

## **ECONOMIC DEVELOPMENT OF THE REPUBLIC OF MOLDOVA BASED ON REMITTANCES**

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### **Abstract**

*This article examines the effects of remittances on the economic growth of the Republic of Moldova, determined by private consumption. To verify the link between remittances and development in the Republic of Moldova, the study uses a VECM approach. The result of the research is that, for the Republic of Moldova, remittances are an important source for private consumption, which in turn fuels the economic evolution of the country. In order to redirect remittances to investments, the government is implementing various strategies, which do not yet have the expected support of remittance holders.*

**Keywords:** *Remittances, economic growth, private consumption, VECM*

**JEL classification:** *C01, C32, F24, O47*

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### **1. Introduction.**

The declaration of independence of the Republic of Moldova led to the breakdown of economic relations with the majority of the ex-Soviet republics, which run to the economic decline that lasted 10 years, being the longest period compared to the other newly created states. The economic recovery began in 2000, when practically all macroeconomic indicators began to increase. However, if it compare with the same ex-Soviet republics the registered nurseries are significantly lower. For this reason, now the national economy did not even reach the level of 1989 - the year before the onset of the economic crisis. Economic growth, which began in 2000, did not solve the social problems

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facing the population: lack of jobs, low wages. This was the causes of labor emigration, which aim was to ensure a decent living who have remained home.

Remittances from abroad continue to play an important role in Moldova's economy. In 2019, their volume reached 1.8 billion U.S. dollars, or 15.2% of GDP (according to balance of payments statistics). The impact of these cash flows on the economy is ambiguous. On the one hand, they contribute to increasing the material level of the population (Branasco, 2014) and consequently reduce the level of poverty in the country, reduce the unemployment rate and provide significant incomes for the national public budget. By promoting the increase in consumption (Toaca, 2018), these revenues are one of the main sources of the country's economic growth. On the other hand, a significant influx of foreign currency promotes excessive consolidation of the national currency, deterioration of the trade balance, and lack of labor in some sectors of the economy. Remittances are an important source for private consumption (Toaca & Tolocico, 2018). Statistical analyses show that around 70% of migrants (Prohnițchi & Lupusor, 2013, p. 14) want to return home and 58% of their transfers are spent on consumption, 20% - saved and 22% - investments in human capital. These are the emigrants who transmit money to the country to support their families. According to the study, conducted by CBS AxA based on opinion polls (CBS-AXA, 2004) in the first place are the expenses for food and clothing (43.1% of respondents said that), followed by the payment of communal services (18.2%).

The share of investment in business is the smallest in the structure of the expenses of remittance recipients, but also in the structure of the possible directions of their use. Of those surveyed, only 1.5% planned to invest in business, first, and 4.8% - second. At the same time, many respondents (58.9%) mentioned that they would like to invest in their business. Thus, major obstacles have been identified the conditions of the business environment, instability and the high level of bureaucracy and corruption. Consequently, the majority of respondents would like to invest in activities that would bring an immediate profit: in real estate, then in shops, bars, etc.

A determining factor in the participation of migrants in the economic and social development of the country of origin is their investment predisposition (Toarta, 2018), which according to the data of the Moldovan diaspora mapping survey in 6 countries conducted in 2016-2017, is a reserved one. Thus, more than 62% of Moldovan migrants surveyed did not express a desire to invest money (if they had it) in a business in the Republic of Moldova.

Among the main reasons mentioned by those who refrain from investing in Moldova are: distrust of the authorities, corruption, instability, high risks and lack of guarantees. These studies revealed that remittances from workers abroad have an investment potential, which, however, is not fully realized, which indicated the need to improve the investment climate in the country, creating a favorable environment for small businesses, especially at regional level, management reform, development of the securities market, etc.

In order to better achieve the investment potential of foreign cash beneficiaries, the Government of the Republic of Moldova launched in 2010 a program to attract investments in the economy: PARE "1 + 1". The program provides financing for viable investment projects by providing 50% of the total amount of the investment (but not more than 200 thousand lei). That is, under the program, one lei per lei invested by the beneficiaries in their own business. These funds can benefit both migrant and relatives. During the entire period of the Program, funds amounting to 367.63 million lei were allocated, leading to about 1080.15 million lei in investments in the economy.

