Bulletin of Yerevan University: Economics
2025, Vol. 16, No. 2(46), December, 92-104
https://doi.org/10.46991/BYSU.G.2025.16.2.092

REMITTANCES IN POST-SOVIET COUNTRIES: ECONOMETRIC RESEARCH FOR ARMENIA

ALVARD KHARATYAN[*], **ANI GALSTYAN**[**]
Yerevan State University

Abstract: This study investigates the role of personal remittances in post-Soviet economies, with a particular focus on Armenia's economic development. In several post-Soviet countries, where remittances exceed 30% of GDP, they have become a crucial factor influencing economic stability, social welfare, and political security. The statistical analysis indicates significant heterogeneity across these economies: in Central Asian countries, remittances are an essential source of household income; in Russia, Kazakhstan, and the Baltic states, their role is relatively minor; while in the South Caucasus and Moldova, they represent a key driver of economic activity and investment.

For Armenia, the study estimates the impact of personal remittances, gross investment, and private consumption on economic growth using quarterly data for the period 1996–2024. Two multiple regression models were specified and estimated: the first using the Ordinary Least Squares (OLS) method, and the second addressing potential endogeneity issues through the Two-Stage Least Squares (TSLS) approach. The empirical findings suggest that personal remittances have no statistically significant short-run effect on economic growth in Armenia. In contrast, private consumption and gross investment make a positive and statistically significant contribution to economic growth. The results of this analysis may provide valuable insights for post-Soviet policymakers seeking to reduce reliance on external remittances and redirect these inflows toward productive investment.

Key words: *post-Soviet countries, Armenia, remittances, economic growth, regression analysis, endogeneity, OLS, TSLS.*

Introduction

Over the past two decades, personal remittances have evolved into one of the most significant components of international capital flows and an important source of external financing for developing economies. Globally, remittance inflows expanded from USD 1.93 billion in 1970 to USD 905.98 billion in 2024 (World Bank, 2025).

The post-Soviet region provides a particularly compelling empirical setting for examining the economic consequences of remittance flows. Following the dissolution of the Soviet Union, many of these countries experienced deep economic contractions due

[*] **Alvard Kharatyan** – PhD in Economics, Associate Professor, Head of the Chair of Mathematical Modeling in Economics, Faculty of Economics and Management, YSU
E-mail: alvardkharatyan@ysu.am ORCID ID: https://orcid.org/0009-0005-2542-5085

[**] **Ani Galstyan** – PhD in Economics, Chair of Economics and International Economic Relations, Faculty of Economics and Management, YSU
E-mail: ani.galstyan@ysu.am ORCID ID:https://orcid.org/0009-0009-2094-2488

Received: 23.06.2025
Revised: 21.06.2025
Accepted: 23.12.2025

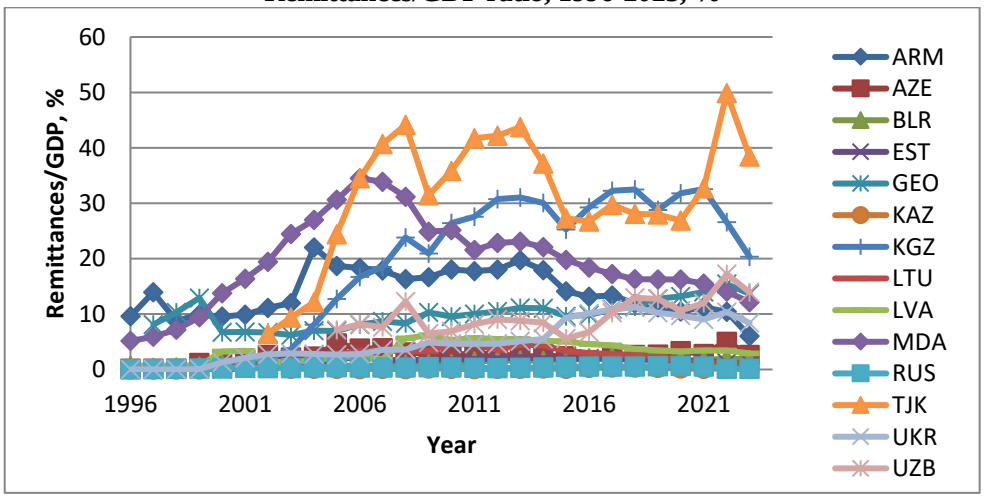
to the collapse of inter-republic trade and production networks. The resulting surge in poverty, and unemployment led to substantial outward labor migration.

In 2023, Tajikistan remained the most remittance-dependent economy in the post-Soviet space, with inflows equivalent to 38.4% of GDP, followed by Kyrgyzstan (20.4%) and Uzbekistan (13.9%). In these countries, between 70% and 80% of total remittance inflows originated from Russia, primarily serving as a lifeline for household consumption. Between 2005 and 2023, the share of remittances in GDP ranged from 12.7% to 32.5% in Kyrgyzstan, 24.4% to 49.9% in Tajikistan, and 5.6% to 13.9% in Uzbekistan (World Bank, 2025). In the aftermath of the Russia–Ukraine war, which began in February 2022, a one-time surge of savings transfers from Russia to Tajikistan led to an almost 80% increase in remittance inflows compared with 2021, pushing their share to 49.9% of GDP. However, in 2023, remittance inflows fell by USD 712 million, even as GDP expanded by USD 1.657 billion, reducing the remittance-to-GDP ratio by 11.5% year-on-year (IMF, Country Report No. 2025/169).

