▪ **Global Social Sciences Review (GSSR)** ▪ **Vol.** VII, **No.** II (Spring 2022) ▪ **Pages:** 163 – 175
▪ **DOI:** 10.31703/gssr.2022(VII-II).16 ▪ **URL:** http://dx.doi.org/10.31703/gssr.2022(VII-II).16
▪ **L- ISSN:** 2520-0348 ▪ **p- ISSN:** 2520-0348 ▪ **e-ISSN:** 2616-793X
▪ **Citation:** Nadeem, M, Y., & Cheema, A. R. (2022). Human Capital and Foreign Remittances in Pakistan. *Global Social Sciences Review*, *VII*(II), 163–175. https://doi.org/10.31703/gssr.2022(VII-II).16

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Human Capital and Foreign Remittances in Pakistan

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Contents:

Abstract: *This study analyzes the effects of foreign remittance on human capital by using the pooled data collected from HIES data sets, from 1998/99 to 2018/19. Two proxies (e.g., 1- mean years-of-schooling with age equal to 15 years and above, 2- mean years-of-schooling with age equal to 25 and above) are used for human capital. The panel data techniques, like Fixed effect, Random effect model, GLS regression, and Panel corrected standard error regression, are used. The results show a significant positive relationship between human capital measured in terms of both proxies and foreign remittances in overall Pakistan, but human capital in terms of the first proxy has a statistically significant association with foreign remittances in an urban and rural area, in terms of the second proxy, significant in urban, but not in rural areas. Per-capita-income has statistically significant positive effects on human capital in terms of both proxies in rural areas but does not have a significant effect in urban areas. It is recommended that the Government should formulate policies that can maximize the inflow of foreign remittances in Pakistan.*

Key Words: Human Capital, Education, Foreign Remittances, Per Capita Income, Pakistan

Introduction

Human capital is flattering an imperative apprehension around the whole world in the era of globalization. The basic problem faced by developing countries is surplus human resources (Azizi 2020). This human resource can be converted into human capital with useful inputs of health and education facilities, but there are insufficient resources in these nations to maintain these inputs as compared to developed countries (Mozumdar et al. 2020). Human capital is the fundamental input of both increases in productivity and technological advancement which become the source of economic prosperity and growth (Sharma Hari 2020). The education of people is regarded as the most important asset in the economy. The most capable and educational communities have more chances to control the whole economy (Becker, 1993). From this point of view, financial or physical capital can't be a major source of passive advantage in the long-run for a rising economy, whereas, the nation knowing about their capability, experiences,

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and competencies skills as well as access to human-capital may be an influential driver to construct the economy more passive. Unfortunately, the developing nations are not capable enough to invest in human resources due to insufficient resources. But when we analyze human capital over time, we come to know that it is improving. On the other side when we see foreign remittances coming to developing countries, they are also increasing (see figure 1 in the appendix). Remittances towards developing nations are the basic source to enhance the investment in education (Yang and Martinez, 2006). Remittances; it is the summation of workers' financial transfers and the employees' compensation sent to their home country (IMF 2009). An estimated 3.5% of the worldwide population is international migrants around the world, (world migration report 2019). The remittances acknowledged around the world have improved extensively in previous years and now it is the second biggest source of external finance after Foreign Direct Investment (FDI) in developing countries (Ebekee, 2012). Globally, Foreign remittances inflows are assessed to be US$ 716 billion in 2019, which is equal to 0.8% of worldwide GDP. The flows reached US$ 547 billion from developed nations to middle and low-income nations (World Bank 2019).

Asia is the basic source of the inexpensive labor force in the world (ILO 2020). Every year a large number of laborers move out from this region to other regions of the world. Because of the growing population, developing countries of Asia, especially Bangladesh, India, and Pakistan, export labor and empower the youth to stabilize their economic condition by remittances. The amount migrants send to their home countries is a major type of financial flow for developing nations. These inflows prevent the economy from different economic shocks and tend to lead when countries domestically suffer from bad economic situations (Azizi 2018).

