be explained. Next, econometric method, data and findings will be detailed. In the final part of this study, analysis results and recommendations will be emphasized.

1. EXCHANGE RATE CHANNEL

Unlike closed economies, the liberalization of capital movements in open economies and the instability caused by the flexible exchange rate system have led the monetary authorities to use the exchange rate channel to reach the price stability target (Güloğlu & Orhan, 2008, p. 97). The theoretical basis of this channel emerging in open economies is valid in the free exchange rate system. The main reason behind this aspect is that according to this model, monetary policy influences both domestic and foreign investment decisions through exchange rate (Büyükakın et al., 2008, p. 174). In this context, it can be said that the exchange rate channel is effective in open economies because of the application of a free exchange rate system. In other words, the greater the financial and commercial openness of a country, the greater the efficiency of the exchange rate channel in the transfer mechanism (Loayza & Hebbel, 2002, p. 9, cited in Yaprakli, 2011, p. 18).

When there is a decrease in domestic interest rate (ir↓), the exchange rate actually includes the interest rate effect because domestic currency deposits have lost their appeal compared to foreign exchange deposits. As a result of this issue, domestic deposits lose values in comparison with foreign deposits, so there is an increase in the value of foreign currency (E↑). The depreciation of the national currency caused an increase in net exports (NX↑) as domestic commodities made them cheaper in comparison with foreign commodities. Additionally, rise in the net export has an increasing effect on the output (Y↑). This pro-
cess was summarized below (Mishkin, 2004, p. 618): \[ M \uparrow \Rightarrow ir \downarrow \Rightarrow E \downarrow \Rightarrow NX \uparrow \Rightarrow Y \uparrow. \]

In the opposite case (monetary tightening), real interest rates increase and domestic money deposits become more attractive than foreign currency deposits. Hence, foreign capital comes to the country in order to benefit from this situation and because of this aspect, the amount of foreign currency in the country increases. This increase causes the appreciation of the domestic currency by lowering the exchange rate. In this case, net exports decreases since domestic commodities become more expensive in comparison to the foreign commodities. This decrease in net exports causes the total revenue to fall. This process was demonstrated below. \[ M \downarrow \Rightarrow ir \uparrow \Rightarrow E \downarrow \Rightarrow NX \downarrow \Rightarrow Y \downarrow. \]

Exchange rate changes also affect the budget of households and firms. In many countries, households and companies borrow directly from abroad or through domestic banks. When these debts are not fully covered by foreign currency assets, changes in exchange rate have significant impacts on spending and borrowing behavior of households and firms by affecting the net values and asset-liability ratios (Kamin et al., 1998, pp. 12-13).

The effect of the exchange rate on the budget is explained by both the bank balance and the company balance. While rising exchange rates increase the debt burden of financial intermediaries which have open foreign exchange positions, households and companies fail to pay their debts due to the increase in the foreign exchange rate. This situation makes it difficult for banks to collect their debts and causes banks to lose their balance sheet structure. The deterioration in the financial intermediaries’ balance sheet will diminish the lending capacity of banks. Also, aggregate output and investment will decrease due to the liquidity problem (Mishkin, 2001, pp. 7-8).

2. LITERATURE REVIEW

Some selected studies related to the exchange rate channel are demonstrated in Table 1.

Table 1 states that lots of studies evaluate the effectiveness of the exchange rate channel. Martinez et al. (2001) made a study to identify this situation in Mexico with VAR method and determined that exchange rate channel is effective in Mexico. Parallel to this study, Camarero et al. (2002), Arıbacı and Baştürk (2013), Turhan and Gümüş (2014), Ciçek (2005), Poddar et al. (2006), Aslanidi (2007), Erdoğan and Yıldırım (2008), Isakova (2008), Büyükkakin et al. (2009), Cambazoğlu and Karaalp (2012), Roşoiu and Roşoiu (2013), Özcan (2016), Shahraki et al. (2016), Duman (2016) and Cambazoğlu et al. (2013) defined similar aspects as well.

In spite of these studies, there are also some other studies which underlined that this channel is not effective. Dovciak (1999) made an analysis so as to understand if exchange rate channel is effective in Slovakia or not. For this purpose, regression analysis was used. He identified that exchange rate channel does not work in Slovakia. Similarly, Barran et al. (1996), Erarslan and Kati (2015), Bagus et al. (2013), Mishra et al. (2016), and Zenon (2001) emphasized the same conclusion in their studies by using a different methodology.