In Armenia, Georgia, and Moldova, a substantial share of remittances originates from Russia; however, the European Union countries (France, Italy, Germany, and Greece) and the United States also play a significant role. Moreover, remittances are partly directed toward investment purposes, including housing construction and small business development. In terms of their share in GDP, the highest inflow of remittances was recorded in Georgia at 15.42% (2022), in Armenia at 22.0% (2004), and in Moldova at 34.5% (2006). By contrast, in Russia, Kazakhstan, and the Baltic states, remittances represent only a marginal fraction of GDP, as these economies function primarily as migrant-destination countries. Between 1996 and 2023, remittances in Kazakhstan peaked at 0.45% of GDP (2002), in Estonia at 2.3% (2006), in Lithuania at 4.57% (2010), in Latvia at 6.18% (2009), and in Russia at 0.66% (2020). In Ukraine, the highest remittance inflow as a share of GDP was recorded in 2018 at 11.2%. In Azerbaijan and Belarus, remittances accounted for only 2–5% of GDP in 1996-2023 (Figure 1). Remittance data for Turkmenistan are not reported in the World Bank database.

Figure 1

Remittances/GDP ratio, 1996-2023, %

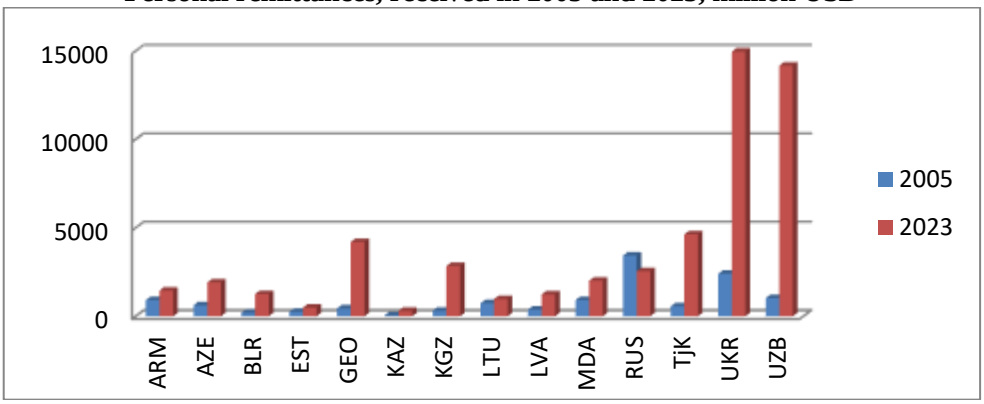


Source: World Bank, 2025.
https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS seen 25.05.2025.

In terms of total remittance inflows, Ukraine ranked first among post-Soviet countries in 2023, receiving USD 14.97 billion in personal remittances, equivalent to 8.37% of its GDP. It was followed by Uzbekistan, with inflows amounting to USD 14.17 billion (13.95% of GDP), Tajikistan, with USD 4.63 billion (38.42% of GDP), and Georgia, with USD 4.20 billion (13.65% of GDP) (Figure 2).

Figure 2

Personal remittances, received in 2005 and 2023, million USD



Source: World Bank, 2025.
https://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT seen 25.05.2025.

Following the collapse of the Soviet Union, ***Armenia*** underwent a profound economic downturn. By 1998, the country's GDP had fallen to just 61% of its 1990 level. During this period, personal remittances became a critical source of household income, helping to alleviate poverty and improve living standards. Between 1995 and 2003, remittance inflows to Armenia rose steadily—from USD 71.35 million (4.86% of GDP) in 1995 to USD 335.86 million (11.96% of GDP) in 2003—providing vital financial support to many families (World Bank, 2025).

During the pre-crisis period of 2003–2008, Armenia experienced robust economic expansion, with an average annual growth rate of approximately 12%. This growth pattern was largely driven by external financing, particularly foreign direct investment and remittances, both of which increased substantially during this time. In 2004, remittances reached their peak share of GDP at 22.02%. Between 2004 and 2008, remittance inflows grew from USD 787.52 million to USD 1.904 billion (16.33% of GDP). Fueled by the rise in remittances and high household savings, the construction sector expanded significantly, accounting for 25.3% of GDP by 2008. However, the rapid increase in remittance inflows also contributed to symptoms of "Dutch disease," as the appreciation of the real effective exchange rate eroded export competitiveness.

The 2009 global financial crisis severely affected Armenia's economy, which contracted by 14.1%. Remittance inflows declined by USD 464 million compared with the previous year, and the construction sector shrank by 41.6%. The period 2010–2013 marked the post-crisis recovery phase, during which economic growth moderated to an average of 4.4%, reflecting reduced investment activity. A gradual shift toward a new

economic structure took place, with the services sector remaining the main growth driver. At the same time, industry and agriculture began to play increasingly important roles, enhancing the economy's export potential and fostering a more outward-oriented growth model (Strategic Program of the Republic of Armenia, 2014–2025). During this period, remittances continued to rise, reaching a historical high of USD 2.192 billion in 2013, equivalent to about 20% of GDP (Figure 1).

