THE NEXUS BETWEEN SOCIAL UNREST AND MIGRANT REMITTANCES: EMPIRICAL EVIDENCE FROM GEORGIA

Yılmaz Onur Ari

Bayburt University, International Business and Trade Department,
Dede Korkut Külliyesi, 69000,Merkez/Bayburt, Turkey
onurari@bayburt.edu.tr

&

Ümit Koç

Bayburt University, Economics Department,
Dede Korkut Külliyesi, 69000,Merkez/Bayburt, Turkey
umitkoc@bayburt.edu.tr

Abstract

The paper examines the social unrest and migrant remittances relationship for Georgia using monthly time series data covering January 2007– July 2019. The Granger Causality Test was employed in the application of the econometric technique. Frequency domain causality test was also used in order to empower the findings of the study. The empirical findings showed that there is a bidirectional causality between the reported social unrest index (RSUI) and the remittance inflow to Georgia. Besides, frequency domain causality test results indicated that RSUI was the Granger cause of remittance inflow in the medium term (7-10 months), while remittance inflow was the Granger cause of RSUI in the short term (2-6 months). Social unrest comprises protests based on basic economic needs such as food, gas, electricity etc. Therefore, social unrest can be a supportive factor of remittances inflow to Georgia. This is in line with the view that remittances sent by Georgian immigrants to their families in Georgia are used for consumption rather than investments. On the other hand, remittances can be a determinant of social unrest for Georgia because the existence of separatist movements in Abkhazia and former South Ossetia can be interpreted as remittances can be an important source to fund these movements.

Key words: *Social Unrest, Remittances, Migration, Georgia, Granger Causality*

INTRODUCTION

In this age of globalization and interconnectedness, several challenges that were earlier thought to be less probable from the standpoint of international security are now considered as more severe and rigid. The factor of migration might be included among them. It is already a complicated phenomenon. It is mostly collected as a result of many circumstances such as socioeconomic reasons, political unrest, private reasons, and so on [Beraia 2021].

A remittance is money earned by citizens abroad and remitted back to their home country [Mohammed, 2021]. Remittances have the potential to greatly improve the livelihoods of receiving households by stabilizing consumption and enabling investments in human and other capital, particularly in less developed and developing nations. In a nutshell, they encourage economic growth and reduce poverty in the recipient country by promoting economic stability, increasing creditworthiness, and attracting investments [Amuedo-Dorantes 2014]. Remittances have risen in importance as a way of transporting money throughout the world as migrant workers and immigrants repatriate portions of their earnings to their home countries [Bahadir et al. 2018]. When compared to Foreign Direct Investment (FDI) and Official Development Aid (ODA), remittances are one of the less volatile and more consistent sources of foreign exchange revenues for developing nations [Ratha, Sirkeci 2010]. As a result, the amount transferred to developing and less developed nations has been gradually growing. KNOMAD [2021] expects that remittances flows to developing and less developed countries will reach 589 billion US Dollars in 2021.

Despite their obvious economic advantages and widespread appeal, remittances and migration in general have an influence on a wide variety of socioeconomic concerns other than money. These may include their impact on income risks (not than simply levels), income inequality, human capital investments (such as education), gender inequality, birth and mortality rates, ethnic relations, political change, and the environment, among other things. Migration's impact can also vary significantly across these many dimensions of economic and social development [de Haas 2007]. Remittances can mitigate poverty but they can produce new social insecurities at the same time [Warnecke-Berger 2020].

Protests, riots and all kinds of civil disorder are examples of social unrest. Barrett et al. [2020] collected these events for certain countries and formed the Reported Social Unrest Index (RSUI). In creating this index, the authors benefitted from Dow Jones Factiva news aggregator and a bunch of newspapers written in English and wire services in the USA, Canada and UK. The events are compiled on a monthly basis using key words used to report civil disturbances such as protests, riots, large marches and other sorts of unrest. These unrests can be arised from government issues, democratic-reform related issues, religious issues, coups, civil wars, elections, protests based on basic needs such as gas, electricity, education, healthcare or global issues.

