

ROLE OF REMITTANCES IN DETERMINING HOUSEHOLD CONSUMPTION PATTERNS AND WELFARE: A CASE STUDY OF PAKISTAN

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ABSTRACT

Remittances play a very important role in the economic growth and development of a country but at the same time it plays a substantial role in improving welfare of households at micro level. The objective of this study is to examine the microeconomic impact of remittances on household consumption patterns of Pakistan and its four provinces; Punjab, Sindh, Balochistan and Khyber Pakhtun Khwa (KPK). The study makes use of a detailed Household Income and Expenditure Survey from 2010-2011 conducted by the Federal Bureau of Statistics. It analyzes the effect of domestic and international remittances on consumption expenditures of various commodity groups under Engel Curve analysis. The results show that migrant households in Pakistan are thrifty and careful in their consumption expenditure patterns as compared to the non-migrant households. In conclusion, non-migrant households have more lavish consumption expenditures rather than the migrant households as generally conjectured in the literature. A careful consideration of these patterns of consumptions across the country should be made in devising policies to boost or limit international or domestic migration.

KEYWORDS: Engel Curve; Consumption; Household Behavior; Remittances

JEL CLASSIFICATION: C52, E2, D1, F24

I. INTRODUCTION

Pakistan is one of those countries that receive remittances in large amounts from various countries across the globe. Global remittances have experienced a tremendous increase over the past few decades and the most important beneficiaries of the remitted funds are the developing economies. Pakistan has experienced an upward trend in remittances over the past few years. According to official statistics provided by Economic Survey of Pakistan (2012-2013), U.S was the major contributor in percentage share of worker's remittances to Pakistan from 2000 to 2005 but after that, Saudi Arabia and U.A.E emerged as the major remittance sending countries to Pakistan. A decline in remittance income from U.S was mainly associated with the fact that cost of migration had increased. Talking in terms of the regional figures of remittance to GDP ratio of Pakistan, then it still has the lowest remittance to GDP ratio (5.5%) as compared to Bangladesh (10.8%), Srilanka (8.4%) and India (3.1%).

Remittances play an important role in the economic development of a country but unfortunately the government of Pakistan is not utilizing the remittance income in an appropriated manner because most of the remitted funds are either sent through informal channels like Hundi or the migrants send the volume of remitted funds through hand or through

their relatives. Remittance income not only produce macroeconomic benefits but it also produce microeconomic effect at household level. Many researchers believe that remittances, international as well as domestic remittances, act as an engine to household welfare provided that the remitted funds are utilized in the best productive way and for other investment activities.

It is generally believed that remittances are not used for productive purpose in Pakistan because of bouts of inflation, devaluation of rupee, reduction in GDP growth and declining real wages. Thus, in Pakistan and other developing countries, the recipient households spend most of the remittance income on consumption that deters investment and other productive activities to take place in the country. Migrant households are thought to have more lavish consumption expenditures than non-migrant households.

The current study is organized into five sections. Section I is devoted to the introduction, research gap, rationale behind the study and literature review while Section II is based on the hypotheses formulation. Section III revolves around the methodology used to analyze consumption patterns of the households. Section IV focus on the model estimated and results obtained from the model are discussed in this section. Lastly, Section V summarize and conclude the results of the study there by giving future suggestions to the researchers.

The main objective of the study is to examine; 'To what extent the consumption patterns of migrant and the non-migrant households of Pakistan and its four provinces differ when there is a change in their income in the form of remitted funds from home or abroad?'

The rationale behind the study is that most of the research work related to Pakistan revolve around the determinants of migration rather than the direct or indirect impact of remittances on the household consumption patterns and living standards in the country. Moreover, to the best of authors' knowledge, previous literature has not incorporated both international and domestic remittances simultaneously in one study by using a large sample size; hence, this study incorporates the impact of both forms on household consumption patterns using data set of 16341 households.

To the best of authors' knowledge, there are only a few studies available on the effect that domestic and international remittances produce for household consumption patterns in Pakistan. In 1950's and 60's, the employment of most Pakistanis in countries like UK and Gulf region was undocumented but after Oil price boom in 1970's, construction work began in Gulf nations, thus, created a demand for Asian migrants. The literature on migration and remittances was also developed in a sequence of such events.