Between 2014 and 2016, remittance inflows declined sharply—from USD 2.079 billion to USD 1.382 billion—primarily due to the depreciation of the Russian ruble, which fell by 11.3% against the US dollar in the first half of 2014 (Armenpress, 2025). This depreciation had a direct negative impact on Armenia, given that a substantial portion of its remittance inflows originated from Russia. From 2017 to 2020, remittances stabilized within a range of USD 1.327–1.539 billion. According to the World Bank (2019), remittances accounted for over 40% of household income among both permanent and temporary migrant families (Armenia International Outmigration, 2019, p. 12).

Following the economic contraction in 2020—driven by the dual shocks of the COVID-19 pandemic and the Second Nagorno-Karabakh (Artsakh) war—the Armenian economy entered a recovery phase during 2021–2023, achieving an average annual growth rate of around 9%. In 2021, remittances from Russia rose notably, supported by the lifting of COVID-related restrictions, an increase in seasonal labor migration, and improved economic conditions in Russia. Total remittance inflows reached USD 1.557 billion in 2021. In 2022, inflows surged to USD 2.031 billion—the highest level since 2013—primarily as a result of the Russia–Ukraine war and the subsequent sanctions imposed on Russia by Western countries. That year, approximately 53% of remittances originated from Russia and 20% from the United States. However, remittance inflows decreased to $1.452 billion in 2023 and $1.278 billion in 2024 (World Bank, 2025).

Although the share of remittances in GDP declined from 22.02% to 4.96% between 2004 and 2024, they remain a significant source of external financing for the Armenian economy. Therefore, further empirical investigation into their role in Armenia's economic development remains both timely and policy-relevant.

Literature Review

A substantial body of empirical research has examined the relationship between remittances and economic growth. Many studies have identified a positive link between remittance inflows and national development, exploring this relationship from multiple perspectives. Calero (2008) and Barajas et al. (2009) argue that remittances stimulate investment and promote human development by financing better education and healthcare services. Similarly, Frankel (2011) and Chami et al. (2012) demonstrate that, unlike other forms of external financing, remittances constitute a more stable and counter-cyclical source of income for developing economies, contributing to macroeconomic stability. Poghosyan (2020) highlights their stabilizing role, emphasizing that remittance inflows often rise during periods of economic downturn, while Ratha (2019) stresses their importance for low-income countries, noting that remittances are more evenly distributed across developing economies than capital flows.

Grigorian and Kryshko (2017) find that in developing economies, remittances—particularly when transferred through formal financial channels—promote financial sector deepening. Islam and Lee (2023), using a time-series analysis, show that since the 1990s, the expansion of remittance flows has contributed significantly to democratic progress. Jansen and Vacaflores (2020) examine remittance inflows in small open economies and analyze their impact on output under different exchange rate regimes.

They conclude that the effects of remittances on labor dynamics, inflation, and output depend on both the structure of the utility function and the monetary policy rule governing interest rate adjustments, especially the responsiveness of interest rates to exchange rate movements. Lartey (2016), analyzing data for 135 developing and transition economies from 1970 to 2007, finds that the impact of remittances on economic growth depends on the degree of exchange rate flexibility. According to his results, more flexible exchange rate regimes are associated with stronger growth effects.

Kumar et al. (2018) investigate the short- and long-term effects of remittances and financial development in Kyrgyzstan and North Macedonia, finding that remittances positively influence long-term growth in both countries. Causality analysis reveals that remittances drive growth in Kyrgyzstan, whereas in North Macedonia, growth stimulates remittance inflows. Comes et al. (2018), examining seven Central and Eastern European economies with per capita GDP below USD 25,000 (Romania, Bulgaria, Croatia, the Czech Republic, Hungary, Slovakia, and Slovenia), find that both remittances and FDI significantly support economic growth, with Romania, Hungary, and the Czech Republic exhibiting the strongest effects. Dhungel (2023) confirms the vital role of remittances in Nepal's economy, finding that a 1% increase in remittances results in a 0.36% long-term rise in GDP. Olayungbo and Quadri (2019), analyzing 20 Sub-Saharan African countries, report that remittances and financial development both positively influence growth in the short and long run, although they find no causal link between remittances and financial development due to the prevalence of informal financial systems. Abdelhadi and Bashayreh (2019), using annual data from 1972–2016 for Jordan, also find a stable long-term relationship between remittances and per capita GDP.

Despite these generally positive findings, the literature also presents opposing evidence. Chami et al. (2003) argue that remittances can negatively affect growth by reducing labor force participation and creating moral hazard problems—recipients may rely on transfers instead of engaging in productive activities. Barajas et al. (2009) similarly find that over several decades, remittances have contributed little to growth and may even hinder it in certain contexts. Raimi and Ogunjirin (2012), analyzing data for Nigeria (1970–2006), find a negative association between GDP and remittance inflows, linking this outcome to migration-related distortions. Nwosa and Akinbobola (2016) show that foreign financial inflows, including aid, can impede growth in Nigeria. Abdelhadi and Bashayreh (2010), using an Error Correction Model for India, conclude that transaction costs are the dominant factor explaining remittance variation over the medium to long term.

