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REMITTANCES AND ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM KYRGYZSTAN

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Abstract

In many developing countries, remittance payments from migrant workers have become an increasingly important source of foreign income. Empirical studies that implemented for various countries reveal workers' remittances may have positive, negative or neutral effect on economic growth. This paper investigates the causal link between remittances and economic growth in Kyrgyzstan, by employing the Granger causality test under a VAR framework (Granger 1988). Using time series data over a 20 year period, we found that growth in remittances does lead to economic growth but economic growth does not cause remittance in Kyrgyzstan. The paper also investigates the impact of remittances on key macroeconomic variables such as GDP, consumption, government spending, investment, imports and exports in Kyrgyzstan, by using data belong to 1994-2013 period. The time series regression findings indicate that impact of remittances on consumption, imports and GDP are all positive while that on investment is negative.

Keywords: workers' remittances, economic growth, consumption, investment, trade balance, Granger causality test, Vector Autoregression (VAR), time series regression, Kyrgyzstan

Author(s)

Statement: All the views expressed in the paper are of the author(s).

REMITTANCES AND ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM KYRGYZSTAN

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1. Introduction

Central Asia has been an important source of migrant workers for countries suffering from labor shortages and migrant workers' remittances constitute one of the most important sources of external finance for this region. Within Central Asia, Kyrgyzstan has been the major supplier of migrant workers mainly to Russia and Kazakhstan. Remittances sent by migrant workers have played an important role to promote economic development in Kyrgyzstan. This paper is a modest attempt to examine the impact of remittance income on key macroeconomic variables such as GDP, consumption, government spending, investment, imports and exports in Kyrgyzstan. Figure 1 indicates that remittance income in Kyrgyzstan has increased significantly in the last 14 years, with major decline during 2008-2009 due to the global financial crisis. These trends in remittance are investigated in details in Section 3.

Increases in remittance flows have greatly assisted Kyrgyzstan to minimize the problem arising from shortages of foreign exchange reserve, which is badly needed to pay the import bills. It is undeniable that during its earlier stage of development, developing country like Kyrgyzstan needs the scarce foreign exchange to pay for its import requirements. The huge increase in remittance payments over this period may be attributed to two significant factors. First, emigration from developing countries has increased significantly in the

past 20 years (World Bank, 2007a). Second, transaction costs have reduced as technological advancements have allowed for faster, lower cost mechanisms for the international transfer of payments between individuals (Guiliano and Ruiz-Arranz, 2009).

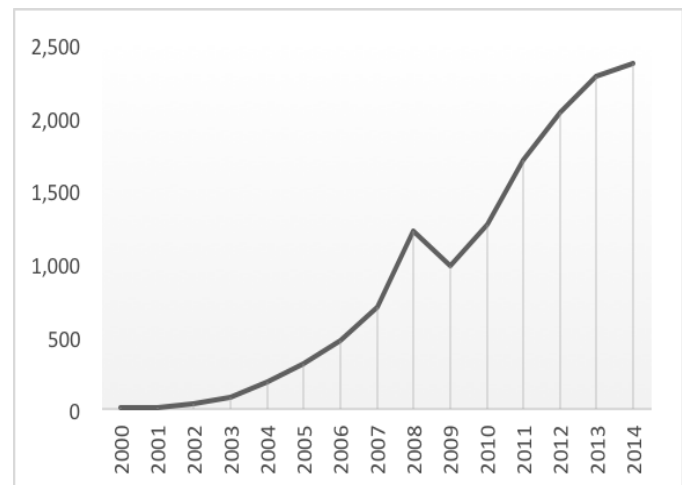


Figure 1: Aggregate Remittances to Kyrgyzstan (millions \$US): 2000-2014

Source: World Bank data, April 2015.

