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Economic Impact of International Remittances on Consumption in Pakistan

Pakistan received a greater share in remittances from oil rich Gulf-region and the United State of America. The huge amount of remittances in Pakistan especially towards the rural areas of the country provided support to remove the financial constraints of the receiving households. In the present study, the impact of international remittances on consumption at aggregate level in Pakistan was estimated.

Time series data was used to determine the impact of remittances on consumption in Pakistan. The data were taken from the Federal Bureau of Statistics, Islamabad and State Bank of Pakistan, Karachi. Augmented Dickey Fuller (ADF) unit root test was used to determine the order of integration of time series data. All the series used in the study were found integrated of order one i.e. I (1). Under these conditions, Johansen (1988) and Johansen and Juselius (1990) maximum likelihood estimation approach was used to test the co integration among the stated variables and all variables were found to be co integrated.

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The results indicated that per capita consumption increased by 0.59 due to a unit increase in the per capita remittances. The elasticity of consumption with respect to remittances at mean values of consumption and remittances was found to be 0.03.

Introduction

International remittances play an important role in the growth and development of the labor exporting countries. International remittances have broad social and economic impacts ranging from the welfare of the household to the development of the economy. The total inflow of remittances in Pakistan since 2001-02 to 2005-06 was amounted about $19 billion (Rs.1129 billion). This huge amount of remittances in Pakistan especially in the rural areas of the country has provided support to remove the financial constraints of the receiving households. They have increased the consumption of durables and non-durables and have accumulated human capital with education and health facilities. The role of remittances was very much acknowledged in eradicating poverty in recent years.

Pakistan received a greater share in remittances from oil rich gulf-region Kuwait, Bahrain, Qatar, Oman, Saudi Arabia and United Arab Emirates and from the United State of America. Increase in remittance to Pakistan in recent years is in line with the international trends. The world top fifteen remittances recipient countries have experienced increase in remittances in the last two years. Pakistan registered third highest growth (19.6 percent) in remittances during 2006 and highest growth (19.1 percent) in 2007 among the top fifteen countries. As a result, Pakistan has become world's 12th largest remittances recipient country during 2007 from 17th in 2005 (GOP, 2008). The poor people in the developing countries mainly depended upon the amount of remittances for their basic needs including food, shelter and health; therefore, the increased remittances could reduce poverty

and inequality in the country. The construction activity was found highly related with remittances inflow empirically (IMF, 2005).

Malik and Sarwar (1993) estimated consumption patterns of households in Pakistan with and without remittances using the data from the Household Income and Expenditure Survey 1987-88. The marginal propensity to consume (MPC) was found low for households receiving international remittances than the households receiving domestic remittances. The MPC of both domestic and international remittances receiving households was low as compared to the non-migrant households in the rural areas of Pakistan. The MPC was found highest in the urban Punjab and was lowest in rural NWFP for the international migrant households in Pakistan. Hadi (1999) investigated that asset accumulation of the household and their increased level of saving was due to the increase in remittances. Better education facilities were provided to the children of remittances receiving households (Edward and Ureta, 2001). Migration and remittances were also found to positively affect health status of recipient families other than affecting the education. Yang (2003) explained that the increased level of remittances improved the access toward health services and better nutrition for the people. Hildebrant and Kenzie (2006) found that Mexican families of migrant in the USA improved child health.

Amjad (1986) concluded that remittances financed sufficiently large part of aggregate consumption, investments and other needs of the economy; and 20 per cent of total remittances were invested in the different sectors of the economy. The consumption was increased 34.6 per cent in the country due to remittances. It was further estimated that the remittances from Middle East contributed up to 75 per cent to the overall balance of payments and debt servicing repayment in Pakistan. The workers' remittances from Middle East financed about 36 per cent of the merchandise imports and non-factor services. Burney (1988) found that the remittances from the

Middle East supported to provide foreign exchange reserve and the availability of remittances has reduced the current account deficit in Pakistan. The remittances also reduced the external debt burden, improved debt-servicing ability and decreased the need for additional foreign loans. The impact of remittances on private consumption at macro level was also estimated in the research study. The elasticity of private consumption expenditure with respect to remittances was found to be 0.05.

It was observed that people spent their remittances on conspicuous consumption; this act of unnecessary consumption caused inflation in the remittances receiving countries and pushed wages upward. The demand of import related commodities in the country ultimately increased the dependency upon imports. Therefore, the problem of balance of payment (BOP) was encountered in the country. The investment in the productive projects in the country slowed down. The problems of brain drains and moral hazards in the developing countries were also seen due to remittances. Buch and Kuckulenz (2002) observed that the remittances brought benefits as well as socio-economic cost to the society. (Meins 2007) observed that migration and remittances might produce dependency behavior at the household level. Bridi (2005) pointed out remittances promoted idleness in the recipients of remittances. Rodriguez (2003) explained that migration has unfavorable consequences upon the sender's family in the shape of broken families, fatherless children and other related problems due to parental absence.