Other studies report that remittances have no statistically significant impact on economic growth. Rao and Hassan (2011), examining 40 countries with high remittance inflows, find no robust evidence that remittances contribute to sustained growth. Senbeta (2013) demonstrates that while remittances foster capital accumulation, their effect on Total Factor Productivity is negligible. Konte (2014), using data for developing economies from 1970 to 2010, identifies two distinct regimes: in one, remittances exert a positive and significant marginal effect on growth; in the other, their influence is statistically insignificant. The likelihood of belonging to the growth-enhancing regime depends on geographical and institutional factors—Sub-Saharan African countries, for instance, are more likely to benefit from remittance-driven growth. Feeny (2014) also finds that remittances significantly support income growth in small island developing states, noting that in the absence of remittances, Pacific island economies experience notably lower growth rates.

Several Armenian economists have examined the role of remittances in Armenia's economy. Grigorian and Melkonyan (2011) argue that although remittances contribute to poverty reduction, they may simultaneously discourage labor force participation and reduce investment in human capital—such as children's education—as households either anticipate future migration or remain constrained by subsistence-level expenditures. Furthermore, households receiving remittances are less likely to engage in productive borrowing to finance entrepreneurial ventures, thereby limiting the developmental potential of remittance inflows at the microeconomic level.

According to the findings of Makaryan and Galstyan (2013), approximately 40% of Armenian households received remittances in 2013, positioning Armenia among the top 20 remittance-receiving countries globally. The World Bank reported that between 2010 and 2013, remittances in Armenia influenced poverty dynamics, benefiting primarily the upper 60% of the income distribution (Armenia International Outmigration, 2019, p. 6). More recent data from a 2023 study conducted by ARMSTAT and the International Organization for Migration indicate that 90.7% of remittances in Armenia were used for household consumption—including health and education—while 1.9% were directed toward real estate or construction and 7.4% toward other purposes. In terms of origin, 60.6% of transfers came from Russia, 4.3% from other CIS countries, 15.5% from European countries, 14.2% from the United States and Canada, and 5.4% from other countries (Migration Profile of the Republic of Armenia, 2025).

The results of the study conducted by Kharatyan and Buniatyan (2024) using a Vector Error Correction (VEC) model demonstrate the existence of long-run equilibrium relationships between remittance inflows and real GDP in Armenia. Specifically, the long-run elasticity estimates suggest that a 1% increase in personal remittances is associated with a 0.42% expansion in Armenia's real GDP. This finding underscores the significant and positive contribution of remittances to the country's long-term economic growth trajectory.

The present study aims to assess the impact of remittances on Armenia's economic growth in the short run. The following hypothesis is proposed: **H_0: In the short term, remittances have a positive impact on economic growth in Armenia.**

Model and Data

For the econometric study, we used quarterly data for the following variables for Armenia from 1996 to 2024: real GDP, million US$ (GDPR), gross investments, million US$ (INV), households' final consumption expenditure, million US$ (CONS), personal remittances, Balance of payments, million US$ (REM), exchange rate, USD/AMD (EXR), consumer price index (CPI), imports of goods and services, million US$ (IM) and GDP of the Russian Federation, million US$ (GDP_RUSS).

The data sources are the databases of the World Bank, the Central Bank of the Republic of Armenia, and the Statistical Committee of the Republic of Armenia. Russia's GDP, originally expressed in rubles, was converted to US dollars using the dollar/ruble exchange rate. Armenia's real GDP, gross investments, and private consumption, originally expressed in the national currency (dram), were converted to US dollars using the dollar/dram exchange rate.

We constructed the following multiple regression model:

$$\Delta(\ln(GDPR))_t = \beta_0 + \beta_1\Delta(\ln(REM))_t + \beta_2\Delta(\ln(CONS)_t + \beta_3\Delta(INV)_t + \varepsilon_t \quad (1)$$

To address the endogeneity problem (explanatory variables are correlated with the error terms), an extensive search for good instruments was conducted. The literature typically uses variables that are not subject to reverse causality, such as the origin of a country's legal systems and creditor rights (La Porta et al., 1997). These variables change little over time, so we cannot use them. The endogeneity problem was addressed by applying the TSLS method, using the following instrumental variables: (1) Russia's GDP, which reflects the economic conditions of the main remittance-sending country and influences the supply of remittances from abroad; (2) the USD/AMD exchange rate, capturing global economic trends; (3) the inflation rate, representing a macroeconomic stability variable; (4) the lagged value of gross investment (t–1), which reflects domestic capital accumulation trends; and (5) the lagged value of import of goods and services (t–1), indicating the structural orientation of the economy. These variables are theoretically and empirically appropriate as instruments, as they are unlikely to directly affect changes in Armenia's real GDP, particularly when used in lagged or averaged forms.