Pakistan is at the 6th largest country in the world in terms of population, with an estimated 225.2 million population, with a growth rate of 2.87 % in 2019, projected by the Population division United Nations (2020). Pakistan is the sixth-largest nation in terms of receiving foreign remittances globally and the second-largest in South Asia (World Bank 2019). Pakistan also stood in the second position among labor manpower exporting nations of the South Asia region (ILO 2019). An estimation of more than 11.11 million people moves abroad officially registered till 2019, in which more than 96 percent of Emigrants concentrated in Arab countries PBE&OE, 2020 (Pakistan Bureau of Emigration and Overseas Employment). Foreign remittances inflow to Pakistan was US$ 22 billion in FY2019, which is 7.9 percent of GDP and more than doubled as compared to FY2010 US$8.9 billion. Remittances increased to $ 18.8 billion from July-April FY2020, with a growth of 5.5 percent as in the previous year in the same period (Economic Survey of Pakistan 2019/20). India is the biggest workers financial inflow receiving country, according to the (World Bank report 2019) an estimated total ($77 billion), in which Egypt ($27 billion), Mexico ($36 billion), and the Philippines ($26 billion).

Migration can raise the standards of living, lift educational and health standards. No doubt, there is an extensive loss of human capital when several educated people go off from under developing nations. (Ahmed, et al. 2013). But, in developing countries, remittances can help to achieve at least seven targets of the Sustainable Development Goal (SDG) 2030. When foreign workers send money back to their homes, they contribute to several set agendas SDG, especially Quality Education, Good Health, Clean Water and Sanitation, no Hunger, Reduced Inequality (ILO report 2019).

Foreign remittances also have a major contribution to evolving human capital in developing nations (Khan, 2016). Remittances have constructive effects by removing the budget constraint of a household in determining the human capital. Through this, the household spending of goods and services, it also raises the spending on education and health care. Foreign financial inflow also helps out their beneficiary households by improving their living standard and investing in some businesses, (Huay & Bani, 2018).

It is apparent from the literature review that there are some research studies to find the role between foreign remittances and human capital at

the international level (Azizi 2020; Salas V. B, 2014; Irdam, 2012; Mozumdar et al. 2020; De Haas 2007). As far as Pakistan is concerned, there are also some studies to find the impacts of foreign remittances on children's education using the cross-sectional data (only single survey data) of HIES (Household Integrated Economic Survey) of Pakistan for a specific period like, Mirzaet. et al, (2014) used PSLMS data for the years 2007-08, Khan and Jehangir (2016) PSLMS 2010-11 and Fatima and Qayyum (2016) used PSLMs data for the year 2012-13. These studies produced mixed results.

Still, some studies used only Time Series macro-level data of Pakistan for a different period (Mahboobet, al. 2013; Ahmad, et al. 2013; Javid, et al., 2012; Hussain and Anjum 2014; Faridi and Khawaja 2014; and Asad et al. 2016). These studies used education as a proxy for human capital, which is calculated from HIES data sets. There are breaks between different surveys. So, they used almost more interpolated values than the actual values. Further, they took foreign remittances data from other sources. This study is taking all of the data from the same source. There is little evidence to find the role of foreign remittance on human capital in Pakistan by using this type of large data set from 1998-99 to 2018-19. The general objective of this analysis (study) is to analyze the effects of Foreign Remittances on Human Capital in Pakistan.

The scheme of the study is as under: After the introduction, the second section deals with literature reviews, whereas the third section explains the data and methodology employed. Section 4 is the presentation of the results and their discussions and the finishing section is the concluding remarks and suggestions.

Literature Review

Literature reviews are considered an integral part of several types of research studies. Provides direction for the scholars to discover the information gap in the appropriate research field that is essential to be discovered. It assists the investigators in understanding the imperative concepts and Leeds to the use of empirical new development techniques and theoretical framework.

Hanson and Woodruf (2003) analyzed the association between education and remittances and revealed that in Mexico, children complete more years of schooling in remittance-receiving households. The result also confirmed that the estimated effect was significant statistically and positive for those females whose mother was uneducated. Another study conducted in Mexico, by Borraz (2005) found that remittances have a significant positive impact on those children who lived in small towns and whose parental education level was low.