Moreover, some studies compared the effectiveness of exchange rate channel with other channels. Atabaev and Ganiyev (2013) tried to evaluate this situation for Kyrgyzstan. They used VAR method to achieve this objective. As a result of this analysis, it is defined that exchange rate channel is more effective than other channels. Parallel to this study, Le and Pfau (2009), and Örnek (2009) underlined the similar conclusions by using the same methodology. Additionally, Patnaik et al. (2011) determined that exchange rate channel is more effective in the countries that have high inflation rates with VECM.

Some studies also examined the relationship between exchange rate channel and inflation rate. Nagayasu (2007) tried to identify this relationship in Japan by using VECM and concluded that exchange rate channel has an important influence on the inflation rate. McFarlane (2002), and Yapraklı (2011) also underlined the similar aspect in their studies with the same methodology. Furthermore, Huseynov (2013), Saraçoğlu and Köse (1999), Dabla-Norris and Floerkemeier (2006), Fetia and Zeqiri (2010), and Özcan (2016) also concluded that exchange rate channel affects inflation rate
Table 1. Selected studies for exchange rate channel

| Author                        | Scope                      | Method | Result                                                                 |
|-------------------------------|----------------------------|--------|----------------------------------------------------------------------|
| Barran et al. (1996)          | 9 EU countries             | VAR    | It was defined that exchange rate channel is only appropriate in Spain. |
| Cushman and Zha (1997)        | Canada                     | VAR    | They reached a conclusion that there is not a paradox between currency exchange rate and interest rate (liquidity). |
| Smets and Wouters (1999)      | Germany                    | VAR    | It was determined that after the monetary tightening, local currency was appreciated, the import prices were stronger than the export prices, and the import prices were cheaper. |
| Dovciak (1999)                | Slovakia                   | Regression | It was concluded that exchange rate channel is not effective in Slovakia. |
| Sarachoğlu and Köse (1999)   | Turkey                     | VAR    | Currency exchange rate is an important indicator that affects inflation rate. |
| Zonon (2001)                  | Peru                       | VAR    | It was defined that exchange rate channel is not effective. |
| Martinez et al. (2001)        | Mexico                     | VAR    | Exchange rate channel is effective in Mexico. |
| Camarero et al. (2002)        | Spain                      | VAR    | Exchange rate channel is effective in Spain. |
| McFarlane (2002)              | Jamaica                    | VECM   | Exchange rate channel has an important influence on the inflation rate. |
| Ciçek (2005)                  | Turkey                     | VAR    | Exchange rate channel increases the effectiveness of monetary policy on the prices. |
| Dabla-Norris and Flerkemeier (2006) | Armenia                   | VAR    | They identified that exchange rate channel has a significant impact on the prices. |
| Poddar et al. (2006)          | Jordan                     | VAR    | It was defined that none of monetary transmission channels are important. |
| Nagayasu (2007)               | Japan                      | VECM   | Exchange rate channel only affects inflation rate. |
| Askandili (2007)              | Georgia                    | VAR    | It was determined that exchange rate channel has a powerful impact on the economy. |
| Erdoğan and Yıldırım (2008)   | Turkey                     | VAR    | They underlined that exchange rate channel is valid for Turkey. |
| Isakova (2008)                | Kazakhstan, Kyrgyzstan and Tajikistan | VAR    | Exchange rate channel works effectively. |
| Gülsoğlu and Orhan (2008)     | Turkey                     | VECM   | Exchange rate channel has a powerful influence on industry production. |
| Örnek (2009)                  | Turkey                     | VAR    | Exchange rate channel works in Turkey whereas bank credit channel does not. |
| Büyükakın et al. (2009)      | Turkey                     | VAR    | They concluded that exchange rate channel is successful in Turkey. |
| Fethi and Zeqiri (2010)       | Macedonia                  | VAR    | They reached a conclusion that exchange rate channel affects inflation rate. |
| Le and Pfau (2009)            | Vietnam                    | VAR    | It was defined that bank loan and exchange rate channels work more effectively than interest rate channel. |
| Bhattacharya et al. (2011)    | India                      | VECM   | It was determined that exchange rate channel is more effective in the countries that have high inflation rates. |
| Yaprakli (2011)               | Turkey                     | VECM   | It was concluded that exchange rate channel affects inflation rate in Turkey. |
| Awad (2011)                   | Egypt                      | SVAR   | The exchange rate channel plays the most important role among the foreign and domestic variables for the Central Bank of Egypt. |
| Pelinescu (2012)              | Romania                    | SVAR   | Romanian currency appreciation increases local goods demand. |
| Fan and Jianzhou (2011)       | China                      | VAR    | The role of the asset price channel became passive. |
| Tahir (2012)                  | Brazil, Chile and Korea    | SVAR   | Exchange rate channel affects interest rate and industrial production. |
| Cevik and Teksoz (2012)       | Gulf Cooperation Council (GCC) countries | SVAR   | Exchange rate channel is not effective for Gulf area. |
| Cambazoğlu and Karaalp (2012) | Turkey                     | VAR    | It was emphasized that exchange rate channel is effective in Turkey. |
| Cambazoğlu et al. (2013)      | Turkey and Argentina       | VAR    | They reached a conclusion that exchange rate channel works successfully in both Turkey and Argentina. |
| Atabaev and Ganiyev (2013)    | Kyrgyzstan                 | VAR    | They determined that exchange rate channel is the most important channel in Kyrgyzstan. |
| Huseynov (2013)               | 9 CIS countries            | ARDL   | Exchange rate channel is effective on both total output and inflation. |
| Roşoiu and Roşoiu (2013)      | Romania, Poland, Czech Republic and Hungary | Bayesian VAR | Exchange rate channel is effective for Hungary and Czech Republic. |
| Gumata et al. (2013)          | South Africa               | Bayesian VAR | Interest rate channel works more effectively than the others. |
3. **ECONOMETRIC ANALYSIS AND RESULTS**

