
The Impacts of Foreign Remittances on Health Expenditures in Pakistan

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ABSTRACT

This study explores the relationships between health expenditures and foreign remittances by using the HIES (nine) data sets for the period from 1998-99 to 2018-19, using the pooled data consisting of 72 observations estimated from PSLM surveys in Pakistan. For this purpose, the study applies panel data techniques. The results reveal that remittances have significant and statistically positive effects on health expenditures. Moreover, the regional break-up of the results reveals that these results are equally valid in urban areas, but they are not valid in rural areas. Further, there is also a statistically significant positive relation between health expenditures and income. The effects of income on health expenditures are statistically significant in both regions. At a policy level, it is recommended that such policies should be chalked out which can increase the inflow of foreign remittances and create awareness about the utilization of these remittances, especially in the rural areas in Pakistan. Further, growth-enhancing policies should be formulated and implemented in letter and spirit.

Keywords: Human capital; Health Expenditure; Foreign Remittances; Per Capita Income; Pakistan
JEL Classification: J24; I12; I22; D31

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INTRODUCTION

The worker's Remittances have become the key source of foreign financial inflow and resources to the developing countries. According to the world migration report 2019, 3.5 percent of the world population, equal to 272 million people, are international migrants worldwide. There has been a persistent increase in foreign remittances in the developing country for a few decades and now it is the biggest source for developing Nations (Ebeke, 2012). The flow of workers' foreign remittances from developed

nations towards the middle- and low-income Nations was equal to dollar 589 billion in 2021, and it is 7.3% higher as compared to 2020 (world bank 2021)

The worker's financial inflow to developing Nations in terms of foreign remittances helps the domestic economy during the suffering of the financial crisis, and shocks (Azizi 2018). Pakistan, a developing country, is one of the countries providing a cheaper labor force than India and Bangladesh. India is the first worker remittance-receiving Nation, and Pakistan is the second in the South Asian region. More than 50% of the remittances around the globe flowed to the developing countries for a couple of years (World Bank report 2019). The flow of remittances towards the developing Nations facilitates achieving the sustainable development goal of 2030. This reduces the budget constraint of a household who receives the remittance through a rising standard of living, achieving the education and health facilities and better water and sanitation, which develop the human Capital (ILO report 2020)

Pakistan receives remittances from all regions of the world. Most of its foreign remittances are from the Gulf countries; Saudi Arabia was the leading source of remittance for Pakistan with \$3341 million see figures 1& 2. Other Gulf countries were \$3034 million, the United States of America \$2187 million, the United Kingdom \$2194 million, Other European countries \$393 million, Canada \$134 million, and other countries of the world \$396 million (State Bank of Pakistan, 2019). The significance of remittances has been increasing at the country level and household level. The share of foreign remittances, at the macro level, is about 90 percent of the overseas direct investment (FDI) (Acosta et al. 2006). Remittances helped to increase the consumption expenditure at the household level.

The human capital concept has comparatively more importance in excess labor countries. The main hurdle which is faced in these countries is the surplus human resources (Azizi, 2020; Mozumdar et al. 2020). Human Capital is the essential source of increase in productivity and technological advancement that stimulate economic prosperity and growth. There are three types of capital- resources, human capital, and natural resources in which human resources are more important as compared to others because, without human resources, we are unable to use the other resources.

It is apparent from the literature that several research studies reported the different developmental impacts of foreign remittances (Mughal, 2013; Amjad, 2006; Siddiqui, 2009). Some other studies evaluated the effects of remittances on Human Capital (Adam, 2012; Mahboob et al., 2013; Salas and Vania B, 2014; Mozumdar et al. (2020)). Concerning the effects of foreign remittances on health expenditure; there is some research in the literature declares that workers' remittances increase health expenditure (Amuedo-Dorantes and Pozo, 2011; Chauvet et al. 2008; Adenutsi2010; Ebeke and Drabo 2011; Kalaj, 2015; Olowa and Awoyemi 2011; Clement, 2011; Ambrosius and Cuecuecha 2013; Kroeger and Anderson 2014; Nguyen et al. 2013; Azizi 2018; Sulemana et al 2019; Nathaniel 2019 and Sahoo et al. 2020). Generally, remittances influence the household's health as: first, the remittances settle down the credit constraint which, stimulates the healthcare expenditure of the households (Lopez, et al., 2007). Secondly, migration becomes the source of awareness and information about the health facilities and standards, which increases the direct effect of workers' remittances spending on health.