In 1993, Malik and Sarwar analyzed the impact of domestic and international remittances on migrant and non-migrant households' consumption patterns. The authors used Expenditure Survey of 1987-88, thus, the literature on this issue was mainly generated in 1980's. A study was conducted by Arif in 2009 which was based on the Household Survey on Overseas Migrants and remittances and it incorporated only 548 households with at least one member in Saudi Arabia and the information was not representative of all provinces and rural and urban areas but it was one good attempt to add something in the literature. Hussain et al. (2012) also analyzed the micro impact of remittances on household welfare but the study was based on interview of only 60 households of Peshawar.

Moreover, Pakistan has a long history of generating socio-economic data from household surveys. Ever since the beginning of migration to the Middle East due to its booming in mid-1970s, many surveys were carried out to scrutinize the economic and social impacts of overseas migration as many skilled and unskilled workers including engineers,

technicians, plumbers and carpenters migrated to Middle East in view of employment opportunities. In 1980s, the evidence produced through these surveys was the major source in understanding the significance of migration to Pakistani society. Soon after a decline in foreign remittances entering Pakistan in 1990s' (called as the 'lost decade') due to low GDP growth, rising poverty, frequently changing governments and inconsistent policies, no new initiative in data collection was taken which created a dearth of literature on impact of remittances at national and household level. Economic conditions of the country were not favorable for the masses to leave the country and migrate as the cost of migration was rising rapidly. Another factor of such a decline in the volume of remitted funds was the poor quality of workers as no vocational training was given to the workers in 1990's (Ahmed et al, 2010).

In addition to this, the literature available on macro impact of remittances is primarily linked with poverty reduction but literature on micro impact is not that much discussed in the literature. To the best of author's knowledge, the only relevant contributions are those of Hussain et al. (2012); Irfan (2011); Ahmed et al. (2010); Arif (2009); Malik and Sarwar (1993) but out of these studies, only the study of Ahmed et al. has used HIES data of 14000 households while the rest were based on either small sample size or the data used was not representative of the whole country.

II. HYPOTHESIS FORMULATION

- The null hypothesis and alternative hypothesis for Pakistan are expressed as;

H_0 : Migrant households of Pakistan have lavish consumption expenditures and there is not a significant difference between the consumption patterns of migrant and non-migrant families across the country.

H_1 : Migrant households of Pakistan do not have lavish consumption expenditures and there is a significant difference between the consumption patterns of migrant and non-migrant families across the country.

- The null hypothesis and alternative hypothesis for Provinces are expressed as;

H_0 : Migrant households of various provinces have lavish consumption expenditures and there is not a significant difference between the consumption patterns of migrant and non-migrant families of four provinces.

H_1 : Migrant households of various provinces do not have lavish consumption expenditures and there is a significant difference between the consumption patterns of migrant and non-migrant families of four provinces.

While conducting this research, it was found out that the literature looks at the remittances in a variety of ways but most of the literature was found to be negative about the contribution of remittances to productive investment. Most of the researchers have examined the welfare effect of remittances in terms of education and health of receivers of remitted funds. On the other hand, many economists have argued that remittance income is just like any other income so it will be spent just like any other source of income. The diffused multiple effects of remittances have been overlooked in many researches previously done while the gender-specific use of remittance income has been a main focus in many studies.

III. METHODOLOGY

Engel Curve approach is the most common methodology adopted by the researchers in analyzing the impact of remittances on household behavior. Coscodan (2008); Airola (2007); Castaldo and Reilly (2007); Sosa and Medina (2006); Zarate-Hoyos (2004); Malik and Sarwar (1993) and Adams (1991) used Engel Curve estimation technique in their studies. Therefore, this study is also based on the Engel Curve approach for its usefulness of welfare comparison of households in

micro-econometric analysis.

An important facet of Engel's work was to understand why is there a change in consumption patterns due to increased income (in other words, why preferences are non-homothetic). For further details of Engel's work, see Chai and Moneta (2012). There are different functional forms of Engel Curve ranging from simple linear to curvilinear forms.

Different authors have employed various functional forms with different variables depending on the availability of data. Linear Engel Curve is considered as "only first approximation to the regular curve" (Aitchison and Brown, 1955). According to Prais, semi-logarithmic form of Engel Curve is appropriate for necessities while double logarithmic form has been suggested by Prais and Houthaker (1971) for luxuries.