We also implement all the necessary tests of residuals for checking the fulfillment of the assumptions. To test for homoscedasticity of the model residuals, we used the Breusch-Pagan-Godfrey heteroskedasticity test. To test for residual independence, we applied the Breusch-Godfrey autocorrelation LM test. To assess the quality of the model, we used the Adj. R^2, and to test the statistical significance of the estimated parameters and hypotheses, we used the *t, F*, and *Chi-square* statistics.

Results

The descriptive analysis of the variables for the period 1996–2024 reveals that the average quarterly volume of remittance inflows to Armenia amounted to USD 162.107 million, with the minimum and maximum values recorded at USD 15.2 million in the first quarter of 1996 and USD 376.4 million in the fourth quarter of 2022, respectively. The graphical representations of the variables indicate pronounced seasonal patterns in GDPR, REM, CONS, INV, IM, and GDP_RUS. Accordingly, seasonal adjustment was performed using the Census X-12 procedure.

To establish the order of integration of the series, the Augmented Dickey–Fuller (ADF) unit root test was employed. The test results show that the CPI series is stationary at level, implying an I(0) process, while the remaining variables are integrated of order one, I (1) (see Table 1).

Table 1

ADF Unit root tests of the series

Variable	Statistic	Test critical value: 5% level	Variable	Statistic	Test critical value: 5% level
Δ(LGDPR)	-9.695372	-2.88719	**Δ(LGDPRUSS)**	-7.147880	-1.943688
Δ(LREM)	-10.83157	-3.450073	**Δ(EXR)**	-6.338892	-1.943662
Δ(INV)	-10.14826	-1.94369	**CPI**	-4.904290	-2.888157
Δ(LCONS)	-9.496611	-2.887190	**Δ(LIM)**	-9.309654	-2.887190

Two multiple regression models were estimated to examine the impact of remittances on economic growth in Armenia. Model (1) was estimated using the OLS method, while Model (2) employed the TSLS estimator to address potential endogeneity in the remittance variable. All variables- GDPR, REM, CONS, GDP_RUS, and IM -were

transformed into logarithmic form to stabilize variance and account for potential non-linear relationships.

The OLS estimates indicate that remittance inflows do not exert a statistically significant effect on real GDP growth in the short run (p>0.10), suggesting the absence of a direct contemporaneous linear relationship in the baseline specification. However, after correcting for potential endogeneity through the TSLS framework—where Δ(LGDPRUSS), Δ(EXR), CPI, Δ(INV(-1)), and Δ(LIM(-1)) were employed as instruments-the estimated coefficient of remittances becomes negative and statistically significant at the 5% level. Specifically, a 1% increase in remittance inflows in the current quarter is associated with a 0.16% decline in real GDP growth, ceteris paribus.

Instrument validity was assessed using the Hansen J-statistic for overidentifying restrictions (prob(J-statistic) = 0.1750>0.05), indicating that the null hypothesis of instrument exogeneity cannot be rejected. The endogeneity test further confirms that all explanatory variables are exogenous. Nonetheless, the Cragg–Donald F-statistic falls below the Stock–Yogo 5% critical value, implying the presence of weak instruments and warranting cautious interpretation of the TSLS estimates (see Table 2).

Table 2

Remittances: OLS and TSLS Regression Results

	Model (1) Dependent Variable: Δ(LGDPR)	**Model (2) Dependent Variable: Δ(LGDPR) with instrumental variables** Instrument specification: Δ(LGDPRUS) Δ(EXR) CPI Δ(INV(-1)) Δ(LIM(-1))
Variable	**Coefficient**	**Coefficient**
C	0.011776*** (0.004432)	0.011738** (0.005343)
Δ(LREM)	-0.037663 (0.032008)	-0.163338** (0.071374)
Δ(LCONS)	0.613483*** (0.066598)	0.568040*** (0.211792)
Δ(INV)	0.000222*** (0.000049)	0.000413** (0.000198)
Adjusted R-squared	0.542280	0.461107
F-statistic	45.62520	20.18881
Prob(F-statistic)	0.000000	0.000000
Durbin-Watson statistic	2.084183	2.108842
J-statistic	-	3.485481
Prob(J-statistic)	-	0.175040
Instrument rank		6
Cragg-Donald F-stat		1.32
Stock-Yogo 5% critical value		9.53

Notes: *** shows significance at the 1% level, ** at the 5% level, * at the 10% level.

This implies that the TSLS estimates are not reliable, and the GDP-remittances relationship is more appropriately interpreted based on the results of the first model.

This conclusion is further supported by the covariance analysis of the residuals and explanatory variables in model (1). For all explanatory variables, the p-value equals 1, indicating that the null hypothesis
$H_0: corr(X, \varepsilon) = 0$ cannot be rejected; therefore, the regression model does not require instrumental variables.