As far as Pakistan is concerned, some studies explored the long-run impacts of workers' remittances on public expenditure using the macro-level data of Pakistan for different periods (Imran et al, 2019; Asad et al 2016; *Shafiq and Gillani 2018*; Hassan et al.

2013). Again, some studies analyzed the effects of foreign remittances on health at the micro-level in Pakistan. These studies used only single survey data of HIES (Household Integrated Economic Survey) of Pakistan for a specific period like (Mirza et. al, (2014) used PSLMS data for the year 2007-08, Khan et al. (2021) PSLM 2011-12, Khan and Jehangir (2016) PSLMS for the year 2010-11 and Fatima and Qayyum (2016) used PSLMs data for the year 2012-13.

But there is little evidence to find the long-run impacts of remittances on household health spending using the micro-level data in Pakistan. So, this study finds the role of foreign remittances on health expenditure by using the micro-level data from 1998-99 to 2018-19 for the variables whose sources are the same.

The scheme of the study is as under: After having stated the brief introduction, the second part is to clarify the data and the methodology which is employed. The third part presents results and discussions and the final section concludes.

DATA AND METHODOLOGY

Data

This study makes use of the data sets that have been taken from the Household Income and Expenditure Surveys (HIES) from 1998-99 to 2018-19 (e.g., 1998/99, 2001/02, 2004/05, 2005/06, 2007/08, 2010/11, 2011/12, 2013/14, 2015/16, 2018/19). There are ten HIES surveys available that have been collected by the Pakistan Bureau of Statistics. The foreign remittances variable is missing in 2004/05, that's why this year's data set are excluded and the remaining nine survey data are used in this analysis. We get eight observations for each year (four provinces, urban and rural). Through pooling the data, we generate 72 observations for nine years of data sets. Such type of data set has never been used early with maximum observations in Pakistan.

Methodology

This study aims at estimating the relationship between health expenditure and foreign remittance in Pakistan, by using the fixed effect and random effect models.

Relationship between Health expenditure and foreign remittances

The study estimates the relationship between health Expenditure and foreign remittance in Pakistan. For this purpose, it is necessary to explain the variables used in these models.

Health expenditure

Household Health expenditure is the main element to be determined. It is measured as the per capita health expenditure

$$PHE = \frac{HHE}{HS}$$

Where PHE= Per Capita Health expenditure

HHE = household health expenditures)

HS = household size (numbers of persons in a household)

Foreign Remittances:

The variable of foreign remittances is existing in all of the HIES data sets excluding the years 2004-05. Then total remittances are divided by the size of the household to acquire per capita remittances. The per capita income is a control variable in this study.

Per capita income:

There are generally two candidates for measuring welfare. Between these two, consumption expenditure is considered the best (Cheema and Sial, 2012, 2014). Different households have different compositions (some households consist of more adults and the others more children). So, this study used a weight of 0.8 for children with ages less than eighteen years and 1 for adults with ages equal to and greater than eighteen years following FBS (2001) and World Bank (2002). Similarly, the data set comprises the urban, rural, less developed as well as more developed areas. So, the population of these different areas is facing different prices. Thus, it is necessary to adjust the price differences by a price index constructed at the primary sampling unit level so that the true welfare level can be estimated by FBS (2001) and World Bank (2002).

This study uses the pooled data from 1998/99 to 2018/19 collected from different HIES surveys. The techniques of panel data- fixed and random effect models are applied.

$$\text{Model - } HE_{it} = \alpha_o + \beta_1 fremit_{it} + \beta_2 PCIn_{it} + \mu_{it}$$

Where α_o = intercept

HE = Per capita health expenditure, (health expenditure of a household is divided by the household size)

$fremit$ = Foreign Remittances

$PCIn$ = Per Capita Income (household income is divided by the per adult equivalent)

μ_{it} = Error term

it = i. for cross-sectional and t. for time.

- $H_o: \beta_1 = 0$ (There is no relationship between foreign remittances and health expenditure)
- $H_1: \beta_1 \neq 0$ (there exists some relationship between Foreign Remittances and health expenditure)
- $H_o: \beta_2 = 0$ (There is no relationship between health expenditure and per capita income)
- $H_1: \beta_2 \neq 0$ (there exists some relationship between health expenditure and per capita income)

RESULTS AND DISCUSSION

Workers' Remittance is the most important source of foreign financial inflow toward the developing nations in South Asia. As far as Pakistan is concerned, it has had a growing trend in workers' remittances inflow over the last couple of years. This analysis explores the relationship between health expenditures and foreign remittances. To explore the relationship among the selected variables, the study initially estimates the FE (fixed-effect) model and applies the F-test. There is a decision for the fixed effect

model. Then study estimates the RE (random effect) model and applies the Breusch Pagan test which decides that the RE model is the better choice (Basheer et al., 2019; Basheer, 2014; Basheer et al., 2018; bin Hidthiir et al., 2019). The Hausman specification test is employed to choose between the FE and RE models, which confirms that the RE technique is our better choice or preferred model. The heteroscedasticity test reveals that there is a hetero problem at the 10 percent level. So, the generalized last square is also estimated.