As far as measuring the impact of remittances on the household consumption is concerned then Engel Curve approach is considered as the best approach and it is regarded as the best established economic law, movements in the budget share of food could serve as an indicator of movement in real income as well as household welfare. A shift in the household expenditure from one category of commodity group to another indicates a shift in the welfare of household in terms of their health as well as educational status. When remittances as well as other household characteristics are controlled then the analysis becomes more valid and effective. Expenditure behavior of migrant and non-migrant households can be compared using this approach as done by some authors in the previous studies. Moreover, income elasticities and marginal propensity to spend out of remittances can be computed for further analysis.

There are different functional forms of Engel Curve ranging from simple linear to curvilinear forms. Different authors have employed various functional forms with different variables depending on the availability of data. Linear Engel Curve is considered as "only first approximation to the regular curve" (Aitchison and Brown, 1955). According to Prais, semi-logarithmic form of Engel Curve is appropriate for necessities while double logarithmic form has been suggested by Prais and Houthaker (1971) for luxuries. Engel Curves can be used to calculate a good's income elasticity, which is roughly the percent change in q_i that results from a one percent change in y , or formally $\partial \log q_i(y, z) / \partial \log(y)$. Goods with income elasticities below zero, between zero and one, and above one are called inferior goods, necessities, and luxuries respectively, so by these definitions what Engel found is that food is a necessity. Elasticities can themselves vary with income, so e.g. a good that is a necessity for the rich can be a luxury for the poor (Lewbel, 2006).

Numerous functional forms have been suggested and used as the basis for estimating Engel Curves. In general terms, for M households with similar characteristics and facing the same prices for n consumer goods (or classes of goods and services), the empirical Engel Curves are:

$$q_{ij} = f_i(q_j; \beta_i; \epsilon_j)$$

where q_{ij} = expenditure by household j on the i 'th class of goods and services, q_j = total expenditure by the j 'th household, ϵ_j = normally distributed random error term, and β_i is a vector of parameters. We shall limit attention to the case where $f_j = f$ ($i = 1, \dots, n$), as this is the case which arises when the n Engel Curves are derived jointly from some underlying consumer demand model. If the n consumption classes are mutually then the sample data satisfy;

$$q_j = \sum_{i=1}^n q_{ij}; j = 1, \dots, M$$

and it is desirable that the component expenditures predicted by any system of Engel Curves also satisfy this 'adding-up' condition. It is also desirable that these predicted components are non-negative, and that the functional form, f does not preclude saturation. That is, at least some predicted expenditure components should be permitted to possess an upper limit. These considerations, and the desire that the Engel Curves should be compatible with some recognized demand model, together suggest certain limitations on the functional forms which might be considered. Most importantly, they suggest viewing the n Engel Curves as a set, or system, of equations. This has implications for the specification of the stochastic error terms and the estimation of the Engel Curves, as well as for the specification of their functional forms (Giles and Hampton, 1984).

The functional forms of Engel Curve include Linear, Working Leser curve, Addilog, LSLIN and LSINV. Linear Engel curve form is derived from Rotterdam model and linear expenditure system (Stone, 1954).¹

There remains the problem of selecting the best one among all these forms. In Engel Curve analysis, the choice of a functional form is based on both economic and statistical considerations (Prais and Houthakker, 1971). Moreover, the problem of Heteroscedasticity is likely to exist in the cross sectional data so the selection of the functional form may be subject to such constraints.

The selection of the functional form actually depends upon the interest of the researcher. This study is particularly interested in the Engel Curve with constant elasticity for a given data set. Double log model is used because of its well-known advantage of interpretation in terms of elasticities and ease of estimation. Thus, this study investigates the differences between the consumption expenditures of migrant and non-migrant households for which income elasticities have been computed. The relationship between the variables was not linear and the simple linear form of Engel curve resulted in measurement errors, thus, the current study is based on the double log model.

The variables were selected on the basis of theory, the results of previous research and availability of data. The variables include; the log of total consumption expenditures of different commodity groups as dependent variable, log of total income, family type variables and remittance variable as independent variables. Households with different characteristics have different expenditure patterns so variables like age, gender and marital status have been incorporated as well but in principle any other household characteristic can be included.