Calero et al. (2009) reported that foreign remittances can enhance the school enrolment at the primary level, and it may decrease the prevalence of child labor among the females, especially who are lived in rural areas. Acosta et al. (2007) revealed a negative impact of remittances on educational outcomes in the state of the Dominican Republic.

Dorantes and Pozo (2010) revealed the impact on family education is positive in such a way that remittance helps to stay longer in school for already enrolled children but also facilitates the out-of-school children to enroll. On the other side, in the nonexistence of parents, social responsibility may rise, which negatively encourages schooling. The education of girls plays an imperative role for determining the human capital in the next generation, which stimulates prosperity and promotes growth in the economy. Mothers have an essential role in facilitating and determining the health and education of their children.

Chaaban & Mansoor (2012) investigated the impact of workers' remittances on education attainment in three nations, Syria, Lebanon, and Jordan; the sample was divided into two different age groups, 15 to17 and 18 to 24. The study showed that workers' remittances have a significant positive impact on middle school enrollment for the 15-17-years age in Syria. It also showed that the impact is higher for males than females in Syria and Jordan, but smaller in Lebanon for the 18 to 24-year group. The school attainment results remain the same in the three nations.

Matano & Ramos (2013) scrutinized the impact of foreign remittances on household education level

in Moldova state by using the data of the Household Survey. The probit model and Instrumental Variable (IV) technique are applied to find out the relationship. The output of the study disclosed that remittances raise the possibility of the attainment of higher education for both males and females.

Dietz *et al.* (2015) considered the impact of foreign workers remittances on the household education level of the left-behind members in Tajikistan. Data is collected from the Tajikistan Living Standard Survey (TLSS) and the fixed effect model technique is applied to find the relationship. The results revealed that the school enrolment inclines to reduce as the workers' financial inflow increases from overseas. Malik (2015) investigated the relationship between workers' remittances and household education by using Primary data, which is composed through a random sample method. The results of the study specified that remittances showed a significant positive impact on household education at the micro-level. The study also revealed that marital status, age, gender, and remittances income are also very important determinants of enrolment in school in the receiver households. Arif & Chaudhry, (2015). It revealed that the impact on family education is positive in such a way that remittance helps to stay longer in school for already enrolled children, but also facilitates the out-of-school children to enroll.

Demurger and Waang (2016) examined the distribution of foreign workers remittances in the rural household in China by collecting the data from the survey Migration of Rural-Urban in China (MRUC) and the average treatment effects applied to assess. The Propensity matching score is applied to find the relationship. The results confirmed a negative relationship exists between the foreign remittances and education spending. Fleming (2016) studied the shock of inside and external remittances on the primary education enrolment in the country in Nepal by using the data of the (Nepal Living Standards Survey NLSS) 2010/11. The probit model estimation technique is used and reported that the children of those households who have internal remittances have higher school enrollment as compared to that household with external remittances.

Khan (2016) scrutinized the relationships between children's education and external migration in the district of Gujrat, Pakistan. Primary data used which is collected through the survey for the study. The results confirmed that external remittances suggest a significant positive effect on the child's school. The research also confirmed that worker remittances positively determine the school enrolment, academic performance, and attendance at the primary level of female and male children. At the higher level, school enrolment and educational performance of female in worker remittance beneficiary households remain higher, and the primary enrolments of male children incline to decrease when their fathers go out of the country.

Chang *et al.* (2019) scrutinized the relationship in the foreign remittances, enrollment, and decisions about educational investment by using the (China Household Income Project CHIP 2013). The outcome revealed the inverse impact of foreign remittances on education investment. The result also showed that enrolment is greater at a higher level as associated with the basic level of education. Hines and Simpson (2019) founded the association between the worker remittances and household expenditure patterns. The finding of the study confirmed that growing remittances enhance the investment in education in Kenya.

The previous literature on remittances and human capital improvement suggest two different effects of workers' remittances on the human capital. The basic economic theory proposed that, when a household has faced budget constraints, the income which is received from foreign remittances might encourage the investment in the household education of the remaining members (Edwards and Ureta, 2003; Lu and Trieman, 2007; Calero et al., 2009; Yang and Choi, 2007).