In the present study, the impact of international remittances on consumption at aggregate level was estimated. To capture the effect of international remittances on consumption in Pakistan, a simple Keynesian based national income model was adopted. It consisted upon two behavioral equations describing a consumption function and a national income identity. The main objective of the model was to determine first the short-run effects of an exogenous shock of remittances upon the endogenous variables and,

secondly to trace the long-run path, through which remittances impacted upon the consumption in the country at aggregate level.

■ Data and Methodology

Time series data was used to estimate the impact of remittances upon consumption in Pakistan. The data was taken from the Federal Bureau of Statistics, Islamabad and State Bank of Pakistan, Karachi. Four time series for the period of 1973 to 2008 were constructed for the purpose of analysis. The description of the variables was provided in the Table 1.

Table1: Descriptive Statistics of Variables

Variables	C	R	Y	I
Maximum	29021.4	1937.2	34952.5	5444.4
Minimum	12053.9	223.9	13608.0	650.9
Mean	17917.5	1004.7	21689.4	2248.3

Where:

C: Per capita real private consumption in Rs Million,

R: Per capita real remittances in Rs Million,

Y: Per capita real gross domestic product in Rs Million,

I: Per capita real private investment in Rs Million,

Augmented Dickey Fuller (ADF) unit root test was used to determine the order of integration of these constructed time series. The standard Augmented Dickey and Fuller (1981) method was used to estimate the following equations to

determine the order of integration of time series used in the analysis.

With constant; $\Delta Y_t = \alpha + \delta Y_{t-1} + \varepsilon_t$ (1)
With constant and trend; $\Delta Y_t = \alpha + \delta Y_{t-1} + \beta T + \varepsilon_t$ (2)

Where: Y_t was the series for which, the order of integration was found, T was the time trend, $\Delta Y_t = Y_t - Y_{t-1}$ and $\delta = \rho - 1$. The null and alternative hypotheses formulated in the light of regression equations were H_0: $\delta = 0$ (Unit Root) and H_1: $\delta \neq 0$ (No Unit Root). The results of ADF at level one were reported in the Table 2 and Table 3.

Table2: Unit Root tests using Augmented Dickey-Fuller Method

Variables	Without trend	With trend
Y	1.55	-1.42
I	0.65	-1.47
C	2.24	0.72
R	-2.13	-2.09

- Critical value for the Augmented Dickey-Fuller statistic with intercept and without trend was –2.96 (p = 0.05 per cent) and -2.62 (p = 0.10 per cent)
- Critical value for the Augmented Dickey-Fuller statistic with intercept and trend was –3.56 (p = 0.05 per cent) and -3.22 (p = 0.10 per cent)

Table 3: Unit Root tests using Augmented Dickey-Fuller Method

Variables	Without trend	With trend
ΔY	-2.68*	-3.22
ΔI	-3.97	-4.31

ΔC	-2.67*	-2.93
ΔR	-3.73	-3.69

- Critical value for the Augmented Dickey-Fuller statistic with intercept and without trend was –2.96 (p = 0.05 per cent) and -2.62 (p = 0.10 per cent)
- Critical value for the Augmented Dickey-Fuller statistic with intercept and trend was –3.56 (p = 0.05 per cent) and -3.22 (p = 0.10 per cent)
- Δ : Indicated the first difference of the series.

* indicated that series were stationery at p = 0.10 per cent

The results reported in Table 2 indicated that all the series were non stationery with and without trend. However, these series became stationary with first difference as reported in Table 3. Therefore, all the variables used in the study were found integrated of order one i.e. I (1). Under these conditions, Johansen (1988) and Johansen and Juselius (1990) maximum likelihood estimation approach was used to test the co integration among the stated variables. The unrestricted intercept and no trend model was used to find the co-integrating vectors among the variables in the Johansen co-integration model and all variables were found to be co integrated. The results of co integration were provided in Table 4 and Table 5.

Table 4: Johansen Co-integration Results for Consumption Model

Relationship	Hypotheses		Eigen values	Critical values
	H_0: r	H_a: r		
C, I, Y, R	0	1	32.10	27.42
	1	2	15.97	21.12
	2	3	5.33	14.88

	3	4	0.95	8.07
The critical values were given (p=0.05 per cent) levels for co-integration.				

The results of the co-integration based on Maximal Eigen Value of the Stochastic were given in Table 4. Two co-integrating vectors were selected on the basis of the Eigen Value Test. It was concluded that the included variables in the consumption model were co-integrated.