The specification of model (1) estimated using the OLS method is as follows:

$$\Delta(\ln(GDPR))_t = 0.012 - 0.038\Delta(\ln(REM))_t + 0.613\Delta(\ln(CONS)_t + 0.0002\Delta(INV)_t + e_t \quad (2)$$

The diagnostic tests conducted to evaluate the validity of the Gauss-Markov assumptions yield no evidence of violations. Specifically, the Breusch-Pagan-Godfrey test fails to reject the null hypothesis of homoscedasticity (Prob. Chi-Square = 0.337), indicating that the variance of the residuals remains constant across observations. Furthermore, the Breusch-Godfrey Serial Correlation LM test reveals no presence of autocorrelation in the residuals (Prob. Chi-Square = 0.671). The Ramsey RESET test supports the adequacy of the model's functional form, as the null hypothesis of correct model specification cannot be rejected (Prob. F-statistic = 0.278). The Variance Inflation Factor (VIF) values indicate the absence of multicollinearity in the model (see Table 3).

Table 3

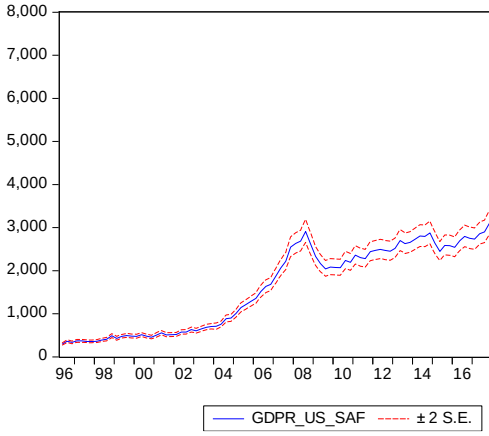
Residuals and Ramsey Tests, VIF

Residuals and Ramsey Tests			**Variance Inflation Factors**			
Heteroskedasticity Test: Breusch-Pagan-Godfrey			Variable	Coefficient Variance	Uncentered VIF	Centered VIF
Obs*R-squared Prob. Chi-Square(3)	3.380458 0.3366		C	2.34E-05	1.422824	NA
Breusch-Godfrey Serial Correlation LM Test			D(LREM)	0.002319	1.538247	1.318661
Obs*R-squared Prob. Chi-Square(2)	0.796586 0.6715		D(LCONS)	0.004426	1.331359	1.094209
Ramsey RESET Test			D(INV)	1.95E-09	1.465065	1.368370
F-statistic Probability	1.186577 0.2784					

Based on the estimated multiple regression model (1), out-of-sample forecasts were generated. As illustrated in Figure 3, the model demonstrates a strong forecasting performance. The Theil Inequality Coefficient, calculated at 0.017568, indicates a high degree of predictive accuracy. Furthermore, the mean deviation between the actual and forecasted series is relatively small, with a Bias Proportion of 0.011587, corresponding to an average discrepancy of 1.16%. These results suggest that the model exhibits both low systematic bias and strong alignment between predicted and observed values.

Figure 3

Forecast of Armenia's Real GDP Using the Regression Model

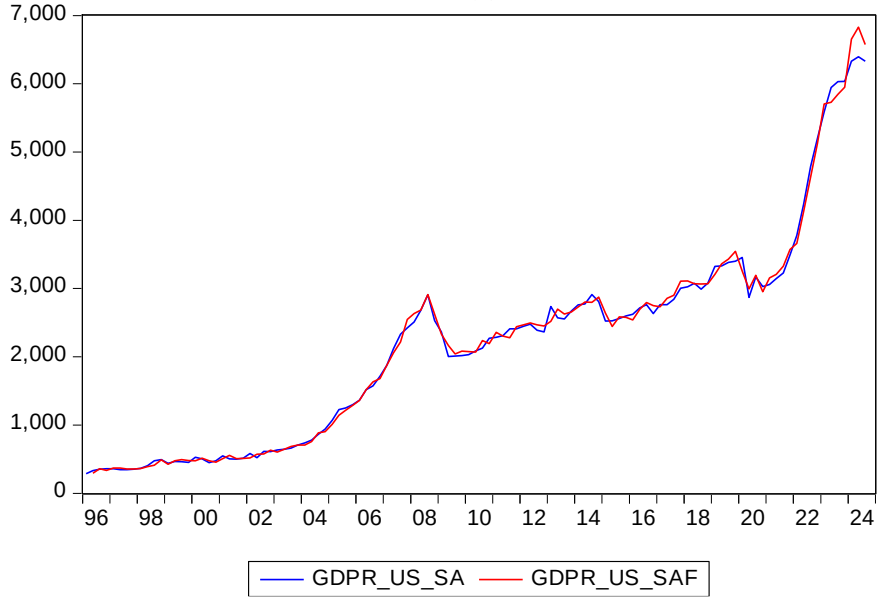


Forecast: GDPR_US_SAF	
Actual: GDPR_US_SA	
Forecast sample: 1996Q1 2024Q4	
Adjusted sample: 1996Q2 2024Q3	
Included observations: 114	
Root Mean Squared Error	93.85522
Mean Absolute Error	65.24327
Mean Abs. Percent Error	3.374394
Theil Inequality Coefficient	0.017568
Bias Proportion	0.011587
Variance Proportion	0.037442
Covariance Proportion	0.950971

The comparison between the actual and forecasted series of Armenia's real GDP further confirms the high predictive accuracy of the model. As illustrated in Figure 4, the close alignment of the observed and projected values indicates that the model effectively captures the underlying dynamics of real GDP, thus demonstrating its strong forecasting capability.