With the increase in remittance income, practitioners in development economics have shown curiosity in examining its impact on economic growth in both the host and country of origin of the expatriate workers. With regard to its impact on economic growth in the country of origin of the expatriate workers, opposing views have emerged – some argue that remittances have a positive impact on economic growth while others hold the opposite view. The purpose of this paper is to

examine the impact of remittances on the economy of Kyrgyzstan. As the number of expatriate workers has increased significantly over the years, remittance income has emerged as one of dominant sources of foreign exchange earnings for Kyrgyzstan. Thus, Kyrgyzstan offers a unique opportunity to examine the linkage between remittance income and economic growth. The organization of the paper is as follows. Section 2 gives an overview on the debate surrounding the relationship between remittances and economic growth. Section 3 examines the importance of remittances to Kyrgyzstan. In Section 4 we present a preliminary time-series data analysis of remittances and economic growth data in Kyrgyzstan, and in Section 5 we investigate the direction of causality under a VAR framework. In Section 6 we present results and interpretations. In the final section, we present our concluding statements.

2. Remittances and Economic Growth: Literature Review

As mentioned above, whether remittances promote economic growth is an important topic of debate amongst economists. Those that argue remittances do not lead to economic growth point to their consumption expenditure (Rahman et al., 2006) and that remittance income is being spent on consumption rather than for the accumulation of productive assets (Stahl and Arnold, 1986). Those that believe remittances do contribute to economic growth focus on the multiplier effects of consumption (Stahl and Arnold, 1986), development of the financial institutions that handle remittance payments (Aggarwal et al., 2006), utilization of remittances as foreign exchange (Ratha, 2005), and the role of remittances as an alternative to debt that helps alleviate individuals' credit constraints in countries where micro-financing is not widely available (Giuliano and Ruiz-Arranz, 2006). Many studies have attempted to address the impact of remittances on economic growth and poverty alleviation. Pradhan et al. (2008) find that

remittances have a small, positive impact on growth in a 36 country cross-sectional study using a linear regression model in which remittances form one of five variables. Aggarwal et al. (2006) conducted a study of 99 countries over the period 1975-2003 and find that remittances have a positive effect on bank deposits and credit to GDP. The authors then interpolate the positive effect on development by invoking existing studies showing the positive impact of these two variables on economic growth. Taylor (1992) and Faini (2001) also find a positive association between remittances and economic growth. In contrast, Spatafora (2005) finds that there is no direct link between per capita output growth and remittances. Meanwhile, in one of the larger cross-country surveys, Chami et al. (2003) conclude that remittances have a negative effect on economic growth across a sample of 113 countries. Several other published studies in relation to remittances have focused specifically on the alleviation of poverty rather than overall economic growth (for example, see Adams & Page 2003).

Remittances have a potential positive impact as a development tool for the recipient countries. The development effects of remittances can be decomposed into its impact on savings, investments, growth, consumption, poverty alleviation and income distribution. The impact on growth of remittances in the receiving economies is likely to act through savings and investment as well as short-run effects on aggregate demand and output through consumption.

For some recipient countries, remittances are large enough to have broader macroeconomic implications. As Ratha (2003) pointed out, remittances raise the recipient individuals' incomes and increase the recipient country's foreign exchange reserves. If remittances are invested, they contribute to output growth, and if they are consumed, then also they generate positive multiplier effects. By generating a steady stream of

foreign exchange earnings, they can improve a country's creditworthiness for external borrowing and expand access to capital and lower borrowing costs. While large and sustained remittance inflows can contribute to currency appreciation. Additionally, remittances are more stable in comparison with other source of external finance such as official development aids (ODA) and foreign direct investments (FDI), and may be countercyclical. Large remittance inflows, however, can lead to exchange rate appreciation and lower export competitiveness.

Although the evidence on the effect of remittances on long-term growth remains inconclusive, in economies where the financial system is underdeveloped, remittances appear to alleviate credit constraints and may stimulate economic growth, via financing education and health and increasing investments. Some analysts and scholars argue that remittance benefits are only felt at the individual receiver level, but some case studies suggest that the benefits of remittances to individuals have spillover effects that can transmit into a positive impact on the local economy (Carrasco and Ro, 2007). To the extent that they increase consumption, remittances may increase per capita income levels and reduce poverty and inequality, even if they do not directly cause growth. On the other hand, large outflow of workers, especially skilled workers, can reduce growth in labor-skilled countries. Remittances may also indirectly affect labor supply, by encouraging some remittance-recipient households to choose more leisure than labor. Various studies on the effect of remittances to economic growth have shown mixed results. For instance, Chami et al. (2005), covering 113 countries found that remittances had a negative effect on growth. The authors of the study attribute this negative effect on the moral hazard problem that remittances create. Essentially, the study concluded that income from remittances allows receiving families to decrease their