The Household Income and Expenditure Survey provides information on several detailed items of consumption but a detailed investigation of each item may not be very useful as many of these items involve zero consumption for a large number of households. Therefore, this study considers variation in consumption in terms of groups of commodities rather than individual items of consumption. A similar approach has been adopted in the study conducted by Malik and Sarwar (1993) in which three main expenditure groups were considered including consumption expenditure, durable expenditure and total expenditure but the current study involves eight commodity groups to analyze the impact of remittances on household welfare. Improvement and increase in the expenditures on health and education are known to be good indicators of household welfare so these categories were included for welfare analysis of households. The eight

¹For further details of functional forms of Engel Curve, see Giles and Hampton (1984).

expenditure groups considered in this study include; spending on food items, durables, non-durables, health, education, recreation, housing and apparel & footwear.

A set of other variables was constructed for the head of household and these include age, gender, highest level of education attained, employment status, marital status and location (rural/urban). Moreover, dummy variables for the international and domestic remittance were incorporated in Engel Curve estimations. Household Income and Expenditure Survey (2010-2011) provided monetary values for the domestic remittances but data on international remittances was not in monetary terms but a dummy was constructed for it. Given a concern that monetary values for remittances may be subject to measurement error, the current study considers a binary measure for whether or not a household received domestic or international remittances. A similar approach was adopted by Castaldo and Reilly (2007).

This study is based on the data obtained from the Household Income and Expenditure Survey (2010-2011) which contains a nationwide sample of 16341 households. The variables obtained from this survey include the data on total household consumption expenditures, domestic and international remittances received by the households and information regarding the household characteristics is also obtained from this survey. Total number of households from the province of Punjab were found to be 6954 (43%) while total number of households from Sindh, KPK and Balochistan were 4098 (25%), 2954 (18%), and 2335 (14%) respectively.

According to Household Income and Expenditure Survey (2010-2011), remittances are defined as the amount of money received by Pakistani households in the past 12 months prior to the survey in form of cash from someone who did not live in the household (e.g. child or any other relative in Pakistan or abroad).

The data set revealed that 93.9 % of the households from Punjab did not receive international remittances while only 6.1 % of them were found to be receiving international remittances. Similarly, provincial figures for the percentage of international migrant and non-migrant households for Sindh revealed that 99.5% did not receive international remittances while that for KPK, the percentage of international migrant households was relatively higher (13%) than all other provinces. Arif (2009) also observed a greater percentage of migrants in KPK. Household data of Balochistan also revealed that percentage of international migrant households was much less as compared to the households who did not receive international remittances. In overview, the study may conclude that a larger percentage of households in all the provinces of Pakistan were found to be non-migrant in terms of international remittances (94.7%) and only 5.3% of the total households considered were found to be receiving international remittances.

These fallouts were consistent with that of Castaldo and Reilly (2007) as the low proportion of remittance receiving households may be due to a limitation of the remittance variable in HIES data, that may not be capturing the households who are receiving transfers from seasonal migrants. In reality, seasonal migrants might be contributing to household income through their earnings but are not identified as source of remittance. Seasonal migrants are still considered as members of the household but might be excluded from the definition of remittance given in HIES (2010-11).

As regard the domestic remittances, the data set exposed that KPK received a larger percentage of domestic remittances as compared to Punjab (13%), Sindh (1.4%) and Balochistan (0.4%). An important finding of the study was that KPK received a larger percentage of international remittances but at the same time, the percentage of households who received international remittances but were employed was the greatest in KPK (27.9%) as compared to Punjab where 17.4% of households received international remittances and were unemployed while in case of Sindh and Balochistan, it

was found to be 2.1% and 9.9%, respectively. Therefore, percentage of households receiving international remittances were more unemployed in KPK than that of Punjab, Sindh and Balochistan.

In case of domestic remittances and employment status of the household head, it was found that the percentage of households who received domestic remittances in Punjab were more unemployed (31.3%) than the percentage of households in Sindh (5.6%), KPK (29.9%) and Balochistan (0.8%) who were unemployed but receiving domestic remittances. Thus, it can be said that unemployed cases against international remittances for KPK was observed to be higher but unemployed cases against domestic remittances was higher for the province of Punjab.