Despite the fact that there are several studies in the literature investigating the link between remittances, economic growth, and other macroeconomic factors, [see for example, Pradhan et al. 2008; Giuliano and Ruiz-Arranz 2009; Barajas 2009; Melkadze 2012; Bayar 2015; Bahadir et al. 2018], there are very few studies dealing with the effect of remittances on social unrest. Using the newly-formed RSUI index for the remittances-social unrest nexus constitutes the original value of our study.

There is a general argument that remittances can be a potential source of funding for insurgent groups and increase social unrest and acts of terrorism [Gunaratna, 2003; Warnecke-Berger 2020; Ari, Bello 2020]. On the other hand, it is argued that remittances reduce the demand for social welfare from the state, and as a result, remittances decrease the motivation to rebel and increase political stability [Regan, Frank 2014; Abbas et al. 2017]. The purpose of this study is to assess the validity of these two perspectives for Georgia. This study seeks to give policy recommendations based on the empirical findings in this setting.

The remaining parts of this paper are organized as follows: Section 2 reviews the extant literature regarding migrant remittances and social unrest relationship. Section 3 discusses the methodology and the research findings. Finally, section 4 presents the conclusion and policy recommendations

1. LITERATURE REVIEW

1.1. Theoretical Literature Review

A range of factors documented in the literature impact remittance inflows, including inflation, interest rates, currency rates, political and financial risk, economic circumstances, education, and the quantity of migrants. Several ideas have been proposed to explain the differing effects of remittances on the economy based on household welfare or utility functions [Abbas et al. 2017]. Factors like migrants´ behaviour patterns, income level, age, education and stay period abroad etc., are important for microeconomic literature [e.g. Lucas, Stark 1985; Poirine, 1997; Docquier, Rapaport 1998; Holst, Schrooten 2006] while factors like income differences between host and home country, inflation rate, exchange rate volatility, political stability, government migration policy are important for macroeconomic literature [e.g. Chami et al. 2003; Amuedo-Dorantes, Pozo 2004; Faini 2006]. The internal conflict is a factor in the country's political stability. Our work may be included in the macroeconomic literature since it investigates the influence of remittances on social unrest.

1.2. Empirical Literature Review

Despite the fact that a vast amount of study has focused on how remittance inflows are connected to economic growth and investment [see, for example, Barajas 2009; Bayar 2015], very little literature has focused on remittances' role against unforeseen events or shocks. Among the studies regarding remittances-social unrest nexus, Re-

gan and Frank [2014] built a model of migrant remittances as a driver for domestic stability during economic downturns. They tested predictions from this model using World Bank remittance data from 1980 to 2005 for 152 countries. Their findings implied that an increase in migrant remittances during a crisis can reduce the chance of a civil war. Using data from 1972 to 2012, Abbas et al. [2017] utilized the GMM approach to evaluate the influence of macroeconomic, financial, and political variables on remittances inflows to Pakistan. They discovered a positive relationship between democracy and remittance inflows to Pakistan. They claimed that the democratic process offers government stability, and that migrants prefer to remit more to their home country when there is more peace and order and less corruption. Batu [2019] provided fresh empirical findings on the influence of remittance flows on the occurrence, commencement, and length of violence in recipient countries. The author developed a micro-based conflict model, which indicated that remittances increase the opportunity cost of participation in conflict. Thus, remittances decrease not only the number of rebels, but also the use of force by the government. Political stability, according to Yoshino et al. [2019] is also inversely related with remittance inflows. That is, the greater the risk of terrorism, war, a lack of social freedom, a lack of democracy, and political volatility, the more probable it is that people will live and work abroad and send a portion of their earnings home to their families. From a completely opposite point of view, Ari and Bello [2020] used yearly time series data from 1990 to 2019 to analyze the influence of remittances on terrorism in the Turkish economy. In the application of the econometric approach, Autoregressive Distributed Lag (ARDL) was applied. According to the research, remittances to Turkey had a positive and considerable effect on terrorism. Similarly, Escribà-Folch et al. [2018] opined that remittances promote political dissent in nondemocratic countries by increasing the resources accessible to prospective political opponents. Warnecke-Berger [2020] also asserted that remittances provoke the rescaling of social conflicts in favor of elites in El Salvador during the post-civil war economic restructuring.