own work and productivity, which then translates into a reduction in the labor supply for the developing country. In a study conducted by IMF (2005) about the impact of remittances on growth over an extended period (1970-2003) for 101 developing countries found no statistical link between remittances and per capita output growth, or between remittances and other variables such as education or investment rates. However, this inconclusive result attributed to measurement difficulties arising from the fact that remittances may behave countercyclical with respect to growth.

Faini (2002) and Ang (2007) found the positive impact of remittances on growth. Faini (2002) argues that remittances overcome capital market imperfections and allow migrant households to accumulate positive assets. Ang (2007) shows the relationship between workers' remittances and economic growth at the national and regional levels in the case of Philippines. He found that at the national level remittances do influence economic growth positively and significantly. When he broke down his analysis at the regional level to confirm the national results, he found that remittances do not positively affect economic growth. In sum, he concludes that remittances have to be translated to value-added activities and investments which are more foundational sources of development and growth.

Glytsos (2005) using data for 1969-1998 for Egypt, Greece, Jordan, Morocco, and Portugal shows that the impact of remittances on output varies over time and across countries. Remittances, like aid, may be more effective in a good policy environment. For instance, a good investment climate with well-developed financial systems and sound institutions is likely to indicate that a higher share of remittances is invested in physical and human capital. Giuliano and Ruiz-Arranz (2005) show that in the economies where the financial system is underdeveloped, remittances alleviate credit constraints and work as a substitute for financial development,

improving the allocation of capital and therefore accelerating economic growth.

Whereas views on the impact of international remittances on social and economic development in migrant-sending societies have recently inclined toward the positive side, the impact of remittances on national economic growth and employment are rather unclear (World Bank, 2006). The consequences of remittances on long-term economic development are not well understood (Kapur, 2004). There seems to be no conclusive evidence to sustain either neoclassical or dependency theory, because relevant studies have yielded contradictory findings.

Econometric estimation using data from 11 transition countries from 1990 to 1999 yields support for the view that remittances have a positive impact on productivity and employment both directly and indirectly through their effect on investment.

Other studies are less upbeat and mention the potentially adverse effects of remittances in that they create a strong disincentive for domestic savings and support private consumption of (imported) goods instead of financing investment, which can potentially hamper competitiveness and increase trade deficits (Kireyev, 2006).

3. Importance of Remittance in the Economy of Kyrgyzstan

In this section we examine the importance of remittances as a source of foreign exchange in Kyrgyzstan. Figure 1 presents the aggregate remittances to Kyrgyzstan during 2000-2014. Aggregate remittances to Kyrgyzstan appear to have grown significantly in line with the rising oil prices over the last decade with the variance of fluctuation reducing dramatically relative to the period 2008-2009. This reduction in the variance of aggregate remittance could be related to the global financial crisis. An economic boom in the labor-scarce

oil producing economies of Russia and Kazakhstan and the push factors of slow growth in the rural economy (World Bank, 2004) explains the spiking nature of remittances in the late 2000's and growth thereafter. When compared to crude oil prices, increases and decreases in remittance is correlated to increases and decreases in oil prices.