Table 5: Johansen Co-integration Results for Consumption Model

Relationship	Hypotheses		Trace Values	Critical values
	H_0: r	H_a: r		
C, I, Y, R	0	1	54.36	48.88
	1	2	22.26	31.54
	2	3	6.28	17.86
	3	4	0.95	8.70
The critical values were given (p=0.05 per cent) levels for co-integration.				

The results of the co-integration based on Maximal Trace value of the Stochastic Matrix were given in Table 5. Two co-integrating vectors were also selected on the basis of Trace Value Test and concluded that the included variables in the consumption model were co-integrated.

■ Results and Discussion

A simple two sector Keynesians National Income Model was developed to analyze the impact of international remittances upon the consumption. The structural model consisted of equations (3) and (4).

$$Ct = \alpha_0 + \alpha_1 Yt + \alpha_2 R_t \quad (3)$$

$$Yt = C_t + I_t \quad (4)$$

The model was estimated by Two Stage Least Squares (TSLS) to avoid the problem of overestimation of consumption function. Yt was estimated by using Ordinary Least Square Method from equation (4) in the first stage. The estimated value of Yt was used in equation (3) to estimate the consumption function in second stage with Ordinary Least Square (OLS) method. The Cochrane-Orcutt Method was employed to correct the autocorrelation in the estimated consumption function and AR (1) was converged after four iterations. The results were given in Table 6.

Table 6: Regression Results relating Consumption with Independent Variables in Pakistan

Variable	Coefficient	Std. Error	t-Statistic
Inpt	1187.80	747.955	1.588
Y	0.74	0.029	25.297
R	0.59	0.333	1.875
R^2	0.985		
Adjusted R^2	0.984		
Durbin-Watson	1.92		

The per capita consumption in Pakistan was found positively related with per capita income and per capita remittances received in the country. The results of the study explained that per capita consumption in the country increased 0.59 due to a unit increase in the per capita remittances received in the country at aggregate level. However, the study did not explore the impact of different levels of income and remittances groups upon consumption patterns because the results of the study were limited to the aggregate level of the consumption in the country. The elasticity of consumption was calculated by taking the partial derivative of consumption with respect to remittances in equation (3).

$$E_{c,r} = \frac{\partial C}{\partial R} * \frac{R}{C} = \alpha_2 * \frac{R}{C} \qquad (5)$$

Therefore, the value of elasticity of consumption with respect to remittances at mean values of consumption and remittances was found 0.03. It indicated that the consumption level in the country was 0.03 percent higher at aggregate level due to one percent increase in the remittances. The results of the study were comparable with other such studies. Amjad (1986) found that consumption of the households was increased 34.6 per cent in Pakistan due to the receipt of remittances from Middle East. The author also estimated the elasticity of private consumption expenditure with respect to remittances and was found to be 0.05. Kannan and Hari (2002) found that remittances increased the income level of households and the increased level of income was helpful for consumption smoothing of the remittances receiving households.

■ Conclusion and Policy Implications

The total inflow of remittances in Pakistan since 2001-02 to 2005-06 was amounted about $19 billion (Rs.1129 billion). Pakistan received a greater share in remittances from oil rich gulf-region Kuwait, Bahrain, Qatar, Oman, Saudi Arabia and United Arab Emirates and from the United State of America. The huge amount of remittances in Pakistan especially towards the rural areas of the country has provided support to remove the financial constraints of the receiving households. They have increased the consumption of durables and non-durables and have accumulated human capital with education and health facilities. In the present study, the impact of international remittances on consumption at aggregate level was estimated.

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from the Federal Bureau of Statistics, Islamabad and State Bank of Pakistan, Karachi. Augmented Dickey Fuller (ADF) unit root test was used to determine the order of integration of these constructed time series. All the series used in the study were found integrated of order one i.e. I (1). Under these conditions, Johansen (1988) and Johansen and Juselius (1990) maximum likelihood estimation approach was used to test the co integration among the stated variables and all variables were found to be co integrated.

To capture the effect of international remittances on consumption in Pakistan, a simple Keynesian based national income model was adopted. It consisted upon two behavioral equations describing a consumption function and a national income identity. The model was estimated by Two Stage Least Squares (2SLS) to avoid the problem of overestimation of consumption function. The Cochrane-Orcutt Method was employed to correct the autocorrelation in the estimated consumption function and AR (1) was converged after four iterations. The results of the study indicated that per capita consumption in the country was increased 0.59 due to unit increase in the per capita remittances received in the country at aggregate level. The elasticity of consumption with respect to remittances at mean values of consumption and remittances was found 0.03. The findings of the study were comparable with previous studies.

The plausible policy implications of the study are remittances have positive impact upon the consumption level in the country. The increased level of consumption is the indicator of the living standard of the people. It is, therefore suggested that long run promotion of remittances in Pakistan is needed. The government may search niche markets for

labour through proactive labour policies. Government may also streamline the saving schemes in country to attract more foreign remittances.

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