Recently, Makhlouf and Selmi [2021] have lead an in-depth examination of remittance behavior amid turbulent political events such as Tunisia's Jasmine Revolution. They also applied an elaborated investigation of rescaled range (R/S) analysis and found that remitting behaviour is stable for Tunisian migrants and it does not affect too much from social unrest. They came to the conclusion that remittances benefit both the balance of payments and the households receiving them.

In general, when the existing literature is analyzed, mixed results are produced. While some studies indicate that remittances exacerbate social unrest in less-developed and developing nations, others believe that remittances diminish social unrest and boost welfare. Although the nexus between social unrest and growth is discussed using RSUI in extant literature [see Kollias and Tzeremes, 2022], its relationship with remittances has not been tested through this index. Since remittances are also

a component of economic growth for developing countries, it is useful to examine this relationship. Therefore, this issue is considered worthy of being discussed in a broader perspective.

2. METHODOLOGY AND FINDINGS

2.1. Data and Methodology

The purpose of this study is to look at the link between the social unrest index and remittance inflows from January 2007– to July 2019 in Georgia. Graph 1 displays the distribution of social unrest index and remittance inflow in Georgia for a given period. The Granger causality test between two variables is used in the study. To illustrate causal linkages between time series, the granger causality test is utilized. While the Reported Social Unrest Index (RSI) data used in the study was published by the IMF, the remittance inflow data was obtained from the World Bank Databank. Zurabishvili [2012] argued that the remittances were previously sent through the informal canal via the formal banking system after the "formalization" of the banking sector in Georgia and the host countries in 2006. Therefore, the study based on monthly data covers 2007-2019, and the dataset has 151 observations.

To determine the existence of causality between variables, the nature of the link between remittance inflow and social unrest index was examined. Granger [1980] defines the Granger causality between X and Y as follows: If Y's probability depends on its history, and X's history is not equal to Y's probability-based solely on its history. In a bivariate framework, if the prediction for the second variable improves when lagging variables are taken into account for the first variable, the first variable in the granger sense is said to cause the second variable [Granger 1969].

An empirical model of granger equations is as follows:

$$\text{Remit}_t = \beta_1 \text{Remit}_{t-1} + \cdots + \beta_\delta \text{Remit}_{t-\delta} + \theta_1 \text{Unrest}_{t-1} + \cdots + \theta_\delta \text{Unrest}_{t-\delta} + \varepsilon_t \quad (1)$$

$$\text{Unrest}_t = \beta_1 \text{Unrest}_{t-1} + \cdots + \beta_\delta \text{Unrest}_{t-\delta} + \theta_1 \text{Remit}_{t-1} + \cdots + \theta_\delta \text{Remit}_{t-\delta} + \vartheta_t \quad (2)$$

In the above equations, Remit shows the remittance inflow while Unrest represents reported social unrest index. δ indicates the lag length, and the error terms ε_t and ϑ_tt are assumed to be independent of each other [Granger, 1969, p. 431]. Within the two-variable VAR model, the following assumptions will be tested:

Hypothesis 1: Remittance inflow is not the granger cause of reported social unrest index

Hypothesis 2: Reported social unrest index is not the granger cause of remittance inflow