Figure 4

Statistical and Forecasted Series of Armenia's Real GDP Using the Regression Model (1).



Conclusion

Remittances represent a vital source of external financing for post-socialist economies, contributing significantly to economic development and improvements in living standards. In several countries across the region, remittance inflows account for a substantial share of GDP—reaching 49.9% in Tajikistan (2022), 33.9% in Moldova (2007), 32.6% in Kyrgyzstan (2021), and 22.0% in Armenia (2004). Empirical research on the remittance–growth nexus has produced mixed findings: while some studies report a positive impact of remittances on economic growth, others identify negative or neutral effects, reflecting the heterogeneity of country-specific conditions and methodological approaches.

This study empirically investigated the impact of remittance inflows on Armenia's economic growth using quarterly data covering the period 1996–2024. Two multiple regression models were estimated. The first employed the OLS method, whereas the second utilized the TSLS estimator to address potential endogeneity in the remittance variable. However, diagnostic tests for endogeneity, weak instruments, and residual covariances suggest that the instruments used in the TSLS specification do not satisfy the relevance and strength criteria. Consequently, the OLS model provides more reliable and interpretable results for the Armenian case.

The OLS estimation results indicate that, ***in the short run, personal remittances do not have a statistically significant effect on economic growth.*** The results further show that ***private consumption and gross investment exert positive and statistically significant effects.*** A 1% increase in private consumption in the current quarter contributes to a 0.61% increase in economic growth, ceteris paribus. Similarly, an increase of USD 10 million in gross investment leads to a 0.2% rise in economic growth in the current quarter, ceteris paribus. Thus, ***the hypothesis initially posited by this study—suggesting a positive contribution of remittances to short-term growth—is rejected***.

The constructed model demonstrates high predictive accuracy, as evidenced by the forecast quality indicators and the comparison between the actual and forecasted series of Armenia's real GDP. The findings of this study carry significant implications for both academic research and policy formulation. A more nuanced understanding of the complex effects of remittances is essential for designing effective economic policies that maximize the developmental benefits of remittance inflows while mitigating their potential adverse consequences. The analysis provides useful guidance for governments in developing strategies to reduce dependence on foreign remittances and enhance resilience to external shocks. Given the close link between remittances and labor migration, their study also offers insights into migration dynamics. Finally, in the Armenian context, the long-term nature of remittances and their appropriate channeling toward not only consumption but also investment-such as small businesses and infrastructure-can contribute significantly to sustainable economic growth.

References

Abdelhadi, S., Bashayreh, A. Remittances and Economic Growth Nexus: Evidence from Jordan. International Journal of Business and Social Science, Vol.8 (12), 2017, pp. 98-102.

Armenia International Outmigration: An Exploration on the Effects on Armenian Households' Welfare Poverty and Equity GP – The World Bank. October 2019, p. 12.

https://documents1.worldbank.org/curated/en/999871570627713212/pdf/Armenia-International-Outmigration-an-exploration-on-the-effects-on-Armenian-households-welfare.pdf. seen 09.09.2025

Barajas, A., Chami, R., Fullenkamp, C., Gapen, M., Montiel, P. (2009). Do Workers' Remittances Promote Economic Growth? IMF Working Papers 153, International Monetary Fund, p. 17. July 2009. DOI:10.5089/9781451873009.001

Bhaskara, R.B., Mainul H.G. (2011). A panel data analysis of the growth effects of remittances, Economic Modelling, Elsevier, vol. 28(1-2), pp. 701-709, January. DOI:10.1111/j.1467-9701.2011.01399.x

Calero, C., Bedi Arjun, S., Sparrow, R. (2009). Remittances, Liquidity Constraints and Human Capital Investments in Ecuador, World Development, Volume 37, Issue 6, Pages 1143-1154. ISSN 0305-750X, https://doi.org/10.1016/j.worlddev.2008.10.006.

Chami, R., Fullenkamp, C. and Samir, J. (2003). Are Immigrant Remittance Flows a Source of Capital for Development. International Monetary Fund Working Papers 03/189, IMF, Washington DC. p.21. https://doi.org/10.5089/9781451859638.001

Comes, C.-A., Bunduchi, E., Vasile, V., Stefan, D. (2018). The Impact of Foreign Direct Investments and Remittances on Economic Growth: A Case Study in Central and Eastern Europe. MDPI. Sustainability, 2018, 10, 238. pp. 1-16. https://doi.org/10.3390/su10010238

Dhungel, K. R. (2023). The Link between Remittance and Economic Growth: An ARDL Bound Testing Approach. Nepal Rastra Bank, Economic Review, 2023, Vol 30-2, pp. 1-18.