In addition to it, the information about the educational status of the household head and whether that particular household received international remittances revealed that 81.8% of the households receiving international remittances in Balochistan had studied less than class 1 following 70% in Sindh, 59% in KPK and 32.6% in Punjab. These results lead to conclude that households receiving international remittances in Punjab were better in terms of their educational status than other provinces. However, it was observed that heads with bachelor's degree, degree in engineering, medicine, agriculture, law and M.Phil./PhD degree were less found to be receiving international remittances in all the provinces of the country.

IV. MODEL SPECIFICATION AND RESULTS

The estimated model is of the form given below;

$$\ln C_{ij} = \beta_0 + \beta_1(\ln \text{income}) + \beta_2(X_1) + \beta_3(X_2) + \beta_4(X_3) + \beta_5(X_4) + \beta_6(D_1) + \beta_7(D_2) + \beta_8(D_3) + \beta_9(D_4) + \beta_{10}(D_5) + \beta_{11}(D_6) + \mu_i$$

where \ln is the log of consumption expenditure of i th household for j th commodity group,

\ln income = log of total income of the household,

X_1 = age of the household head

X_2 = highest level of education attained by the household head

X_3 = number of earners in the family

X_4 = household size

D_1 = dummy for international remittances

D_2 = gender of household head

D_3 = marital status of the household head

D_4 = employment status of the household head

D_5 = location (rural/urban) of household

D_6 = dummy for international remittances

μ_i = stochastic error term

The OLS results for Pakistan revealed that international as well as domestic remittances had a positive impact on the consumption expenditure of all the commodity groups considered in the analysis. The results have been shown in table 1.1a to table 1.5a in Appendix A. Moreover, the income elasticity for the durable goods and recreation was found to be higher than any other expenditure group. Household economies of scale existed in case of recreation and housing because the sign of the coefficients attached with household size was negative in case of these expenditure groups which meant that a rise in household size would require lower expenditure on recreation and housing. However, number of earners in the family had a positive impact on the consumption expenditure of food, durables, non-durables and health but it had a negative impact on the educational, recreational, housing and expenditures like apparel and footwear. When Pakistan was considered as a whole then the results revealed that male headed households had a relatively lower consumption expenditure than female headed households on all the categories except health expenditures where they were found to be spending 1.75% more on health than the females. Another finding in case of Pakistan was that married individuals were observed to be spending less on food, health, education and housing but they spent more than those who were unmarried in case of durables, non-durables, recreational and footwear etc.

As far as the consumption pattern of Pakistan's migrant households was concerned, it was found out that the migrant households had lower consumption expenditures than the non-migrant households in all consumption categories ranging from food to apparel and footwear. Age played a negative role in case of consumption expenditures on durables as the coefficient of age was negative meaning that one year increase in the age of the household head led to a decline in consumption expenditure on durables. However, male headed households in migrant families had relatively higher consumption expenditure than female headed households in case of durables and health. The available literature on the impact of remittances on household consumption pattern showed that female headed households that receive remittance income invested more on health than male headed families but the reverse was true in case of Pakistan. One other significant finding in case of migrant households was that educational level had a negative impact on consumption of durable goods but at the same time it had a negative impact on health expenditures. This finding indicates that although male headed households tend to spend more on health but increase in level of education in turn led to a fall in health expenditure. It can be said that health is usually not considered as the first priority after receiving more level of education in case of migrant families of Pakistan and even the number of earners in the migrant family had a negative impact on health expenditures. Thus, families who tend to receive remittance income were found not to have improved health conditions which was generally conjectured in the literature. Additionally, the statistical results revealed that for migrant households, the economies of scale existed in case of recreational and housing expenditure but the same was true for the non-migrant households as well. It is generally believed that households with remittance income tend to have higher expenditures on housing and other non-productive activities including lavish expenditures on clothing and footwear but the current study revealed that migrant households had lower expenditures on housing than the non-migrant households. Therefore, the results suggest that the migrant households of Pakistan do not utilize the remittance income on non-productive activities. All these findings were in corroboration with the study of Malik and Sarwar (1993).