Table: 1 Relationship between health expenditure and remittance in Pakistan

Variables	FE	RE [^]	GLS Model#
Constant	498.53 (5.00)***	484.96 (3.48)***	444.77 (4.14)***
Remittances	0.084 (2.41)**	0.089 (2.60)***	0.106 (2.85)***
Income	0.280 (7.78)***	0.281 (7.90)***	0.286 (7.21)***
F-test/ Breusch	4.04	14.16	
Pagan LM-test (P-value)	(0.001)	(0.0001)	
Hausman- Specification-test (P-value)		0.70 (0.7038)	
Diagnostic tests			
Heteroskedasticity			
Likelihood-ratio- test (p-value)		12.064 (0.0985)	

Notes: FE= Fixes Effect, RE= Random Effect, T-values are shown in the brackets. *** = significant at 0.01 level, ** = significant at the 0.05 level, * = significant at the 0.10 level. The diagnostic results show that there are hetero problems in the data. # = in the presence of heteroscedasticity, GLS regression is a better choice especially when T > N. ^ = shows a preferred model based on the Hausman specification test.

Source: author's estimation,

The results of generalized least square regression in table 1 reveal that health expenditure has a statistically and significant positive relationship with workers' remittances. One unit change in foreign remittances results in a 0.106 unit increase in health expenditure which directly determines the human capital, holding the per capita income constant. Further, the results portray that per-capita income also has a statistically significant impact on health expenditure. One unit increase in the PCI (per capita income) results in a 0.286 unit rise in the health expenditure keeping the workers' remittances constant. Moreover, these results are consistent with those of both the FE and RE models at the overall Pakistan level. These results are also in line with those of Khan et al. (2021) and Kroeger and Anderson (2014).

The study also thinks it necessary to explore the relationship between these variables at the regional level. The results are displayed in table 2.

Table 2: Relationship between health expenditure and remittance at the regional level

	Urban	Rural
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Variables	FE	RE [^]	GLS Model#	FE	RE [^]	GLS Model#
Constant	495.25 (3.27)***	468.33 (2.56)***	424.96 (2.74)***	493.14 (3.65)***	488.09 (1.95)*	-4863.4 (-4.69)***
Remittances	0.094 (1.94)*	0.105 (2.18)**	0.123 (2.50)**	0.070 (1.34)	0.071 (1.41)	0.070 (1.30)
Income	0.268 (5.81)***	0.269 (5.79)***	0.271 (5.60)***	0.303 (5.02)***	0.304 (5.14)***	819.29 (5.53)***
F-test/Breusch	3.45	3.38		5.67	11.12	
Pagan LM-test (P-value)	(0.028)	(0.033)		(0.003)	(0.0004)	
Hausman- Specification-test (P-value)	4.35			0.66		(0.718)
Diagnostic tests						
Heteroskedasticity						
Likelihood -ratio-test (p-value)		446.54 (0.0000)		456.76 (0.0000)		

Notes: FE= Fixed Effect, RE= Random Effect, T-values are shown in the brackets. *** = significant at 0.01 level, ** = significant at the 0.05 level, * = significant at the 0.10 level. The diagnostic results show that there are hetero problems in the data. # = in the presence of heteroscedasticity, GLS regression is a better choice especially when $T > N$. ^ = shows a preferred model based on the Hausman specification test.

Source: author's estimation,

Table 2 depicts the regional level results in Pakistan. The findings at the regional level reveal that health expenditure has a statistically and significant positive relationship with workers' remittances in urban areas. The results of generalized regression depict that one unit increase in foreign remittances raises health expenditure by 0.123 units, holding the effect of income constant. Further, the results reveal that income is also an important variable to affects health expenditure. One unit increase in income brings an increase of 0.27 units in health expenditure holding the effect of remittances fixed. These results are in line with those of fixed and random effects.

As far as rural areas are concerned, no doubt there is a positive relation between health expenditure and foreign remittances, but it is not statistically significant. The impacts of foreign remittance are significant in urban areas, but not in rural areas. The reason for this difference is the priority of worker remittances over spending preferences. Income has statistically significant effects on health expenditure in rural areas also. The results of the effects of foreign remittances on the health expenditure in urban and rural are in line with those of Khan et al. (2021) and Kroeger and Anderson (2014).