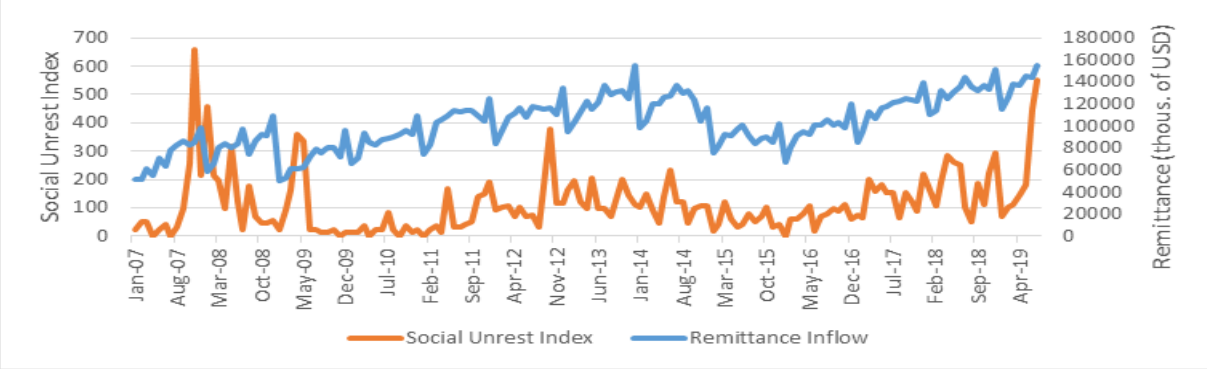
Findings (Result)

Before beginning any econometric study, it is vital to determine if the time series being employed are stationary. Because it is well known that many economic time series include unit roots, an Augmented Dickey-Fuller (ADF) test based on the Dickey and Fuller [1979, 1981] test was used. Furthermore, the order of integration of the series utilized in the econometric analysis was enhanced by running both Phillips-Perron [1988] and Zivot-Andrews [1992] unit root tests. The econometric software programs E-views 12 and Stata 16 were used to analyze the data.

Stationarity Analysis

Figure 1 shows the value of both remittance inflow and social unrest ındex series of Georgia. When the graph is examined visually, it is noticed that the series may contain deterministic trends. Therefore, this nuance is taken into account when performing unit root testing. In other words, the series is most likely to behave according to a random walk with a drift. The series are examined to see if they have a stochastic trend, sometimes known as a unit root.

Fig. 1. The value of remittance inflow and social unrest index series of Georgi



Source: Researchers' compilation

Dickey-Fuller and Augmented Dickey-Fuller tests, which are used to detect the presence of a unit root, are the most well-known tests used to determine the stationarity of time series. In addition to the Augmented Dickey-Fuller unit root test, the Phillips-Perron [1988] and unit root tests developed by Zivot-Andrews [1992] are used to determine the series order of integration. The breakpoint unit root test developed by Zivot and Andrews [1992] is used to determine the breakpoint of a series. Table 1 summarizes the unit root test findings for the variables' level values.

All unit root tests used in the study have the same hypothesis structure. While the null hypothesis indicates that series has a unit root, the alternative hypothesis suggests that series has not a unit root. For the reported Social Unrest index variable, we may reject the null hypothesis of a unit root at all standard significance levels. The null hypothesis, on the other hand, rejects at 5 per cent significance levels for the

remittance variable. All unit root tests revealed that both time series variables are stationary at the same level. Therefore, the series is used at a level in the analysis.

Table 1. Unit Root Tests

	Statistics		Critical Value		
	Social Unrest	**Remittance**	**%10**	**%5**	**%1**
Augmented Dickey-Fuller	-2.504 (26)	-1.846 (25)	-1.29	-1.66	-2.36
Phillips-Perron	-5.870 (4)	-3.403 (4)	-2.58	-2.89	-3.49
Zivot-Andrews	-6.967 (2)	-5.658 (2)	-4.82	-5.08	-5.57
The numbers in parentheses are the selected lag lengths.					

Source: Computed by the authors using stata 17

Causality Analysis

The VAR model was created for two variables to analyze Granger causality, and the length of the lag was calculated. The table below demonstrates the appropriate lag lengths based on different information criteria. When selecting the appropriate lag length, the maximum lag length was set at 24.