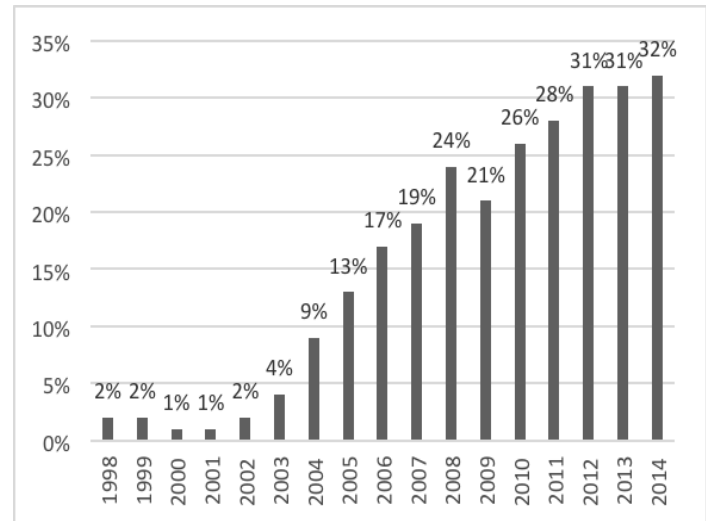


Figure 2. Remittances as a Proportion of Gross Domestic Product (%): 1998-2014

Source: Bulletin of the National Bank of the Kyrgyz Republic.

Remittance as a share of GDP is increasing every year (see Figure 2). This high dependency on remittances increases country's vulnerability to shocks from remittance-sending countries.

Figure 3 highlights the sheer size of the proportion remittances occupy in the export earnings of Kyrgyzstan. Kyrgyzstan shows the greatest reliance on remittances as a form of income growing from approximately 26% of export income in 2003 to 115% of export income in 2014. The rising oil price in the 2000's is a contributing factor to this growth, bringing increased wealth into oil exporting countries. As a result of this increased wealth, development programs including construction of roads, schools, hospitals, houses and other commercial complexes were undertaken (Kuthiala, 1986). Increased wealth also meant many households in oil rich areas

were less willing to participate in more medial tasks such as cleaning, cooking and household maintenance and could now afford fulltime housemaid and yardman. This resulted in a snatch in demand for semi-skilled and unskilled workers for which Kyrgyzstan was well placed to meet.

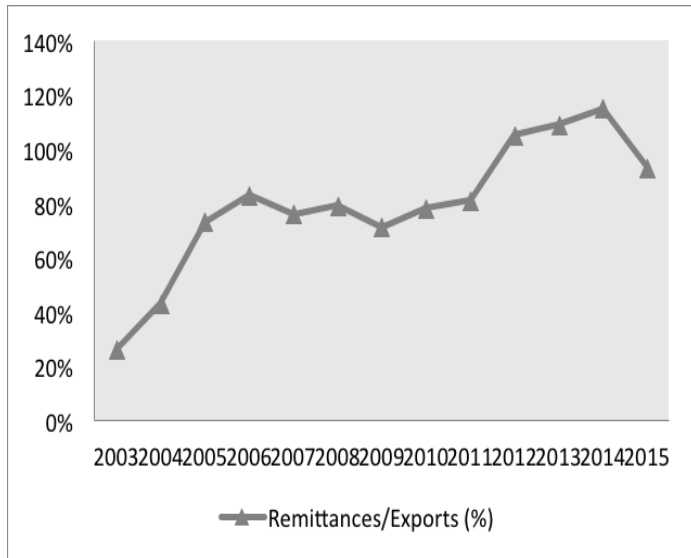


Figure 3. Remittances as a Proportion of Export Income (%): 2003-2015

Source: Bulletin of the National Bank of the Kyrgyz Republic.

It has been found that remittances have greatly assisted Kyrgyzstan to minimize the problem arising from shortages of foreign exchange reserve which is badly needed to pay the import bills. It is undeniable that during its earlier stage of development, developing country like Kyrgyzstan needs the scarce foreign exchange to pay for its import requirements.