Data and Methodology

Data

This analysis uses the data sets which are taken from the Household Income and Expenditure Surveys (HIES) from 1998-99 to 2018-19. The justification for choosing this period is as under. There are some

HIES surveys conducted from 1963 to 2018/19 which have three faces of questionnaire changings and data collection methods. The first face was from 1963 to 1988. The second face was from 1990 to 1997 and the third started from 1998 to the present.

In this study, we use data sets that are collected from the latest questionnaire and updated data collection methods these are (e.g., 1998/99, 2001/02, 2004/05, 2005/06, 2007/08, 2010/11, 2011/12, 2013/14, 2015/16, 2018/19). Data before the year 1998/99 is, on the one side, non-comparable and, on the other side, not available. There are ten HIES surveys available that are collected from the same questionnaire, but in these surveys, 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. This type of data set has never been used early with maximum observations in Pakistan.

Methodology

This study intends to estimate the relationship between human capital and foreign remittance in Pakistan, by applying the estimation techniques of fixed effect and random effect models.

Relation-ship between Human Capital and Foreign Remittances

The analysis estimates the relationship between human capital and workers foreign remittance in Pakistan. For this purpose, it is necessary to explain the variables used in these models.

Human Capital

Education is the main element to determine human capital. This study estimates mean years of schooling completed with the age equal to 15 years and more. This age bracket is used in the Human Development Index (HDI) by Max Roser. The study also calculated the mean years of schooling completed at the age equal to 25 years and more. This age bracket was used in the Human Development Index (HDI) by UNDP and Azizi (2020).

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 household size to acquire per capita remittances. The per-capita income is taken as the control variable in the 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 estimation technique for panel data fixed and random effect models are applied.

Model

$$HC_{it} = \alpha_o + \beta_1 fremit_{it} + \beta_2 PCIn_{it} + \mu_{it}$$

Where α_o = intercept

HC = Human Capital. For human capital, two proxies are used (e.g., 1. mean years-of-schooling of individuals with age equal to 15 years and above, 2. mean years-of-schooling of individuals with age equal to 25 years and above)

$fremit$ = Foreign Remittances

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

μ_{it} = Error-term

it = i. for cross sectional data and t. for a time interval.

- Ho: $\beta_1 = 0$ (no relation-ship exist among human capital and foreign remittances)
- H_1: $\beta_1 \neq 0$ (there exists some relation-ship among human capital and Foreign Remittances)
- Ho: $\beta_2 = 0$ (no relation-ship exist between per-capita income and human capital)
- H_1: $\beta_2 \neq 0$ (there exists some relationship between per-capita income and human capital)

Results and Discussion

Remittance is the major source of financial inflow in the developing countries in South Asia. As far as Pakistan is concerned, it has an increasing trend in remittances received over the last decade. The aim of the study is to explore the relationship between human capital and foreign remittances by using the HIES nine data sets from 1998/99 to 2018/19, consisting of 72 observations through pooling the data. To test out the relationship among the variables, the study first estimates the fixed-effect model and applies the F-test. The results illustrate the fixed-effect model is the better choice. Then the study also estimates the random-effect model and applies the Breusch Pagan test which decides that the random-effect model is the better choice. Hausman specification test is used to choose among the fixed effect model and the random effect models, which declares that the fixed effect technique is our preferred model. Further, the study checks autocorrelation and heteroscedasticity problems, and the results show that there is a heteroscedasticity problem. So, the study estimates the GLS and panel corrected standard error regression. The estimation results are shown in the below table 1.

