

Impact of Remittances on Natural Rate of Dollarization— Trends in Caucasus and Central Asia

Rocio Gondo
Central Bank of Peru

Altynai Aidarova
NBKR

Manmohan Singh
IMF

Life in Kyrgyzstan Conference
October 27, 2020

The views expressed here are those of the authors and do not necessarily represent the views of the IMF, NBKR or Central Bank of Peru.

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Paper summary

- **What we do:**
 - Discuss migration and remittances trends, and calculate the natural (or benchmark) level of dollarization in Caucasus, Central Asia and others in the region.
 - Measure the impact of the fall in remittances due to the economic slowdown since the spread of COVID-19, which affects the macroeconomic fundamentals that determine demand for foreign currency deposits.
- **Methodology:**
 - First, we use a gravity model of bilateral remittances between countries in the region to forecast the reduction in remittances after the COVID-19 shock.
 - Then, we include the estimated change in remittances in a model of the determinants of the natural level of dollarization. This model considers a panel regression for a larger set of countries with financial dollarization.

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Paper summary

• Results:

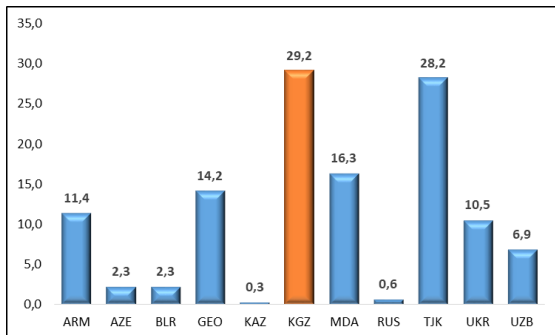
- Despite the reduction in deposit dollarization, there is still a gap with the natural level of dollarization, especially in a scenario of (persistent) lower remittance inflows.
- However, this gap is relatively smaller in countries like KGZ which adopted policy measures for dedollarization.

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Remittances represent a significant and stable source of income for the region, although there is some heterogeneity across countries. The main source of remittances comes from Russia due to historical links.

Remittances as a Share of GDP in 2019 (in percent)



Source: World Bank

Bilateral Remittances, 2017
(Percentage of Total Remittances)

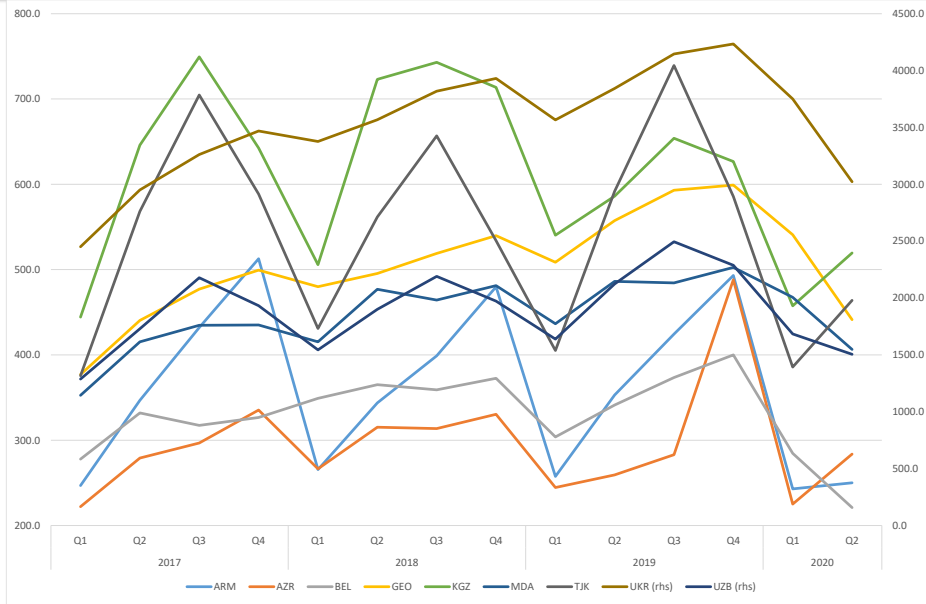
	Russia	Other countries in sample	Other
ARM	63,6	10,4	26,0
AZE	58,1	31,7	10,2
BLR	45,4	26,8	27,7
GEO	58,7	18,4	22,9
KAZ	63,5	11,9	24,6
KGZ	76,6	7,8	15,6
MDA	32,5	19,7	47,8
TJK	76,0	14,8	9,2
UKR	51,2	13,3	35,5
UZB	100,0	0,0	0,0
Total	62,6	13,4	24,0