3.1. Data and methodology

The quarterly data between 2001:01 and 2017:02 is used in the analysis process. Producer price index (PPI), consumer price index (CPI), credit interest rates among the banks (INT), currency exchange rate (EXC) and net exports (NX) are the endogenous variables. On the other side, exogenous variables are oil prices (OIL) federal funds rate (FEDFUNDS). In this analysis, the variable of PPI represents goods market, while CPI represents inflation rate. Moreover, INT refers to the money market. Furthermore, the data of these variables was provided from FED, Central Bank of Azerbaijan and Azerbaijan State Statistical Institute.

Vector autoregression (VAR) method is the most used in the studies that focused on monetary transmission mechanism. Hence, it will be possible to simulate the short-term reactions against a possible shock which will occur because of the dynamic relationship between the variables. Greene (1993) asserted that VAR method is more effective than other methods to analyze the dynamic relationship among the factors. This method was firstly developed by Sims (1980). The main benefit of this method in comparison with others is that there is not a difficulty to determine which variables are internal or external. Within this scope, a standard VAR method that have two different variables can be demonstrated as follows.

\[
y_t = a_1 + \sum_{i=1}^{p} b_{1i} y_{t-i} + \sum_{i=1}^{p} b_{2i} x_{t-i} + v_{1t},
\]

\[
x_t = c_1 + \sum_{i=1}^{p} d_{1i} y_{t-i} + \sum_{i=1}^{p} d_{2i} x_{t-i} + v_{2t},
\]

In these equations, \(y_t\) and \(x_t\) show the variables, \(a_1\) and \(c_1\) represent constant terms, \(b\) and \(d\) explain the coefficients that will be estimated. Additionally, \(p\) refers to the lag interval and \(v_t\) shows white-noise error term.

3.2. Analysis results

In order to make VAR analysis, first of all, log values of all variables were calculated. Secondly, Augmented Dickey-Fuller (ADF) unit root test is performed for stationary analysis. It is seen that none of the variables are stationary on their level values, but they become stationary with their first differences. Owing to this situation, it was expected that there can be a cointegration relationship between the variables. The details of this analysis were given in Table 2.
So as to estimate a VAR model, firstly, optimal lag interval of this model should be defined. After that, lag interval test is performed given in Table 3. As a result of this test, it was decided that lag interval will be 5 in this study because three different criteria indicate this aspect.