Table 2. Appropriate Lag Length

Lag	LR	FPE	AIC	SC	HQ
0	NA	3.49E+12	34.55778	34.60257	34.57598
1	154.7885	1.07E+12	33.37248	33.50685	33.42707
2	25.36608	9.24E+11	33.22755	**33.45150***	33.31854
3	9.391146	9.10E+11	33.21228	33.52582	33.33967
4	1.371007	9.58E+11	33.26366	33.66677	33.42744
5	8.073634	9.52E+11	33.25705	33.74974	33.45722
6	1.503546	1.00E+12	33.30685	33.88913	33.54342
7	3.798028	1.03E+12	33.33593	34.00779	33.6089
8	17.01649	9.42E+11	33.24423	34.00567	33.55359
9	5.369251	9.56E+11	33.25751	34.10852	33.60327
10	2.20064	9.99E+11	33.29974	34.24034	33.68189
11	1.548668	1.05E+12	33.34784	34.37802	33.76639
12	37.70674	7.75E+11	33.04116	34.16092	33.4961
13	79.12454	3.75E+11	32.3129	33.52224	32.80424
14	**13.96750***	**3.47e+11***	**32.23337***	33.53229	**32.76111***
LR: Likelihood Ratio Criterion, FPE: Final Prediction Error Criterion AIC: Akaike Information Criterion, SC: Schwarz Information Criterion, HQ: Hannan-Quinn Information Criterion					

Source: Computed by the authors using e-views 12

All information criteria except SC indicate that the appropriate lag length is 14. According to Granger test results in Table 3, both hypotheses "Remittance inflow is not the Granger cause reported social unrest index" and "Reported social unrest index is not the Granger cause remittance inflow" are rejected at a 10 per cent significance level.

Table 3. Granger Causality Test

	Obs	F- statistic	Prob
Remittance inflow is not the granger cause of social unrest	137	**2.2898**	**0.008**
Social unrest is not the granger cause of remittance inflow		**1.7773**	**0.051**

Source: Computed by the authors using e-views 12

We may claim that there is a two-way causation link between the reported social unrest index and remittance inflow.

Breitung-Candelon-Granger Causality Test

In addition to traditional causality tests, we perform a frequency domain causality test to achieve a higher understanding about the relationship between variables. The frequency domain causality test, unlike traditional causality tests, examines causality relationships by allowing a short, medium, and long-term separation of the entire period. As a result, the frequency domain approach provides much better information about casualties' directions and strengths.

The frequency domain causality test was first discussed by Granger [1969] and later developed by Geweke [1982], Hosoya [1991], and Breitung and Candelon [2006], respectively. By placing linear constraints on the autoregressive parameters in a VAR model, Breitung and Candelon [2006) demonstrate how frequency domain causality tests may be calculated, allowing for the testing of informational links at any frequency. The test can be used to find out whether a certain component of the "cause" variable at frequency (w) is helpful in predicting the component of the "effect" variable at the same frequency one period in advance [Tastan, 2015]. It is simple to implement the frequency domain Granger causality test with the guidance of Breitung and Candelon's [2006] work.

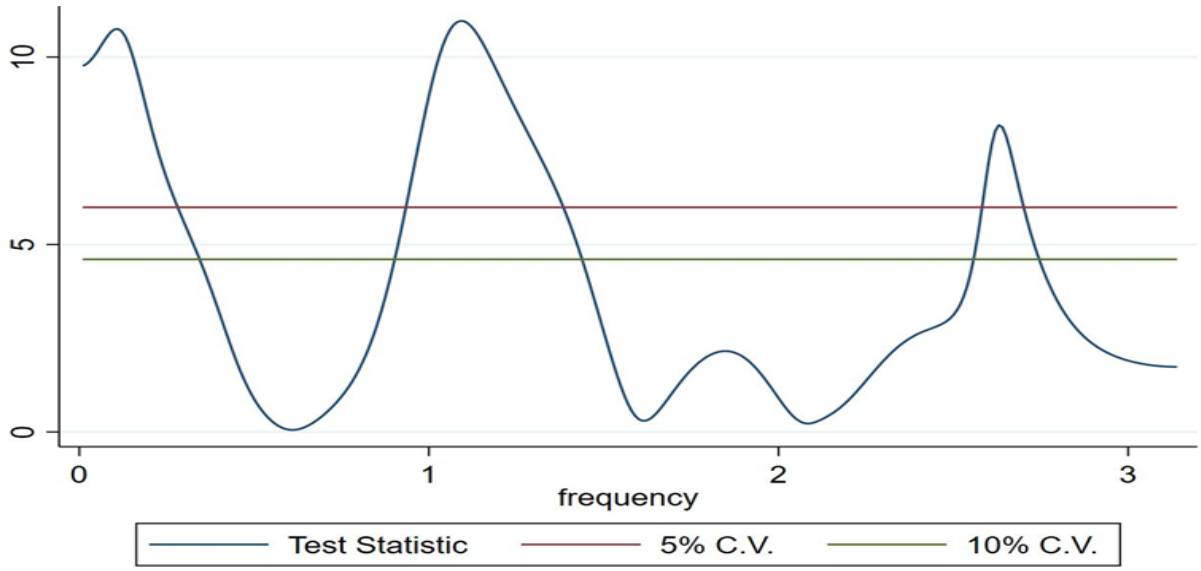
By following Breitung and Candelon's [2006] article, we test two additional hypothesis, which is;