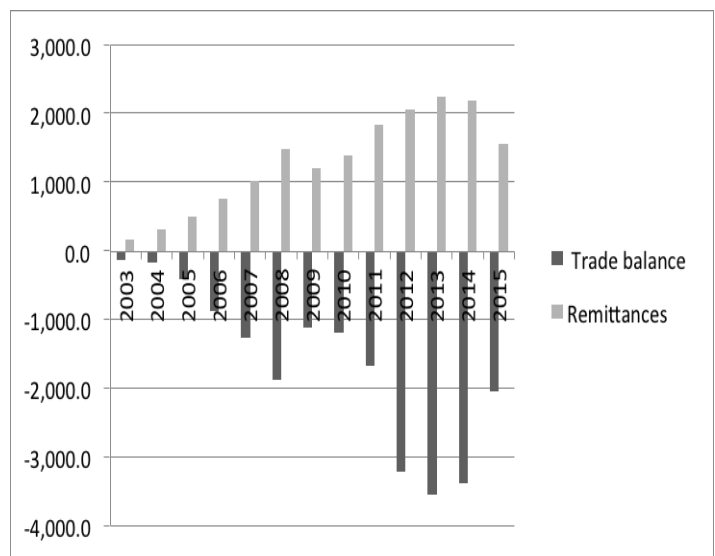


Figure 4. Remittances and Trade Balance: 2003-2015

Source: Bulletin of the National Bank of the Kyrgyz Republic.

Remittances help to minimize the trade deficit while in Kyrgyzstan imports are three times more than the exports. The proportion of the country’s remittances with respect to the current account deficits has been growing and represents an increasing reliance on the flows for covering foreign exchange requirements.

4. A Preliminary Data Analysis of Remittance and Economic Growth

We use annual time series data for the period 1994 to 2013 for the seven variables, remittances, consumption, government spending, investment, imports, exports and output in Kyrgyzstan. We use a model to determine the effects of workers’ remittances on key macroeconomic variables, such as private consumption (C), government spending (G), investment (I), imports (M), exports (X) and income (Y). The model allows determination of the effects of an exogenous shock of the remittances on the key macroeconomic variables. In this model, C, G, I, M, X and Y are endogenous variables. The data is collected from Bulletin of the National Bank of the Kyrgyz Republic (2014). We formally test the stationarity properties of these series using the Augmented Dickey-

Fuller (ADF) unit-root test. We apply the ADF test to series separately. We carry out the estimation of the models using the econometric software EViews and test the presence of unit roots using the systematic procedure described in Enders (1995).

Table 1: ADF Test Results for a Unit Root on the Original Series and the First Difference of the Original Series

Variables	Augmented Dickey-Fuller (ADF)		Phillips-Perron (PP)	
	Intercept	Trend and intercept	Intercept	Trend and intercept
<i>LEVEL</i>				
lnCONS	-0.17	-1.47	-0.25	0.73
lnG	0.07	-1.24	0.07	0.83
lnGDP	-0.21	-1.36	-0.21	0.75
lnI	-0.45	-1.64	-0.54	-1.64
lnM	-0.27	-1.40	-0.42	0.72
lnREM	-0.59	-2.50	-0.44	-2.50
lnX				
<i>FIRST-DIFFERENCES</i>				
ΔlnCONS	-4.17*	-4.17*	-4.17*	-4.17*
ΔlnG	-3.40**	-3.39**	-3.40**	-3.33**
ΔlnGDP	-3.05**	-3.02	-2.93**	-2.84
ΔlnI	-3.47**	-3.37	-3.38**	-3.25
ΔlnM	-3.46**	-3.38	-3.45**	-3.36
ΔlnREM	-3.79**	-3.83**	-5.04*	-6.05*
ΔlnX	-3.45**	-3.35	-3.38**	-3.25

(*) and (**) denote significance at 1% and 5% levels, respectively.

The results of the Augmented Dickey-Fuller (ADF) test for the stationarity of the original series and the first difference are presented in Table 1. As can be seen, series are non-stationary in their original form and are stationary in their first difference form.

Table 2. Pairwise Correlations

	DLCONS	DLG	DLGDP	DLI	DLM	DLREM	DLX
DLCONS	1.000000	0.736434	0.826642	0.580155	0.882474	0.407293	0.456611

DLG	0.736434	1.000000	0.893077	0.769400	0.804975	0.065742	0.673656
DLGDP	0.826642	0.893077	1.000000	0.622699	0.763260	0.025789	0.763803
DLI	0.580155	0.769400	0.622699	1.000000	0.705225	-0.012252	0.287053
DLM	0.882474	0.804975	0.763260	0.705225	1.000000	0.418299	0.582869
DLREM	0.407293	0.065742	0.025789	-0.012252	0.418299	1.000000	0.003227
DLX	0.456611	0.673656	0.763803	0.287053	0.582869	0.003227	1.000000

Consumption and imports have a strong positive linear correlation ($r=0.88$) which suggests that most of consumption in Kyrgyzstan are imported products.