Also, Lagrange Multiplier (LM) test is conducted for autocorrelation problem in the model. The findings show that there is not such a problem. Table 4 states these results.

Figure 1 explains the details of inverse roots. It is understood that our model satisfies the requirement of the stability. The main reason is that all roots are lower than “1”.

Additionally, to examine heteroscedasticity problem, White test is conducted. Table 5 gives information that there is not such a problem due to the greater probability value than 0.05.

Table 6 indicates that there is not a cointegration relationship. Therefore, we conclude that there is no a cointegrating relationship between the var-

| Table 2. Unit root test results |
|---------------------------------|
| **Variable** | **Level** | **Critical value** | **Result** |
| Log (PPI) | 4 | –1.8189 | 0.3679 | 1% – 3.5482 | I(1) |
| Log (CPI) | 1 | –2.5361 | 0.1121 | 5% – 2.9126 | I(1) |
| Log (NX) | 2 | –1.3835 | 0.5845 | 10% – 2.5940 | I(1) |
| Log (EXC) | 4 | –1.9858 | 0.2921 | 1% – 3.5482 | I(1) |
| Log (INT) | 0 | –0.3850 | 0.9040 | 0.0000 | I(1) |

Note: * – Shwarz information criteria, ** – MacKinnon (1996) one-sided p value.

| Table 3. Lag interval tests |
|-----------------------------|
| **Lag** | **Information criteria** |
| | **Log. prob.** | **Prob. ratio** | **NTH** | **Akaike** | **Schwarz** | **Hannan-Quinn** |
| 0 | 109.1692 | NA | 3.02e–08 | –3.128743 | –2.411883 | –2.411883 |
| 1 | 290.6704 | 305.6862 | 1.26e–10 | –8.620013 | –7.007078* | –7.007078* |
| 2 | 319.9311 | 44.14770 | 1.13e–10 | –8.769511 | –6.260501 | –6.260501 |
| 3 | 338.8006 | 25.15940 | 1.51e–10 | –8.554407 | –5.149322 | –5.149322 |
| 4 | 386.1063 | 54.77946 | 8.01e–11 | –9.337061 | –5.035901 | –5.035901 |
| 5 | 443.0702 | 55.96455* | 3.33e–11* | –10.45860* | –5.261367 | –5.261367 |

| Table 4. LM test results |
|--------------------------|
| **Lag** | **LM statistics** | **Probability** |
| 1 | 32.91487 | .1332 |
| 2 | 31.81708 | .1634 |
| 3 | 20.01203 | .7462 |
| 4 | 24.29138 | .5026 |
| 5 | 24.00061 | .5193 |
| 6 | 18.36892 | .3263 |
| 7 | 37.04869 | .0571 |
| 8 | 16.21236 | .9084 |
| 9 | 14.3181 | .9594 |
| 10 | 24.74846 | .4765 |
| 11 | 27.18501 | .3467 |
| 12 | 19.27952 | .7835 |

The Johansen test (Johansen, 1995) approach to cointegration was utilized for testing the cointegration relationship. The results are given in Table 6.
ables. In such a case, the first-best solution would be using standard VAR model. Aslo, standard VAR approach is applied. Furthermore, standard Granger causality test under VAR assumptions was performed to see this relationship. Table 7 explains these results.

As it can be seen from Table 7, probability values of two different null hypotheses are more than 0.05. This situation shows that these hypotheses cannot be rejected. Owing to this condition, it was identified that producer price index (PPI) and consumer price index (CPI) are not the cause of exchange