Source: World Bank

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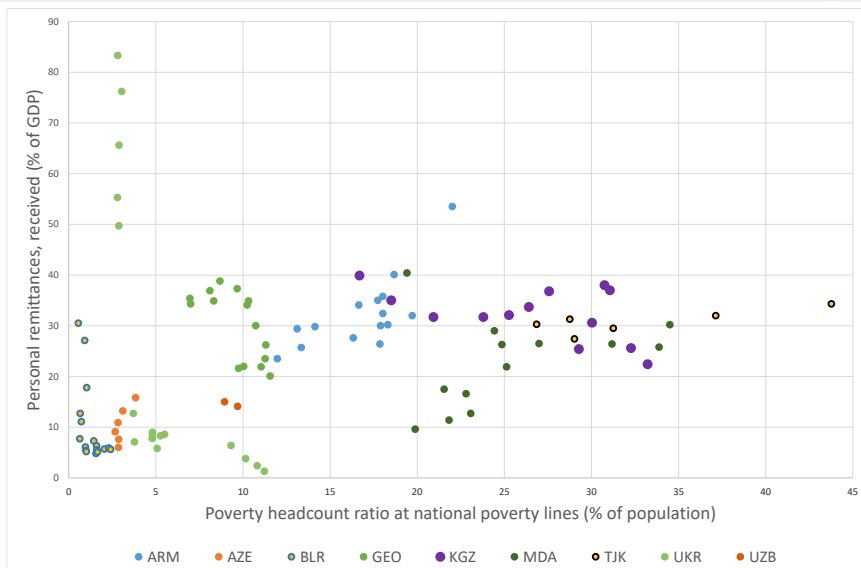
Remittances substantially drop in Q1-Q2 of 2020 as a result of lockdown in the region. In KR net inflow of remittances for 6 months of 2020 drop for more than 13 percent.



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Remittances and poverty are strongly correlated. Large portion of remittances is channeled to current consumption or purchase of durables. In KR higher level of remittances associated with lower level of poverty.



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Deposit dollarization is high in many countries in the region. A positive correlation between remittances and deposit dollarization suggests that countries that receive more remittance inflows have larger FX inflows and are more prone to save in foreign currency.

Loan and Deposit Dollarization

	2014		2019		Difference	
	Loan	Deposit	Loan	Deposit	2014	2019
ARM	66,0	65,3	50,7	55,4	-0,7	4,7
BLR	52,3	63,3	48,6	61,2	11,0	12,6
GEO	60,3	63,6	55,1	61,6	3,3	6,5
KAZ *	30,7	54,1	23,3	42,7	23,5	19,4
KGZ	54,9	60,8	34,7	39,8	6,0	5,0
MDA	39,1	51,7	32,9	41,8	12,6	8,9
TJK	61,9	57,4			-4,6	
UKR	47,8	49,3	41,2	42,8	1,5	1,6

* Last available is 2018.

Source: IMF Financial Soundness Indicators

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This paper

Countries that send remittances to the region have been highly affected by the global widespread of COVID-19, and it is expected that most countries in the world will experience negative growth rates for 2020. Also, countries receiving remittances have been affected by significant exchange rate depreciation.

Under this scenario:

- What is the impact on remittances inflows to the region? How much will this shock affect those countries that significantly rely on remittances?
- How will the reduction in remittances affect availability of FX flows and the benchmark or “natural” level of deposit dollarization?

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Empirical model of remittances

In order to calculate the expected fall in remittances under this scenario, we consider estimations using the gravity model in Poghosyan (2020) for bilateral flows.

- GDP from the sending country (+)
- GDP from receiving country (+)
- Inflation in receiving country (+)
- Nominal exchange rate depreciation in receiving country (-)
- Other controls: contiguity (+), common language (+), physical distance (+), migrants (+), female migrant participation (-) and age dependency ratio (+).

We calculate the expected YoY percentage change in bilateral remittances for 2020 by considering the marginal effect of changes in time-varying variables.