Since independence, consumption has been the main source of economic growth in Moldova. Since 1995 its share of GDP has exceeded 80% and has grown steadily, reaching a maximum of 109.8% in 2013. At the same time, the main growth factor was private consumption, which increased faster than GDP. Thus, between 2000 and 2013, private consumption increased on average by 7.6% annually, while GDP - by 4.9%. The share of private consumption in GDP increased from 55.8% in 1995 to 91.7% in 2013. It should be noted that the significant increase in private consumption was not achieved on behalf of domestic sources, but as a result of money transfers for the benefit of individuals, the volume of which exceeded 24% of GDP in 2003, and in 2005-2008 - 30%. Thus, the study of the impact of cash flows from external labor migration on private consumption is of particular interest.

## **2. Literature review.**

The influence of remittances on economic development is widely analyzed by specialists in the field. The statistical methods are proposed (Amihalache, Niță, & Badiu, 2017), which are able to highlight the importance of remittances for economic development. Often this analysis is carried out and argued on the basis of econometric models, type VAR (Vector AutoRegression), VECM (Vector Error Correction Model) and in the case of the small number of observations BVAR (Basian Vector AutoRegression). The

large influx of remittances is, however, characteristic for poor, developing countries, where people have had to emigrate to ensure their existence. Because of this, often remittances have an impact on consumption, especially private consumption, which in turn influences economic growth (Bouoiyour , Selmia, & Miftah, 2019). The same source mentions the variable impact of remittances on investments, while the positive and strong impact of remittances on growth and consumption is found in the long term. Usually countries during the transition period do not have the economic capacity to meet the demand for goods, which supported by remittances, increases. As a result the consumption is satisfied from imports, a result confirmed by the analysis of a panel VAR based on eight Latin American countries (Hernandez & Toledo, 2020). Links between remittances and growth (Giuliano & Ruiz-Arranz , 2006), in particular the way in which the development of the local financial sector influences a country's ability to take advantage of remittances is analyzed on the basis of 73 countries using regressions estimated by the OLS (Ordinary Least Squares) Method. Effects of remittances on Morocco's economic growth (Marzovilla & Mele, 2015) and with particular attention to the exchange rate regime is carried out using a VAR approach. The authors conclude that the role of remittances in Moroccan economic development must be present in economic policy decisions and, in particular, in exchange rate policy. Remittances have become even more important for the countries of south-eastern Europe than foreign direct investment (Jovicic & Mitrovic, 2006). The article reflects the assessment of remittance dynamics compared to other macroeconomic indicators and an assessment of their overall impact as a result of developed countries' policies on low-income countries. A large proportion of remittances entering Serbia are exchanged in local currency and are spent mainly on consumption, which are strongly correlated with imports of consumer goods. The comparative analysis of the determinants of remittance flows to the countries of south-eastern Europe showed that the most important internal factor of remittances in countries is the situation of the internal labor market, in particular the level of unemployment. Remittances increase foreign currency entries in the economy (Ghauri, Ahmed, Vveinhardt, Streimikiene, & Qureshi, 2019), in addition to the positive effects, the exchange rate also creates an inflationary effect, as these remittances are spent on imported goods, so there will be more opportunities for inflation in the economy due to the enormous trade deficit. The influence of remittances on the exchange rate can also be found in other sources (Amuedo-Dorantes, Pozo, & Vargas-Silva, 2007), comparing their correlation with the financial aid granted

to the country. The authors' conclusion is that external aid tends to assess the actual exchange rate, remittances do not have the same impact. An inverse relationship between the actual exchange rate and remittance amounts is also detected, with the depreciation of the actual exchange rate which increases remittance flows. Not all sources (Sutradhar, 2020) indicate a positive correlation between remittances and economic growth. From the four states included in the study, only India reports remittance-based economic growth. This is explained by the fact that the flow of remittances assesses the real exchange rate and decreases the competitiveness of a country's international trade, which in turn causes a deterioration of the economy. Remittances generate a number of positive contributions to the economic development of beneficiary countries by reducing poverty, as well as increasing aggregate investment and promoting growth. Analysis of these effects in the case of the Gulf Cooperation Council (Taghavi, 2012) concluded that any unforeseen level of remittances can reduce the speed of money, thereby slowing down the economic recovery process. Remittances are also important for the El Salvador economy, but the results obtained under a VAR model suggest that remittances lead to a decrease in economic activity (Cáceres & Saca, 2005). This underlines the need to reorient El Salvador's economic policy in order to promote the use of remittances in capital formation activities in order to maximize the benefit of remittances.