Table 6. Johansen cointegration test results

| Null hypothesis | Eigenvalue | Trace statistics | 0.05 Critical value | P-value |
|-----------------|------------|------------------|---------------------|---------|
| Panel A: Johansen cointegration rank test (trace) | | | | |
| None *          | 0.772380   | 177.2512         | 69.81889            | 0.0000  |
| At most 1*      | 0.564712   | 94.36694         | 47.85613            | 0.0000  |
| At most 2 *     | 0.430418   | 47.78911         | 29.79707            | 0.0002  |
| At most 3 *     | 0.198421   | 16.26941         | 15.49471            | 0.0382  |
| At most 4 *     | 0.067003   | 3.883763         | 3.841466            | 0.0487  |
| Panel B: Johansen cointegration rank test (maximum eigenvalue) | | | | |
| None *          | 0.772380   | 82.88427         | 33.87687            | 0.0000  |
| At most 1       | 0.564712   | 46.57783         | 27.58434            | 0.0001  |
| At most 2 *     | 0.430418   | 31.51970         | 21.13162            | 0.0012  |
| At most 3 *     | 0.198421   | 12.38564         | 14.26460            | 0.0970  |
| At most 4 *     | 0.067003   | 3.883763         | 3.841466            | 0.0487  |

Table 7. Granger causality test results

| Null hypothesis           | F-value | P-value |
|---------------------------|---------|---------|
| LOGEXC does not Granger cause LOGPPI | 36.35944 | 0.0000 |
| LOGPPI does not Granger cause LOGEXC | 0.881887 | 0.9715 |
| LOGEXC does not Granger cause LOGCPI | 18.96405 | 0.0020 |
| LOGCPI does not Granger cause LOGEXC | 0.75730 | 0.9797 |
rate. On the other hand, it was also defined that probability values of other two different hypotheses are less than 0.05. Due to this result, these null hypotheses can be rejected. This situation explains that exchange rate is the main cause of consumer and producer price indices. In other words, it was concluded that exchange rate channel is effective in Azerbaijan.

After this test, impulse-response analysis was also performed to understand the effects of the shocks on the variables. That is to say, by making this test, it will be possible to see which variables are affected by the shocks and the reactions given by these variables. Within this scope, it was aimed to identify the responses of the variables against any shock in currency exchange rates in order to evaluate the effectiveness of the exchange rate channel in Azerbaijan. For this purpose, impulse-response functions for 10 quarters (2.5 years) were calculated according to Cholesky method. The results are illustrated in Figure 2.

As it can be seen from Figure 2, producer and consumer price indices give positive results to the shocks in currency exchange rate. This situation supports the previous results of this study. However, it was also defined that the effect of this shock is longer for consumer price index. A rise in exchange rates (depreciation of local currency) led to an increase in both the producer and consumer price indices in the first six periods. It was seen that this result is appropriate with the theory of exchange rate channel. According to this theory, any increase in currency exchange rate (depreciation of local currency) causes economic growth to go up by increasing net export amount. Moreover, the transmission level of exchange rates to the inflation depends on the import amount, the level of devaluation and structural characteristics of the economy. Generally, exchange rate channel is more effective when there is an increase in the level of devaluation and import amount. In conclusion, it was identified that exchange rate channel is very significant for Azerbaijan.

**CONCLUSION**

The rapid decrease in oil prices led to an important decline in foreign exchange revenues in Azerbaijan especially after 2014. In addition to this situation, neighbor countries made devaluation at the same period. Due to these factors, there was an increase in the demand of foreign currency in this period. In this environment, Central Bank of Azerbaijan decided to make two different devaluations in 2015 lower these problems.

This study aims to understand whether exchange rate channel is effective in Azerbaijan or not. In this scope, quarterly data between 2001:01 and 2017:02 is analyzed. Furthermore, Granger causality analysis under VAR assumptions was used. Moreover, Augmented Dickey-Fuller (ADF) unit root test is
conducted firstly. It is identified that none of the variables are stationary on their level values, but they become stationary with their first differences. Because of this aspect, it was expected that there can be a cointegration relationship between the variables. After stationary analysis, a VAR model was created. Within this scope, a test was made to determine the optimal lag interval. It was defined that lag interval will be 5 in this study, because three different criteria indicate this aspect. It is concluded that there is no autocorrelation and heteroscedasticity problems.

The findings show that both producer price index and consumer price index are not the cause of exchange rate. Nevertheless, it was also concluded that exchange rate is the main cause of consumer and producer price indices. That is to say, it was identified that exchange rate channel is effective in Azerbaijan. While considering the results of this study, it was recommended that Azerbaijan can use exchange rate channel in order to minimize the negative effects of current account deficit problem and radical decrease in oil prices.