Table 1. Relationship between Human Capital, Foreign Remittance, and Income

	(Mean Years-of-schooling with Age Equal to 15 and Above				(Mean Years-of-schooling with Age Equal to 25 and Above			
Variables	Fixed-effect^	Random-effect	GLS Model#	PCSE Regression#	Fixed-effect^	Random-effect	GLS Model#	PCSE Regression#
Constant	4.235 (42.60)*	4.2100 (12.63)*	3.6177 (10.55)***	3.6177 (11.07)***	3.68 (29.6)*	3.65 (10.60)***	3.08 8.8)***	3.08 (9.93)***
Remittances	0.00013 (3.94)***	0.0001 (3.52)***	0.0003 (2.66)***	0.0003 (3.36)***	0.0001 (2.33)**	0.0001 (2.21)**	0.0002 (2.28)**	0.0002 (3.02)***
Income	0.00008 (2.23)**	0.00008 (2.04)**	0.0002 (1.92)*	0.0002 (1.93)**	0.00008 (1.89)*	0.00009 (1.80)*	0.0002 (1.92)*	0.0002 (2.05)**

	(Mean Years-of-schooling with Age Equal to 15 and Above		(Mean Years-of-schooling with Age Equal to 25 and Above	
F-test/ Breusch Pagan-LM-test	213.01 0.000	123.28 0.000	196.4 0.000	78.51 0.000
Hausman-Spec-test (P-value)	20.92	0.000	20.22	0.000
Diagnostic Tests				
Auto-correlation	0.631		4.018	
Wooldridge-test result (p-value)	(0.4531)		(0.085)	
Heteroskedasticity	92.66		853.15	
Likelihood-ratio-test (p-value)	(0.000)		(0.000)	

Notes: T-values are shown in the brackets. *** = significant at the (0.01) level, ** = significant at (0.05) level, * = significant at (0.10) level. The diagnostic results show that there does not exist autocorrelation, there are hetero problems in the data. ^ = shows a preferred model based on the Hausman specification test. # = in the presence of heteroscedasticity and/ or autocorrelation, GLS regression is a better choice especially when T > N. The Panel corrected standard error regression is also estimated.

Source: Author's Estimation,

The outcome in table 1 discloses that human capital measured in terms of mean years of schooling with age equal to 15 years and above has a statistically and significant positive association with foreign remittances. One unit change in the worker remittances results in a 0.0003 unit rise in the human capital holding the per-capita income constant. Further, results depict that per capita income has also statistically significant impacts on human capital. One unit rise in the per-capita income is the result in a 0.0003 unit increase in the human capital keeping foreign remittances constant. The GLS regression results are consistent with those of the panel corrected standard error regression. Moreover, human capital measured in terms of mean years of schooling with age 25 and above is also a statistically significant positive relation with foreign remittance and income.

It is also necessary to find the relationships between these variables at the regional level. The results are shown in Table 2. The results also disclose that human capital in terms of mean years of schooling with age equal to 15 years and above are statistically significantly related to foreign remittances in rural as well as urban areas. Moreover, it is having statistically significant relation with per capita income in the rural areas, but not in urban areas.As far as human capital in terms of mean years of schooling with age equal to 25 years and above is concerned, it has a statistically significant relation with foreign remittances in urban areas, but not in rural areas. Moreover, it is not related to per capita income in urban and rural areas following GLR regression, but related to its following panel corrected standard error regression results.

Table 2. Relationships among Human Capital, Foreign Remittance, and Per Capita Income

	(Education = 15 and above)						(Education = 25 and above)					
	Urban			Rural			Urban			Rural		
Variables	Fixed-effect^	Random-effect	Fixed-effect	Random-effect^	GLS Model#	PCSE Regression#	Fixed-effect^	Random-effect	Fixed-effect	Random-effect^	GLS Model#	PCSE Regression#
Constant	5.76 (35.9)***	5.59 (22.43)***	2.71 (21.9)***	2.70 (10.9)***	2.61 (13.8)***	2.61 (13.4)***	5.07 (29.07)***	5.02 (17.01)***	2.28 (12.7)***	2.27 (7.47)***	2.21 (10.4)***	2.21 (11.3)***
Remittances	0.0001 (2.76)***	0.0001 (2.54)***	0.0001 (2.75)***	0.0001 (2.71)***	0.0001 (2.16)**	0.0001 (2.16)**	0.0001 (2.40)**	0.0001 (2.33)**	0.00006 (0.87)	0.00006 (0.91)	0.00007 (0.94)	0.00007 (0.96)
Per Capita Income	0.0001 (1.04)	0.0007 (1.11)	0.0001 2.40)**	0.0001 (2.38)**	0.0001 (2.01)**	0.0001 (2.20)**	0.00007 (1.40)	0.00008 (1.37)	0.0001 (1.34)	0.0001 (1.40)	0.0001 (1.45)	0.0001 (2.10)**
F-test/Breu-sch Pagan LM-test (P-value)	22.95 0.000	54.96 0.000	18.72 0.000	51.41			25.36	60.57	6.97	15.90		
Hausman-Spec-test (P-value)	(0.000)	18.14	(0.117)	4.29				(0.0077)	9.72	(0.39)	1.88	
Diagnostic Tests												
Autocorrelation												
Wooldridge test result 0.009 (p-value) (0.9286)			15.13 (0.031)				0.009 (0.9286).			42.74 (0.007)		
Heteroskedasticity												
Likelihood-ratio-test 0.14 (p-value) (0.997)			(70.42) (0.000)				0.24 (0.9936)			1.95e (0.000)		