Feeny S., Iamsiraroj S., McGillivray M. (2014). "Remittances and Economic Growth: Larger Impacts in Smaller Countries?," Journal of Development Studies, Taylor & Francis Journals, vol. 50(8), pp. 1055-1066, August. DOI: 10.1080/00220388.2014.895815

Frankel, J. (2011). "Are Bilateral Remittances Countercyclical?," Open Economies Review, Springer, vol. 22(1), pages 1-16, February. DOI: 10.1007/s11079-010-9184-y

Grigorian, D.A., Kryshko, M. (2017). Deposit Insurance, Remittances, and Dollarization: Survey-Based Evidence from a Top Remittance-Receiving Country. IMF Working Paper, WP No.132. ISBN: 9781484300718. ISSN: 1018-5941

Grigorian, D.A. , Melkonyan, T.A. (2011). Destined to Receive: The Impact of Remittances on Household Decisions in Armenia. Review of Development Economics, 15(1). DOI:10.1111/j.1467-9361.2010.00598.x

Jansen, D.W. and Vacaflores, D.E. (2020), Remittances, Output, and Exchange Rate Regimes: Theory with an Application to Latin America. Southern Economic Journal, 86: pp. 1170-1191. https://doi.org/10.1002/soej.12399

Ifeakachukwu, N.P., Oladiran, A.T. (2016). Capital Inflows and Economic Growth in Nigeria: The Role of Macroeconomic Policies, African Development Review, African Development Bank, vol. 28(3), pp. 277-290, https://doi.org/10.1111/1467-8268.12205

Kharatyan, A., Buniatyan, A. (2024). Assessment of the long-term relationship between RA personal transfers-economic growth using the VEC model. Journal of Yerevan University. Economy, Vol. 15, No. 2(44), December, 102-111.

Kumar, R. R., Stauvermann, P. J., Patel, A., Prasad, S. (2018). The Effect of Remittances on Economic Growth in Kyrgyzstan and Macedonia: Accounting for Financial Development. International Migration Vol. 56 (1) 2018, pp. 95-126. https://doi.org/10.1111/imig.12372

Lartey E. (2016). Exchange Rate Flexibility and the Effect of Remittances on Economic Growth Policy. World Bank Group, Research Working Paper 7932, 2016-12.

Maty, K. (2018). "Do remittances not promote growth? A finite mixture-of-regressions approach," Empirical Economics, Springer, vol. 54(2), pp. 747-782, DOI: 10.1007/s00181-016-1224-z

*Migration Profile of the Republic of Armenia, 2023***,** Yerevan, 2025, pp. 24–27. https://armstat.am/file/article/migration_profile_2023_am_.pdf

Olayungbo, D., Quadri, A. (2019). Remittances, financial development and economic growth in Sub-Saharan African countries: evidence from a PMG-ARDL approach. Financial Innovation. DOI: 10.1186/s40854-019-0122-8

Poghosyan, T. (2020). Remittances in Russia and Caucasus and Central Asia: The Gravity Model. IMF Working Paper, WP No. 2020/128, p.4, ISBN: 9781513550206, ISSN: 1018-5941

Ratha, D. (2019). Remittances: Funds for the Folks Back Home. February 5. Finance & Development Magazine. https://www.imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/Remittances, seen **24.04.2025**

Raimi, L., Ogunjirin, O.D. (2012). Fast-tracking sustainable economic growth and development in Nigeria through international migration and remittances, *Humanomics*, Vol. 28 No. 3, pp. 209-219. https://doi.org/10.1108/08288661211258101

Rubel, I. MD., Kang-Kook, L. (2023). Do Foreign Remittances Promote Democracy? A Dynamic Panel Study of Developing Countries, Hitotsubashi Journal of Economics, Hitotsubashi University, vol. 64(1), pages 59-85, June. DOI: 10.15057/hje.2023004

Republic of Tajikistan: 2025 Article IV Consultation and Second Review under the Policy Coordination Instrument and Request for Modification of a Reform Target-Press Release; IMF. Country Report No. 2025/169, p. 5, 48. https://doi.org/10.5089/9798229014892.002

Salahuddin, M., Gow J. (2015) The relationship between economic growth and remittances in the presence of cross-sectional dependence. The Journal of Developing Areas, Vol. 49, No. 1, Winter 2015, pp. 207-221.

Senbeta, A.S. (2013). Remittances and the sources of growth, Applied Economics Letters, Taylor & Francis Journals, vol. 20(6), pp. 572-580, DOI: 10.1080/13504851.2012.718057

Shera, A., Meyer, D. (2013). Remittances and their impact on economic growth. Social and Management Sciences 21/1 3–19. pp. 3-19.

Singh, B. (2010). Workers' Remittances to India: An Examination of Transfer Cost and Efficiency. International Migration, 48: 63-88. https://doi.org/10.1111/j.1468-2435.2009.00540.x

Strategic Program for the Prospective Development of the Republic of Armenia, 2014–2025.

https://www.gov.am/files/docs/1322.pdf

https://data.worldbank.org/indicator seen 15.06.2025.

https://www.worldbank.org/en/news/press-release/2024/06/26/remittances-slowed-in-2023-expected-to-grow-faster-in-2024 seen 25.05.2025.

https://armenpress.am/hy/article/782556 seen 10.09. 2025

https://armstat.am/am/?nid=12 seen 05.05. 2025

https://www.cba.am/am/SitePages/statexternalsector.aspx seen 05.05. 2025