REFERENCES

1. Arabaci, Ö., & Baştürk, M. F. (2013). Exchange Rate Channel in Turkey: 2002–2008 Period. International Journal of Management Economics and Business, 9(18), 111-132.

2. Aslanidi, O. (2007). The Optimal Monetary Policy and the Channels of Monetary Transmission Mechanism in CIS-7 Countries: The Case of Georgia (GERGE-EI Discussion Paper No. 2007-171). Retrieved from https://www.erge-ci.cz/pdf/wbrf_papers/O_Aslanidi_WBRF_Paper.pdf

3. Atabaev, N., & Ganiyev, J. (2013). VAR Analysis of the Monetary Transmission Mechanism in Kyrgyzstan. Eurasian Journal of Business and Economics, 6(11), 121-134.

4. Awad, I. L. (2013). The Monetary Transmission Mechanism in A Small Open Economy: The Case of Egypt. Journal of Economics and Business, 14(1), 73-96.

5. Bagus, D., Kusuma, W., & Kassim, S. H. (2013). Evaluating Monetary Transmission Mechanism in Indonesia Through Exchange Rate Channel. Jurnal Ekonomi dan Studi Pembangunan, 14(2), 91-100.

6. Barran, F., Coudert, V., & Mojon, B. (1996). The Transmission of Monetary Policy in the European Countries (CEPIL Working Paper No. 1996-03).

7. Büyükakın, F., Cengiz, V., & Türk, A. (2009). Parasał Aktarm Mekanizması: Türkiye’de Döviz Kuru Kanalının VAR Analizi. Dokuz Eylül Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi 24(1), 171-198.

8. Camarero, M., Ordóñez, J., & Tamarit, C. R. (2002). Monetary Transmission in Spain: A Structural Cointegrated VAR Approach. Applied Economics, 34, 2201-2212. https://doi.org/10.1080/00036840210138419

9. Cambazoğlu, B., & Karaalp, H. S. (2012). Parasał Aktarm Mekanizması Döviz Kuru Kanalı: Türkiye Orneği. Yönetim ve Ekonomi, 19, 53-66.

10. Cambazoğlu, B., Karaalp, H. S., & Vergos, K. (2013). The Effects of Exchange Rates on Macroeconomic Variables: A Study on Selected Emerging Economies. International Conference on Eurasian Economies, 189-198. Retrieved from https://www.academia.edu/8068707/The_Effects_of_Exchange_Rates_on_Macroeconomic_Variables_A_Study_of_the_Selected_Emerging_Economies

11. Cevik, S., & Teksoz, K. (2012). Lost in Transmission? The Effectiveness of Monetary Policy Transmission Channels in the GCC Countries (IMF Working Paper, Middle East and Central Asia Department. WP/12/191). https://doi.org/10.5089/9781475505399.001

12. Cushman, D. O., & Zha, T. (1997). Identifying Monetary Policy in a Small Open Economy Under Flexible Exchange Rates. Journal of Monetary Economics, 39(3), 433-448. https://doi.org/10.1016/s0304-3932(97)00029-9

13. Çiçek, M. (2005). Türkiye’de Parasał Aktarm Mekanizması: VAR (Vektör Otoregresyon) Yaklaşımıyla Bir Analiz. İktisat İşletme ve Finans, 233, 82-105.

14. Dabla-Norris, E., & Floerke Meier, H. (2006). Transmission Mechanisms of Monetary Policy in Armenia: Evidence from VAR Analysis (IMF Working Paper No. 06/248). https://doi.org/10.5089/9781451865080.001

15. Dovciak, P. (1999). Transmission Mechanisms in Monetary Policy. National Bank of Slovakia, Institute of Monetary and Financial Studies, DOV/0008.

16. Dumanç, Y. K. (2016). Monetary Transmission Mechanism Exchange Rate Channel: The Case of Turkey. International Refereed Journal of Research on Economics Management, 9, 1-24. https://doi.org/10.17373/uheyad.2016922038

17. Eraslan, C., & Kati, E. (2015). Monetary Transmission Mechanism and Exchange Rate Channel: The Case of Turkey. Dumlapınar University Journal of Social Sciences, 44, 79-91.