### **3. Data and methods**

An analysis of a system of simultaneous equations, including remittances ( $l\_remit\_sa$ ), private consumption ( $l\_cons\_privat\_sa$ ) and gross domestic product ( $l\_gdp\_sa$ ) is proposed in this study. The econometric models used require long data series and free of institutional shocks and structural adjustments. Countries in transition have lacked these necessary conditions for the use of econometric methods in economic analysis. Regarding the Republic of Moldova, the monthly or quarterly data series, starting in 2000, will ensure relatively long samples and the lack of jumps related to the transition from the centralized economy to the market economy, are preferable. Another reason for the choice of 2000 are: the year of the starting economic recovery, after the economic decline, which lasted ten years, as a result of the breakup of the Soviet Union. The year 2000 is also noted by starting the statistical accounting of remittances and raising awareness of their importance to the national economy. In the study, quarterly frequency series covering the sample 2000 quarter 1 –

2020 fourth trimester are used. All series are adjusted to eliminate seasonal factors using the X12 procedure and have been transformed using the logarithm function.

The econometric methodology used in this study is the vector error correction model (VECM). The choice of methodology is justified by the nature of the investigation. Macroeconomic phenomena manifest themselves as complex dynamic systems with feeds and mutual causality. Consequently, only system analyses (simultaneous equations) are able to capture the interconnections between variables. VAR or VECM analysis is completed in three types of results (Botel, 2002): impuls response function (IRF), forecast error variance decomposition (FEVD) and Granger causality. The main information provided by the IRF relates to the sign of the response (positive or negative) and the persistence of the effects of various shocks. The FEVD provides information on the relative importance of each shock in the hierarchy of effects on variables in the system. The Granger causality test indicates whether certain variables predict an increase in another variable.

In order for the final results of the investigation to be relevant, the econometric model must be subjected to diagnostic analyses for statistical property testing. *Testing of the integration order* in conjunction with the existence of cointegration is necessary for choosing the specification of the model (Toaca & Tolocico, 2018). The data were tested for stationarity, using the ADF and the Phillips and Peron method. All series have one unit root and they are integrated order 1. The choice of the number of lags was made by the methods: sequential modified LR statistic test, final prediction Error, Akaike, Schwartz, and Hannan\_Quin (Table 1). All methods select one lag.

**Table 1. Tests for selecting the number of lags**

Endogenous variables: L_REMIT_SA L_CONS_PRIVAT_SA L_GDP_SA						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	133.3239	NA	6.50e-06	-3.429577	-3.337575	-3.392809
1	419.6050	542.4272*	4.41e-09*	-10.72645*	-10.35844*	-10.57937*
2	428.1947	15.59709	4.46e-09	-10.71565	-10.07163	-10.45827
* indicates lag order selected by the criterion						

Source: Data processed using EViews 9.0

The co-integration test uses the methodology developed by (Johansen, 1991). Trace and Max-eigenvalue tests indicate 1 cointegrating equation at the 0.05 level.

**Table 2. Testing the existence of cointegration**

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.277914	37.29846	29.79707	0.0057
At most 1	0.154189	12.87763	15.49471	0.1194
At most 2	0.004233	0.318166	3.841466	0.5727
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.277914	24.42082	21.13162	0.0166
At most 1	0.154189	12.55947	14.26460	0.0914
At most 2	0.004233	0.318166	3.841466	0.5727
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				

Source: Data processed using EViews 9.0

By corroborating the results of the stationarity test with the integration test, the option for estimating a VECM with the variables expressed in zero lag levels may be considered appropriate.