5. Testing for Granger Causality

Rejection of the null hypothesis would indicate the existence of causality in the Granger sense. As can be seen from Table 3, GDP causes consumption, remittances cause consumption, remittances cause GDP and investment causes exports.

Table 3. Pairwise Granger Causality Tests Results

Null Hypothesis:	Obs	F-Statistic	Prob.
DLG does not Granger Cause DLCONS	19	2.15737	0.1613
DLCONS does not Granger Cause DLG		0.06467	0.8025
DLGDP does not Granger Cause DLCONS	19	4.66354	0.0463
DLCONS does not Granger Cause DLGDP		0.78503	0.3887
DLI does not Granger Cause DLCONS	19	0.27759	0.6055
DLCONS does not Granger Cause DLI		0.00158	0.9688
DLM does not Granger Cause DLCONS	19	0.04645	0.8321
DLCONS does not Granger Cause DLM		0.25500	0.6205
DLREM does not Granger Cause DLCONS	19	3.29026	0.0885
DLCONS does not Granger Cause DLREM		0.00818	0.9290
DLX does not Granger Cause DLCONS	19	2.02015	0.1744
DLCONS does not Granger Cause DLX		1.27066	0.2763
DLGDP does not Granger Cause DLG	19	2.14715	0.1622
DLG does not Granger Cause DLGDP		0.00660	0.9362
DLI does not Granger Cause DLG	19	0.29607	0.5939
DLG does not Granger Cause DLI		0.05979	0.8099
DLM does not Granger Cause DLG	19	0.00842	0.9280
DLG does not Granger Cause DLM		0.40000	0.5360
DLREM does not Granger Cause DLG	19	2.80838	0.1132
DLG does not Granger Cause DLREM		0.10067	0.7551
DLX does not Granger Cause DLG	19	1.39408	0.2550
DLG does not Granger Cause DLX		0.04286	0.8386
DLI does not Granger Cause DLGDP	19	1.18266	0.2929
DLGDP does not Granger Cause DLI		0.23107	0.6372

DLM does not Granger Cause DLGDP	19	0.01031	0.9204
DLGDP does not Granger Cause DLM		2.00049	0.1764
DLREM does not Granger Cause DLGDP	19	4.75407	0.0445
DLGDP does not Granger Cause DLREM		0.37070	0.5512
DLX does not Granger Cause DLGDP	19	0.12520	0.7281
DLGDP does not Granger Cause DLX		0.54897	0.4695
DLM does not Granger Cause DLI	19	0.18027	0.6768
DLI does not Granger Cause DLM		0.29113	0.5969
DLREM does not Granger Cause DLI	19	1.85835	0.1917
DLI does not Granger Cause DLREM		2.58079	0.1277
DLX does not Granger Cause DLI	19	0.30008	0.5914
DLI does not Granger Cause DLX		3.91865	0.0652
DLREM does not Granger Cause DLM	19	1.37126	0.2587
DLM does not Granger Cause DLREM		0.51571	0.4830
DLX does not Granger Cause DLM	19	0.67871	0.4221
DLM does not Granger Cause DLX		2.97246	0.1040
DLX does not Granger Cause DLREM	19	0.88977	0.3596
DLREM does not Granger Cause DLX		0.05928	0.8107

We determine the optimal lag length for the VAR system by using the Schwarz (1978) Criterion (SC) and the Akaike (1974) Information Criterion (AIC). We estimate the VAR system by using Least Squares method in the following form with all variables in first-difference form:

$$y_i = \beta_0 + \beta_1 \cdot x_i + u_i$$

The model as a whole is statistically significant.

$$CONS_i = 0.0707 + 0.1342 \cdot REM_i$$

Increasing remittances by 1% leads to an increase in consumption by 0.13%.

$$M_i = 0.0891 + 0.1561 \cdot REM_i$$

Increasing remittances by 1% leads to an increase in imports of 0.15%.

$$GDP_i = 0.1027 + 0.0059 \cdot REM_i$$

Increasing remittances by 1% leads to an increase in GDP by 0.005%.

$$I_i = 0.1475 - 0.0055 \cdot REM_i$$

Increasing remittances by 1% leads to a decrease in investment by 0.005%.