18. Erdoğan, S., & Yıldırım, D. Ç. (2008). Türkiye’de Döviz Kuru
19. Fan, Y., & Jianzhou, T. (2011). Studying on the monetary transmission mechanism in China in the presence of structural changes. *China Finance Review International*, 14(3), 334-357. https://doi.org/10.1145/2044139111167478

20. Fetai, B., & Zeqiri, I. (2010). The Impact of Monetary Policy and Exchange Rate Regime on Real GDP and Price in the Republic of Macedonia. Retrieved from http://www3.tcmbr.gov.yt/konferanslar/SEEMHN/sunumlar/Besnik_Fetai-Izet-Zeqiri.pdf

21. Granger, C. W. J. (1969). *Investigating Causal Relations By Econometric Models and Cross Spectral Methods*. *Econometrica*, 37, 424-438. https://doi.org/10.2307/1912791

22. Greene, W. H. (1993). *Econometric Analysis* (2nd ed.). New Jersey: Prentice-Hall.

23. Gumata, N., Kabundi, A., & Ndou, E. (2013). Important Channels of Transmission Monetary Policy Shock in South Africa (ERSA Working Paper No. 375).

24. GÜLOĞLU, B., & Orhan, S. (2008). *Parasal Aktarım Mekanizması Makroekonomik Etkileri*. *İktisat İşletme ve Finans*, 269, 197-261.

25. Hung, L., & Pfau, W. D. (2009). Investigating Causal Relations By Econometric Models and Cross Spectral Methods. *Econometrica*, 37, 424-438. https://doi.org/10.2307/1912791

26. Huseynov, E., & Jamilov, R. (2009). Monetary Policy Functions and Transmission Mechanism: An Overview. Santiago, Chile: Central Bank of Chile. Retrieved from http://sitesources.worldbank.org/DEC/Resources/MonetaryPolicyOverview.pdf

27. Isakova, A. (2008). *Mechanism of Monetary Policy in Transmission Mechanism in Jordan* (IMF Working Paper No. WP/11/5). https://doi.org/10.5089/9781455211838.001

28. Ishii, O. (2013). *Monetary Transmission Mechanism in Nigeria: A Causality Test*. *Mediterranean Journal of Social Sciences*, 4(13), 377-388. https://doi.org/10.5901/mjss.2013.v4n13p377

29. Kamin, S., Turner, P., & Van't dack, J. (1998). *The Transmission Mechanism of Monetary Policy in Emerging Market Economies: an overview* (BIS Working Paper No. 3). Retrieved from https://www.bis.org/publ/pcly03.pdf

30. Loayza, N., & Schmidt-Hebbel, K. (Eds.) (2002). *Monetary Policy and the Transmission Mechanism in Mexico*. Banco de México 75th Anniversary Seminar Mexico City. Banco de México, 197-261.

31. Martinez, L., Sanchez, O., & Werner, A. (2001). *Monetary Policy and the Transmission Mechanism in Mexico*. Banco de México 75th Anniversary Seminar Mexico City. Banco de México, 197-261.

32. McFarlane, L. (2002). *Consumer Price Inflation and Exchange Rate Pass-Through in Jamaica*. Bank of Jamaica. Retrieved from http://boj.org.jm/uploads/pdf/papers_pamphlets/papers_pamphlets_consumer_price_inflation_and_exchange_rate_pass-through_in_jamaica.pdf

33. Mishkin, F. S. (2001). *The Transmission Mechanism and The Role of Asset Prices in Monetary Policy*. NBER Working Paper Series No. 8617. https://doi.org/10.3386/w8617

34. Mishkin, F. S. (2004). *The Economics of Money, Banking and Financial Markets* (7th ed.). Boston: Pearson (The Addison-Wesley series in economics).

35. Mishra, P., Montiel, P., & Sengupta, R. (2016). *Monetary Transmission in Developing Countries: Evidence from India*. Mumbai: Indira Gandhi Institute of Development Research. http://www.igidr.ac.in/pdf/publication/WP-2016-008.pdf

36. Morales R. A., & Rael, F. (2013). *The Evolving Role of Interest Rate and Exchange Rate Channels in Monetary Policy Transmission in EAC Countries* (IMF Working Paper No. WP/13/X). Retrieved from https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=CSAE2014&paper_id=878

37. Nagayasu, J. (2007). *Empirical Analysis of The Exchange Rate Channel in Japan*. *Journal of International Money and Finance*, 26(6), 887-904. https://doi.org/10.1016/j.intmonfin.2007.05.002

38. Obafemi, F. N., & Ifere, E. O. (2015). *Monetary Policy Transmission Mechanism in Nigeria: A FAVAR Approach*. *International Journal of Economics and Finance*, 7(8), 93-103. http://dx.doi.org/10.5539/ijef.v7n8p229

39. Örnek, I. (2009). *Türkiye’de Parasal Aktarım Mekanizması Kanallarının İşleyişi*. *Maliye Dergisi* 156, 104-125.