$$D(L\_REMIT\_SA) = -0.05*(L\_REMIT\_SA(-1) - 9.16*L\_CONS\_PRIVAT\_SA(-1) + 7.8*L\_GDP\_SA(-1) + 6.3) + 0.03$$

$$D(L\_CONS\_PRIVAT\_SA) = 0.03*(L\_REMIT\_SA(-1) - 9.16*L\_CONS\_PRIVAT\_SA(-1) + 7.8*L\_GDP\_SA(-1) + 6.3) + 0.011$$

$$D(L\_GDP\_SA) = -0.02*(L\_REMIT\_SA(-1) - 9.16*L\_CONS\_PRIVAT\_SA(-1) + 7.85*L\_GDP\_SA(-1) + 6.3) + 0.009$$

*Testing VECM stability.* A VECM is stable if all the characteristic roots of the estimated coefficient matrix have modules smaller than 1 so they are located inside the radius circle 1 and this condition is satisfied. *Diagnosis of residual terms.* One of the key assumptions of the VAR methodology is that the

residual terms are "white noise", which means that errors are completely random or are distributed normally, have constant variation, i.e. be homoscedastic and not autocorrelated. The hypotheses tested are not rejected at the 5% level.

#### 4. Results and interpretation

The main results will be concentrated in shock response functions and decomposition of variation. Granger causality analysis is important for the order in which variables are included in the model. The results presented (Table 3) are relevant for 2 lags. Such an analysis is not possible for zero lags – as was estimated the model. The Pairwise-Granger test confirms the mutual causality between private consumption and GDP, remittances cause Granger private consumption, and private consumption does not cause Granger remittances. The same is in the case with remittances and GDP, i.e. remittances cause Granger GDP. Thus the order of variables in the VECM model is: Remittance, private consumption and GDP.

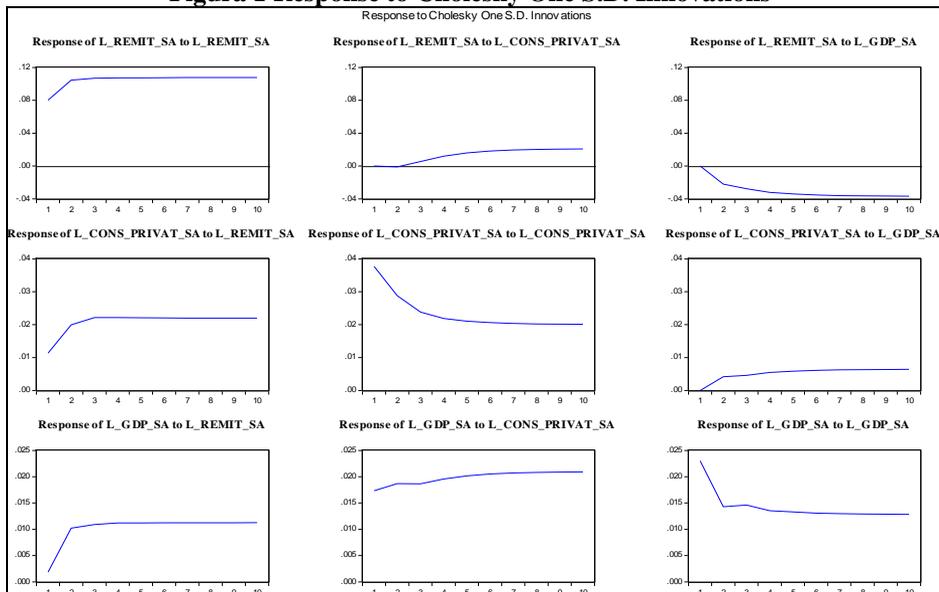
**Table 3 Pairwise Granger Causality Tests**

Null Hypothesis:	Obs	F-Statistic	Prob.
L_GDP_SA does not Granger Cause			
L_CONSUM_SA	82	11.7695	3.E-05
L_CONSUM_SA does not Granger Cause L_GDP_SA		8.66272	0.0004
L_REMIT_SA does not Granger Cause			
L_CONSUM_SA	82	7.21500	0.0013
L_CONSUM_SA does not Granger Cause L_REMIT_SA		1.05553	0.3530
L_REMIT_SA does not Granger Cause L_GDP_SA	82	3.83531	0.0258
L_GDP_SA does not Granger Cause L_REMIT_SA		1.21361	0.3027

Source: Data processed using EViews 9.0

The response of private consumption and GDP (Figure 1) to the shock from remittances is positive. One standard deviation in remittances causes a 1% increase in private consumption in the first period then it stabilizes at the level of 2.2%. starting with the third period. The reaction of the GDP to the shock of remittances stabilizes in the second period at the level of 1%. These results confirms the assumption of the positive influence of remittances on private consumption and GDP.

