

## PASS - THROUGH CAPACITY OF EXCHANGE RATE TO INFLATION

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The degree to which exchange rate is passed to price level is called exchange rate pass-through (ERPT). In an open economy such as Azerbaijan's, exchange rate movements can have a significant impact on consumer prices through import channel. Therefore, assessing the ERPT is of great importance for inflation targeting central banks.

The study<sup>1</sup> quantitatively estimates pass-through capacity of exchange rate changes to internal prices and analyzes relevant pass-through specifics in the Azerbaijani environment. Vector autoregression (VAR) model prevails in the study. VAR model allows to eliminate possible endogeneity problems of explanatory variables. Mutual relations between the variables incorporated to the model are estimated through impulse response functions and pass-through capacity of the exchange rate is calculated on the basis of the yielded results. In VAR specification, the following Cholesky ordering scheme is proposed:

$$\Delta R_t^{oil} = E_{t-1}(\Delta R_t^{oil}) + a_{11}\varepsilon_t^{oil} \quad (1)$$

$$\Delta \pi_t^{tp} = E_{t-1}(\Delta \pi_t^{tp}) + a_{21}\varepsilon_t^{oil} + a_{22}\varepsilon_t^{tp} \quad (2)$$

$$\Delta e_t = E_{t-1}(\Delta e_t) + a_{31}\varepsilon_t^{oil} + a_{32}\varepsilon_t^{tp} + a_{33}\varepsilon_t^e \quad (3)$$

$$\Delta \pi_t^{cpi} = E_{t-1}(\Delta \pi_t^{cpi}) + a_{41}\varepsilon_t^{oil} + a_{42}\varepsilon_t^{tp} + a_{43}\varepsilon_t^e + a_{44}\varepsilon_t^{cpi} \quad (4)$$

where  $R_t^{oil}$  is real oil revenue,  $\pi_t^{tp}$  denotes consumer price level of trade partners,  $e_t$  shows nominal effective exchange rate and  $\pi_t^{cpi}$  represents aggregate headline consumer price index (CPI).  $\varepsilon_t^{oil}$ ,  $\varepsilon_t^{tp}$ ,  $\varepsilon_t^e$  and  $\varepsilon_t^{cpi}$  are shocks of oil revenue, trade partners' CPI, exchange rate and aggregate CPI, respectively.  $E_{t-1}$  is the expectation of a variable conditional on the information set at the end of period  $t-1$ .

In this identification scheme, it is assumed that *Oil revenue* is the most exogenous variable. *Oil revenue* consists of two components: oil prices and oil production. Since oil prices are exogenously determined in international markets and volume of oil production

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<sup>1</sup> Detailed information: [https://www.cbar.az/assets/4409/2017\\_01\\_FINAL.pdf](https://www.cbar.az/assets/4409/2017_01_FINAL.pdf)

is determined based on long-term contracts between oil producers and importers, that oil production is also assumed to be exogenous variable. Therefore, oil revenue can be treated as an exogenous variable. It implies that in this identification scheme, structural shocks on the rest of the variables do not have any effect on this variable.

*Trade partners' CPI* is included to capture the effects of foreign prices shocks. According to Purchasing Power Parity Hypothesis, price differences among trade partners determine the exchange rate in the long run. By including this variable, the influence of trade partners' CPI on the exchange rate can be netted out.

*NEER* is included in order to identify exchange rate shocks. By including both *oil revenue* and *trade partners' CPI*, their effects on the exchange rate is separated. Thus, the exchange rate shock can be interpreted as a shock that is isolated from the influence of those variables.

The last variable of the identification scheme is CPI and its components. It is obviously included to measure the degree of the exchange rate pass-through to inflation.

The pass-through capacity of the exchange rate is estimated as thus via the generated impulse-response functions:

$$PT_{t,t+j} = P_{t,t+j}/E_{t,t+1}$$

where  $PT_{t,t+j}$  is accumulated price level in period  $j$ ,  $P_{t,t+j}$  is accumulated changes in prices within  $j$  period upon the shock and  $E_{t,t+1}$  is exchange rate change one period ahead.

The estimation via this technique considers the pass-through capacity of exchange rate changes to prices in the given timeframe. Also, it allows estimating the pass-through capacity covering the change in exchange rate dynamics resulting from an initial shock in the following periods.

According to the findings of estimations on pass-through capacity of the exchange rate, the pass-through capacity of exchange rate changes to price index in the Azerbaijani economy is high. The study also confirmed that the NEER is of vital importance in regulating the inflation.