CONCLUSION AND SUGGESTIONS

Foreign remittances have constructive effects by removing the budget constraint of a household. As far as Pakistan is concerned; it has had a growing trend in workers' remittances inflow over the last couple of years. This analysis explores the relationship between health expenditure and foreign remittances by using the HIES (nine) data sets from the period 1998-99 to 2018-19, using the pooled data consisting of 72 observations. To explore the relationship among the selected variables, the study applies panel data techniques. The results depict that health expenditure which is

measured as per capita health expenditure has a statistically and significant positive relationship with workers' remittances. Further, the results reveal that income is also an important variable to affects health expenditure.

At the regional level results reveal that health expenditure, has a statistically and significantly positive relationship with workers' remittances in urban areas, but there are no relationships between them in rural areas. Further, the results reveal that per capita income has a statistically significant impact on health expenditure in both urban and rural regions. At a policy level, it is suggested that the inflow of foreign remittances should be

through appropriate policies and awareness about the utilization of these remittances should be created especially in the rural areas in Pakistan. Further, such policies that can maximize the growth should be formulated and implemented in letter and spirit.

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Figure 1

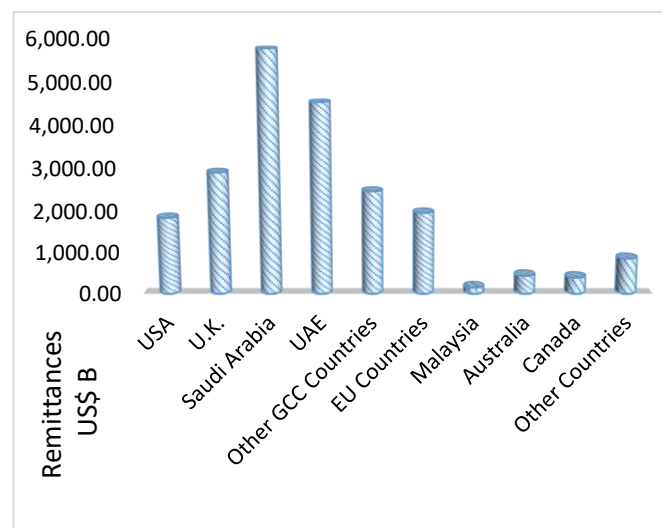
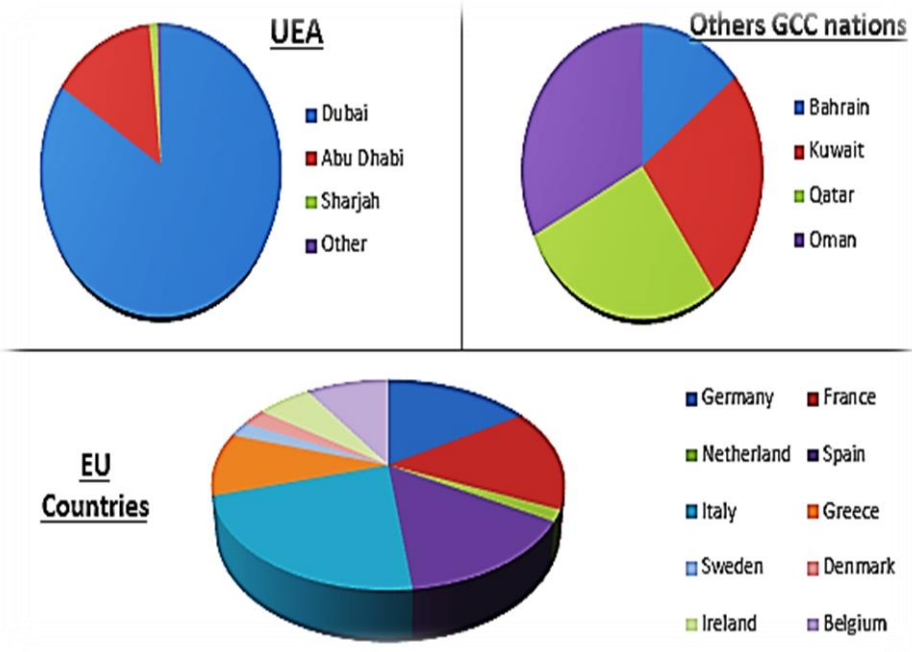


Figure 2



Source: State Bank of Pakistan (2001)