Hypothesis 3: Remittance inflow is not the Granger cause of reported social unrest index at frequency ω

Hypothesis 4: Reported social unrest index is not the Granger cause of remittance inflow at frequency ω

Figure 2 and Figure 3 show Breitung-Candelon frequency domain Granger causality test results. Areas above the red line with a 5% significance level, areas above the green line with a 10% significance level show that the null hypothesis of no causal relationship is rejected.

Fig. 2. Results of the Breitung-Candelon-Granger Causality Test: Causality from Remittance Inflow to RSUI



Source: Computed by the authors using Stata 17

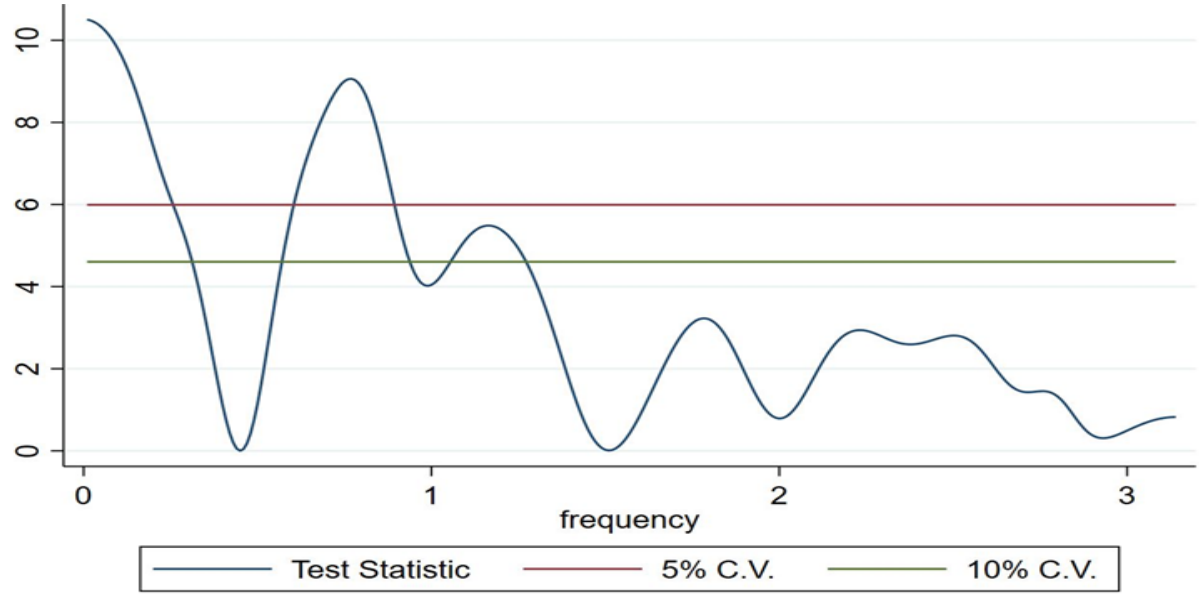
Breitung-Candelon test results concerning granger causality from remittance inflow to RSUI is shown are Figure 2. The figure covers all frequencies in the interval (0, π). The null hypothesis of no Granger causality from remittance inflow to RSUI can be rejected. The test statistics are significant at the 5% level in the range ω ∈ [2.58- 2.70] corresponding to a wavelength between 2.3 and 2.4 months, ω ∈ [0.94- 1.38] corresponding to 4.5 to 6.6 and ω ∈ [0.01-0.28] corresponding to 22.4 months and above. In the light of test results, it can be said that remittance inflow was Granger cause of RSUI in short and long time.