Notes

T-values are shown in the brackets. *** = significant at the (0.01) level, ** = significant at (0.05) level, * = significant at (0.10) level. The diagnostic results show that there does not exist autocorrelation, there are hetero problems in the data. ^ = shows a preferred model based on the Hausman specification test. # = in the presence of heteroscedasticity and/ or autocorrelation, GLS regression is a better choice especially when T > N. The Panel corrected standard error regression is also estimated.

Source: *Author's Estimation*

Conclusion and Suggestions

Foreign remittances have constructive effects by removing the budget constraint of a household in determining the human capital. The aim of the study is to analyze the effect of foreign remittance on human capital by using Household integrated economic survey (HIES) datasets from 1998/99 to 2018/19. In this period there are ten datasets available, which are collected from the same questionnaire and latest techniques. In the survey 2004/05, the remittance variable is not available, that's why it is dropped, and the remaining nine datasets are used in this analysis to find the relationship between human capital, foreign remittances, and per-capita income. Through pooling the data, we generate 72 observations for nine years of data sets. This type of data set has never been used early with maximum observations in Pakistan. The panel data estimation techniques and the fixed and random effect models are applied. In this study we also determine the relationship between the selected variables at the regional levels as well as the overall Pakistan level.

The study results show the significant positive relationship between human capital measured in terms of both proxies (e.g., mean years of schooling with age equal to 15 years and above and mean years of schooling with age 25 years and above) and foreign remittances in Pakistan. Further, the results reveal that per-capita income also has statistically significant positive impacts on human capital measured in both proxies. The regional output reveals that human capital in terms of mean years-of-schooling equal to 15 years and above has a statistically significant link with foreign remittances in both areas. But human capital in terms of mean years of schooling with age 25 and above has a statistically significant positive association with foreign remittances in urban regions, but not in the rural region. In so far as per-capita income is concerned, it has statistically significant positive impacts on human capital measured in terms of both proxies in rural areas but does not have a statistically significant relationship in urban areas. At a policy level, it is recommended that such policies should be chalked out and implemented that can cause the inflow of foreign remittances and the economic prosperity to raise growth in Pakistan

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Appendix

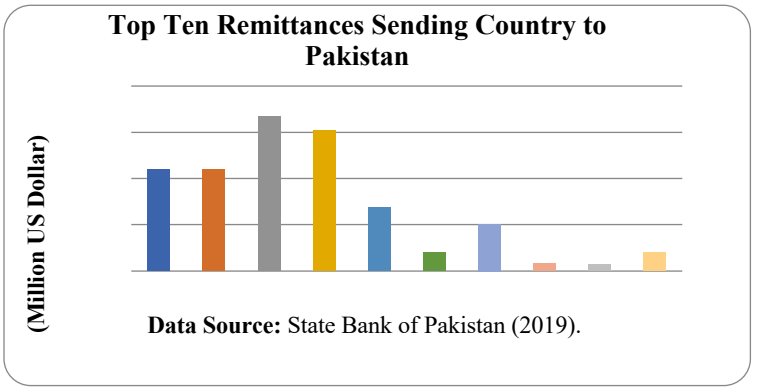

Figure 1