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Determinants of bilateral remittances – empirical model

	(1)	(2)	(3)	(4)	(5)
log(GDP_USD) in sending country	0.45** (0.23)	0.57*** (0.19)	-0.08 (0.80)	0.59*** (0.20)	-0.06 (0.87)
log(GDP_USD) in receiving country	-0.17 (0.32)	1.47** (0.75)	0.18 (0.59)	1.50** (0.74)	0.21 (0.61)
(Other controls)					
Inflation rate in receiving country	0.04 (1.52)	0.55 (0.76)	4.05* (2.09)	0.66 (0.79)	4.08** (2.08)
Exchange rate depreciation in receiving country	-0.17 (0.31)	0.47 (0.50)	-0.90** (0.45)	0.44 (0.47)	-0.89* (0.47)
Age dependency ratio in receiving country	-0.01 (0.04)	0.09*** (0.02)	-0.01 (0.10)	0.09*** (0.02)	-0.01 (0.11)
Intercept	-5.61 (9.49)	-43.06* (22.06)	10.11 (29.01)	-52.73** (23.21)	3.08 (31.80)
Observations	504	504	504	392	392
Pseudo R-squared	0.726	0.912	0.927	0.926	0.943
Log-likelihood	-49058	-15765	-13001	-11636	-8937
AIC	98139	31584	26067	23286	17888
BIC	98185	31698	26206	23314	17916
Country FE		YES	YES		
Country-Pair FE				YES	YES
Year FE			YES		YES

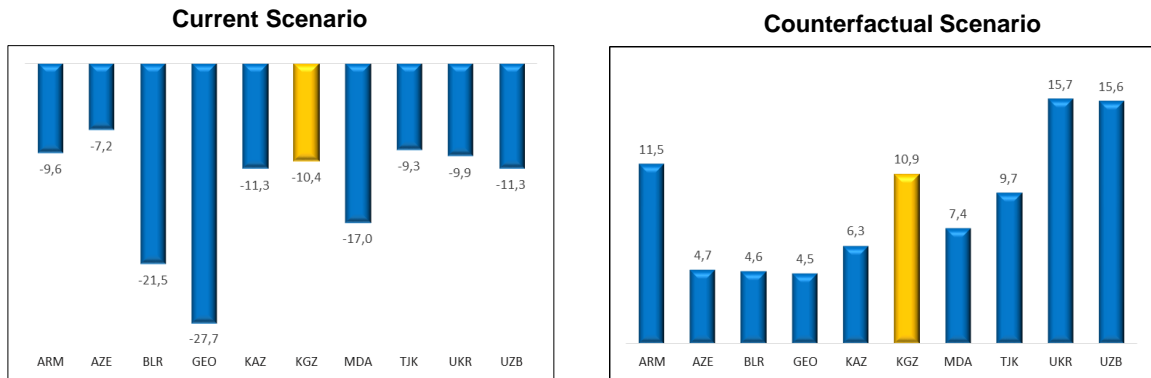
Source: Poghosyan (2020)

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Results for predicted change in remittances after the COVID shock

Predicted Percentage Change in Remittances, 2020



Source: Authors' estimation.

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Natural Rate of Dollarization – Theoretical model

- Following Ize and Levy Yeyati (2003), the benchmark level of dollarization for deposits (minimum variance portfolio) depends on the relative volatility of inflation and the real exchange rate.

$$\lambda^* = \frac{S_{\pi\pi} + S_{\pi S}}{S_{\pi\pi} + S_{SS} + 2S_{\pi S}}$$

- The extension includes 2 sources of income: (i) income in domestic currency and (ii) income from remittances in foreign currency.
- Observed deposit dollarization not only depends on the benchmark dollarization, but also on: (i) expected interest rate differential between deposits in local and foreign currency and (ii) participation of local income and remittances.
- A reduction in income of the remitter in the host country would reduce dollarization. However, if domestic revenue contracts even more, this would support dollarization in a shrinking financial sector.