40. Özcan, C. (2016). *Parasal Aktarım Mekanizması Kanalları: Türkiye Üzerine Bir Analiz*. *Soysal Ekonomik Araştırmalar Dergisi*, 32, 188-213.

41. Patnaik, I., Shah, A., & Bhattacharya, R. (2011). *Monetary Policy Transmission in An Emerging Market Setting* (IMF Working Paper No. WP/11/5). https://doi.org/10.5089/9781455211838.001

42. Peleneceu, E. (2012). *Transmission Mechanism of Monetary Policy in Romania. Insights into The Economic Crisis*. *Romanian Journal of Economic Forecasting*, 3, 5-21.

43. Poddar, T., Sab, R., & Khachatryan, H. (2006). *The Monetary Transmission Mechanism in Jordan* (IMF Working Paper No. 06/48).

44. Roşoiu, A., & Roşoiu, I. (2013). *Monetary Policy Transmission Mechanism in Emerging Countries*. *Cross-Cultural Management Journal*, 1(3), 37-49.

45. Saracoğlu, B., & Köse, N. (1999). *Vektör Otoregresyon Yaklaşımı ile Enflasyonla Mücadele Politika Seçimi: Türkiye Örneği 1980–1996*. *İktisat İletme ve Finans*, 14(159), 12-27.

46. Shahraki, S., Sabahi, A., Hossein, M., Adeli, M., & Salimifar, M.
(2016). Currency Substitution Theory, a New Channel to Enter the Exchange Rate as the Monetary Transmission Mechanism. *Atlantic Review of Economics, 2.* Retrieved from [http://www.unagaliciamoderna.com/eawp/coldata/upload/Vol2_16_Monetary_Transmission_Mechanism.pdf](http://www.unagaliciamoderna.com/eawp/coldata/upload/Vol2_16_Monetary_Transmission_Mechanism.pdf)

47. Sims, C. A. (1980). Macroeconomics and Reality. *Econometrica, 48*(1), 1-49.

48. Smets, F., & Wouters, R. (1999). The Exchange Rate and the Monetary Transmission Mechanism in Germany. *De Economist, 147*(4), 489-521.

49. Tahir, M. N. (2012). *Relative importance of monetary transmission channels: A Structural Investigation; Case 19 of Brazil, Chile and Korea.* Université de Lyon, Lyon, France. Retrieved from [http://ecomod.net/system/files/Relative%20Importance%20of%20Monetary%20Transmission%20Channels%20AStructural%20Investigation%20Case%20of%20Brazil,%20Chile%20and%20Korea.pdf](http://ecomod.net/system/files/Relative%20Importance%20of%20Monetary%20Transmission%20Channels%20AStructural%20Investigation%20Case%20of%20Brazil,%20Chile%20and%20Korea.pdf)

50. Turhan, I. M., & Gumus, N. (2014). *On The Relative Importance of Monetary Transmission Channels in Turkey* (MPRA Paper No. 69827). [https://mpra.ub.uni-muenchen.de/69827/1/MPRAPaper69827.pdf](https://mpra.ub.uni-muenchen.de/69827/1/MPRAPaper69827.pdf)

51. Yaprakli, S. (2011). Açık Enflasyon Hedeflemesi Döneminde Parasal Aktarım Mekanizmasının Döviz Kuru Kanalı: Türkiye Üzerine Ekonometrik Bir Analiz. *Ekonometri ve İstatistik, 15, 15-37.*

52. Zenon, Q. M. (2001). *Transmission Mechanisms of Monetary Policy in an Economy with Partial Dollarisation: The Case of Peru* (BIS Papers No. 08).