Breitung-Candelon frequency domain causality test related null hypothesis about Granger causality from RSUI to remittance inflow is shown in Figure 3. The test statistics are significant at the 5% level in the range ω ∈ [0.61- 0.89] corresponding to a wavelength between 7 and 10.3 months and ω ∈ [0.01- 0.25] corresponding to 25 months and above. Therefore it can be said that RSUI was Granger cause of remittance inflow for a medium and long term.

As a result, empirical results confirmed that both series have causal effects on one another in the long-term. Furthermore, frequency domain analysis also reveals the timing and the sequence of causal effects [Çevik et al., 2019]. In this case, results indicate that remittance inflow Granger-causal effect on RSUI happens earlier than vice versa. In other words, while remittance inflow was the Granger cause of RSUI

in short term (2-6 months), RSUI was the Granger cause of remittance inflow in the medium term (7-10 months).

Fig. 3. Results of the Breitung-Candelon-Granger Causality Test: Causality from RSUI to Remittance Inflow



Source: Computed by the authors using Stata 17

CONCLUSIONS AND POLICY RECOMMENDATIONS

Using monthly data from January 2007– to July 2019, this study evaluates the relationship between social unrest index and remittance inflow in Georgia. To investigate the link between the reported social unrest index and remittance inflow, the Granger causality test was applied. In addition to traditional Granger causality tests, frequency domain causality test was employed to empower the findings of the study. The empirical data revealed that the variables are bidirectionally causative in the long-run. Besides, frequency domain causality test results indicated that RSUI was the Granger cause of remittance inflow in the medium term (7-10 months), while remittance inflow was the Granger cause of RSUI in the short term (2-6 months).

Remittances may be a contributing element to social unrest in Georgia. Indeed, it is clear that the remittances received by Georgia during the Russia-Georgia war in 2008 had an impact. The existence of separatist movements in Abkhazia and former South Ossetia in Georgia can be interpreted as remittances can be an important source to fund these movements. When we analyze Figure 1, we can clearly assert that remittances inflows to Georgia increased before only a few months ago to Russia strain and affected RSUI for a short time. As of January 2009, 6-7 months after the Russia-Georgia war, we see that the trend in remittance inflow had been upwards. These data might confirm the validity of frequency domain causality test findings.

On the other hand, social unrest can be a supportive factor for migrant remittances. Unrest due to economic reasons like unemployment forces family members to immigrate abroad and causes the immigrants to send remittances to their family members staying in Georgia. According to State Commission on Migration Issues Report [2016], a large part of the remittances flowing to Georgia is used to purchase basic consumer goods such as food and clothing and to pay their loan debts. This situation supports the result of our study.

Citizens of Georgia can benefit from visa exemption when entering the Schengen Area of the European Union as of March 28, 2017. As a result, more Georgian citizens can be expected to migrate to Europe to work in the future. The volume of remittances pouring into Georgia might grow. Therefore, there may be a rise in the amount of remittances flowing into Georgia. Therefore remittances flowing to Georgia should be used effectively and converted to investments. This may help preventing conflicts and protests based on basic needs such as gas, electricity, education and healthcare to some extent.

Despite its advantages, it should be noted that remittances can distort the income distribution in Georgia. As seen in Figure 1, while there has been an upward trend in remittances since 2017, an increase is observed in the RSUI index between 2017-2019.The economic and financial crises that may occur in the countries to which the remittances are sent may adversely affect the Georgian economy. This situation may cause social unrest in Georgia.

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