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Natural Rate of Dollarization – Empirical model

Following Della Valle et al (2018), we consider the following determinants:

Macroeconomic fundamentals

- Population (-)
- GDP per capita(-)
- Remittances (+)
- Trade (+)
- Capital account restrictions (-)

Policy variables (converge to a benchmark consistent with MVP)

- Inflation (+)
- Exchange rate variation (-)

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Natural Rate of Dollarization – Empirical model

Dependent variable: Foreign currency deposits/total deposits	(1)	(2)	(3)	(4)
OCA variables				
Log population	-2.427*** (0.557)	-2.471*** (-4.252)	-2.105*** (-3.583)	-2.732*** (-4.089)
Log real GDP per capita	-9.299*** (0.795)	-9.701*** (-11.17)	-8.080*** (-8.382)	-6.567*** (-6.718)
Trade openness	0.0411 (0.0251)	0.0612** (2.366)	0.0711** (2.574)	0.0872*** (2.881)
Remittances as share of GDP	0.245** (0.111)	0.180 (1.595)	0.226** (2.107)	0.350*** (3.286)
Financial Account Restrictiveness Index	-28.83*** (2.929)	-30.13*** (-10.08)	-31.61*** (-10.59)	-24.11*** (-7.144)
Policy variables				
Minimum variance portfolio		0.119*** (3.034)	0.0571 (1.447)	-0.00604 (-0.151)
Log variation coefficient = L,			-3.005*** (-4.687)	-3.537*** (-5.049)
Inflation = L,			1.625*** (4.749)	1.958*** (5.425)
Inflation = L1,				0.104*** (3.866)
Binary variable				
Europe	14.19*** (1.550)	12.69*** (7.888)	10.96*** (6.854)	8.027*** (4.538)
Constant	152.1*** (11.82)	153.0*** (11.62)	133.7*** (9.546)	123.6*** (8.646)
Observations	1,313	1,246	1,111	947
R-squared	0.322	0.333	0.373	0.404
Year FE	Yes	Yes	Yes	Yes

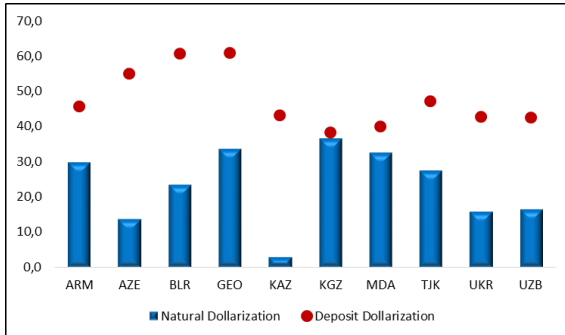
Source: Della Valle et al (2018)

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Natural Rate of Dollarization – Results

Natural Rate of Dollarization, 2019



Source: Authors' estimation.

Natural Rate of Dollarization, 2020

	2019	Baseline	Counterfactual	Difference
ARM	29,8	29,4	30,0	-0,6
AZE	13,7	13,7	13,8	-0,1
BLR	23,4	23,3	23,5	-0,2
GEO	33,6	32,8	33,5	-0,7
KAZ	3,0	3,0	3,0	0,0
KGZ	36,6	35,7	37,1	-1,4
MDA	32,5	31,7	32,6	-0,9
TJK	27,5	26,5	27,8	-1,3
UKR	15,9	15,5	16,2	-0,6
UZB	16,5	16,3	16,9	-0,6

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Natural Rate of Dollarization – Results

- Large heterogeneity for the natural rate of dollarization across countries in the region, ranging from 3.0% in KAZ (low level of remittances) to 36.6% in KGZ (high level of remittances).
- **How far is observed dollarization from its natural rate?** Despite the reduction in deposit dollarization, there is still a gap with the natural level of dollarization, especially in a scenario of (persistent) lower remittance inflows.
 - However, this gap is relatively smaller in countries like KGZ which adopted policy measures for dedollarization (1.6% in 2019).
- **Current scenario**
 - **Theoretically:** If the shock is more persistent, especially on the labor market, migrants will reduce their income and send lower remittances, leading to a lower natural level of dollarization.
 - **Empirically:** The effect is relatively small (1.3-1.4 pp), even for countries with remittances close to 30% of GDP like KGZ and TJK.

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Conclusions

- We calculate the impact on remittance inflows to the region and its effect on the “natural” level of deposit dollarization after the COVID-19 shock in a scenario of lower global growth in sending countries and exchange rate depreciation in receiving countries.
- We find high heterogeneity in the impact on remittances in the region, with an estimated 10.4% contraction in remittance flows for KGZ in 2020, compared to a counterfactual growth of 10.9% in a scenario with no COVID shock.
- Despite the reduction in deposit dollarization, there is still a gap with the natural level, especially in a scenario of (persistent) lower remittance inflows. However, some countries with higher remittance flows like KGZ can support higher rates of dollarization in the medium run given the larger participation of FX flows from abroad.

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