6. Results and Interpretations

Kyrgyzstan is small open developing economy which is strongly dependent on imported products (imports make up more than 90 percent as a share of GDP). Our empirical results suggest that increase in remittances causes increase in consumption and increase in imports. It has been found that in Kyrgyzstan the impact of remittances on economic growth lasts for only two months due to its dependency on the imported products (Atabaev et al., 2014). Another reason for short-term effect is that the remittances income is spent for living and daily expenses. Workers' remittances are used for financing children's education, health care, for debt payments, constructions, weddings and funerals. Remittances are spent mainly on consumption and by multiplier effects increase demand for goods and activate economy (consumption constitutes 96 percent as a share of GDP).

It appears from these results that the investment variable and workers' remittances were negatively correlated over the time period of 1994 to 2013. The growth elasticity of remittances in that time period was -0.005 . This result is in accordance with of Kireyev (2006), which points to the potentially adverse effects of remittances in that they create a strong disincentive for domestic savings and support private consumption of (imported) goods instead of financing investment, which can potentially hamper competitiveness and increase trade deficits. As Kireyev (2006) pointed out increased consumption of (imported) goods caused by remittances can be severe enough to reduce economic activity in the long-run.

7. Conclusion

In this paper we have investigated the causal relationship between remittances and economic growth in Kyrgyzstan using data for the period 1994 to 2013. For this investigation, we employed various time series econometric techniques such as unit root test

and causality. We investigated the causality between remittances and economic growth. The results show that there is only a one-way causal relationship from remittances to economic growth in Kyrgyzstan. While our analyses in all series are stationary only in first difference and hence our findings are more valid in the short run, the results nonetheless hold important implications. As we pointed out in the introduction, there is much debate on the role that remittances play in the economic development of less developed countries. Some argue against its impact due to conspicuous consumption. In Kyrgyzstan's case the majority of remittance payments are in fact used for consumption purposes as opposed to investment and savings. Indeed, our pairwise correlations findings show that while there is a positive correlation between remittances and consumption, the correlation coefficient between remittances and investment is conversely not positive. However, despite these facts, as the above Granger results illustrate, remittances do in fact contribute to economic growth in Kyrgyzstan.

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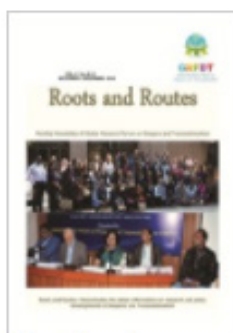
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***Roots and Routes* disseminates the latest information on research and policy developments in Diaspora and trans**

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Roots and Routes is a monthly newsletter of the Global Research Forum on Diaspora and Transnationalism (GRFDT). It is inclusive of articles, book reviews and news analysis, which help in disseminating latest information on research and policy development in Diaspora and Transnationalism. The newsletter enjoys readership of academicians, policy experts, diaspora think tanks etc.

The regular columns of the newsletter are :

1. **Article** : consisting of well researched articles of about 3000-4000 words on any aspect of diaspora, migration and transnationalism.
2. **Short commentaries** : consisting of short write ups of about 1500-2000 words based on opinion, description or explanation of any event or situation related to the above mentioned themes.
3. **News analysis** : consisting of analyzing current news in about 1000-1500 words
4. **Book reviews** : 1000-1500 words.

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Global Research Forum on Diaspora and Transnationalism (GRFDT) is a consortium of researchers and policy makers drawn from national and international universities, institutes and organizations. GRFDT is presently based in India and is shaping as the largest such group focusing specifically on the issues related to diaspora and transnationalism.

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