**Figura 1 Response to Cholesky One S.D. Innovations**



Source: Data processed using EViews 9.0

A positive influence on GDP has consumption that stabilizes at 2%. It is significant that the shock of economic developments on remittances is negative, which would mean that the country's economic development will lead to a decrease in the amount of money transmitted from abroad.

Other interesting observations can be made by examining the results of FEVD. The variation of private consumption (Table 4) in the first period is explained in proportion of 91.7% by own innovations and 8.3% by remittances. At longer horizons, the part explained by remittances is increasing, and by its own innovations is decreasing. The same is growing, but with an insignificant contribution is from GDP. The variation in private consumption is increasingly explained by the innovations of remittances.

**Table 4 Variance Decomposition of L\_CONS\_PRIVAT\_SA**

Period	L_REMIT_S A	L_CONS_PRIVAT_SA	L_GDP_SA
1	8.323196	91.67680	0.000000
2	18.81314	80.55988	0.626972
3	26.22443	72.78111	0.994455
4	30.93151	67.66718	1.401308
5	34.17468	64.06831	1.757013
6	36.55655	61.37988	2.063569
7	38.38901	59.29064	2.320349
8	39.84298	57.62209	2.534937
9	41.02393	56.26138	2.714681
10	42.00127	55.13246	2.866266

Source: Data processed using EViews 9.0

The variation of GDP from the first period is explained in significant proportions of private consumption innovations (Table 5), which in the following periods increases exceeding 54%. Your own innovations shrink from 63.5% to 30%. Over the period, the importance of remittances for the evolution of GDP is also intensified.

**Table 5 Variance Decomposition of L\_GDP\_SA**

Period	L_REMIT_SA	L_CONS_PRIVAT_SA	L_GDP_SA
1	0.416867	36.05752	63.52561
2	7.222219	43.54720	49.23058
3	10.44401	45.93193	43.62406
4	12.30910	48.20429	39.48661
5	13.37824	50.01260	36.60915
6	14.07677	51.45248	34.47075
7	14.56360	52.58265	32.85375
8	14.92293	53.47930	31.59777
9	15.19885	54.19979	30.60136
10	15.41755	54.78731	29.79513

Source: Data processed using EViews 9.0

The variation of remittances is practically fully explained by their own innovations and only in the long term can they be explained by the evolution of the GDP.

**Table 6 Variance Decomposition of L\_REMIT\_SA**

Period	L_REMIT_SA	L_CONS_PRIVAT_SA	L_PIB_SA
1	100.0000	0.000000	0.000000
2	97.27349	0.006440	2.720068
3	95.72270	0.106097	4.171207
4	94.24890	0.415534	5.335569
5	93.04112	0.777914	6.180963
6	92.07390	1.111396	6.814707
7	91.31212	1.393016	7.294867
8	90.70961	1.624283	7.666108
9	90.22846	1.813061	7.958482
10	89.83924	1.967773	8.192989

Source: Data processed using EViews 9.0

## 5. Conclusions.

Remittance shocks are an important factor for private consumption and the evolution of the national economy during the period under review. Initially remittances were as a strict source necessary for survival, then remittances are redirected to solve housing problems, studies, access to treatment. Statistical data have demonstrated the use of transfers for consumption purposes only and less for investment purposes. Government's offers to redirect this flow of money to investment were quite generous, but the outcome was not the expected one. Hence the conclusion that other factors are important, such as social infrastructure, the level of corruption, confidence in the possibilities of achieving yourself at home, and so on. The study demonstrates the importance of remittances for private consumption during the period under review. The fact that the variation of GDP is highly explained by private consumption leads to the idea that economic development during this period was not sustainable - a development based on consumption, but not on investment.

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