The overall results of Punjab showed that domestic as well as international remittances had a positive impact on the consumption expenditure of all commodity groups and the income elasticity for the durables (0.7919) and recreation (0.719) was higher than any other expenditure category. The statistical results revealed that household economies of scale existed in case of durables and recreation but expenditure on durable was greater than the expenditure on recreation for the province of Punjab. Households who were employed had relatively lower consumption expenditure on non-durables,

health, recreation, housing, apparel and footwear than those who were not employed. On the other hand, number of earners in the family had a positive impact on the consumption expenditures of food, durable, non-durables, health, apparel and footwear but it had a negative impact on the expenditures of housing, recreation and education in case of Punjab.

The study also revealed that number of earners and educational level of the household head had a negative impact on health in migrant families but the reverse was true in non-migrant families where increase in the number of earners led to an increase in expenditure on health. Thus, the study concludes that households that receive remitted funds in Punjab cannot be termed better than non-migrant households in terms of their health expenditures.

The OLS estimates of Sindh showed that international remittances had a positive impact on all the expenditure groups except durables and recreation and income elasticity for the durable goods, educational expenditures and recreation indicated that these were a luxury for Sindh as a whole. However, domestic remittances were observed to create a positive impact on all the commodity groups taken into account. The number of migrant households in Sindh was very small to be modelled in our analysis so the comparison between households receiving remittances and households that do not receive remittance income was not meaningful. However, the statistical results for the non-migrant Sindhi households showed that households that did not receive remittance income were spending more on durables than any other commodity group as the income elasticity for the durable goods was highest in case of durable expenditure but lowest for health expenditures.

And result of KPK again showed that the generally conjectured statement regarding the lavish consumption expenditures of migrant families cannot be applied to the households of KPK. Balochistan is one of the least developed region of Pakistan where there is a lack of infrastructural development as well as human resource development. People in Balochistan had comparatively highest consumption expenditure on durables after Sindh. The results revealed that increased number of earners had a negative impact on expenditures on education, housing, apparel and footwear but a positive impact on food, durables, non-durables, recreation and health expenditures. When migrant and non-migrant analysis of the households was done, the study revealed that increase in the number of earners in the migrant families had a negative impact on all commodity groups. So, once again it was concluded that the migrant households were thrifter than the non-migrant households of Balochistan.

V. SUMMARY AND CONCLUSION

The objective of this study was to test statistically the generally held belief that an increase in income (due to remittances), drastically alters consumption patterns of households. The analysis of this study reveals that the consumption patterns are not only different across Pakistan and its migrant and non-migrant households across four provinces but the patterns also differ across rural-urban sectors for different types of expenditures analyzed.

The study concludes that the statement that migrant families are generally more lavish in their expenditure patterns than the non-migrant families cannot be applied to Pakistan. The migrant households of all the provinces of Pakistan have lower consumption expenditures and income elasticities than the non-migrant households. Moreover, the analysis shows that there exist a regional difference between the consumption patterns of Punjab, Sindh, KPK and Balochistan but Pakistan as a whole is not found to be utilizing remittance income in non-productive activities and migrant households are thrifty than the non-migrant households who are relatively more spendthrift in all consumption categories as a whole.

For the households of urban Punjab, recreation was a luxury and a normal good as the income elasticity for

recreational expenditures exceeded unity and health expenditure were the least priority in case of not only rural Pakistan and rural areas of all the provinces but households in urban areas of Pakistan were also found to be spending less on health than any other commodity groups considered. After analyzing the whole situation, it can be said with confidence that remittance income does produce a positive impact on the consumption expenditures but the remittance income is not utilized on non-productive activities by the migrant families.

On the whole, the study accepts the alternative hypothesis formulated for Pakistan and four provinces. Moreover, a careful consideration of these patterns of consumptions across the country and its provinces should be made in devising policies to boost or limit international or domestic migration. Increased consumption expenditures are not necessarily an evil since they entail an increased demand for goods and services and if these are locally produced can be beneficial not only at micro level but at national level as well. However, if increased consumption is rooted in the imports of goods and services then the structure of such a demand must be tackled carefully. Similarly, if domestic migration continuously rise then it may end up in underdevelopment of some regions while creating huge income gaps between rural and urban classes but at the same time urban to rural remittances might result in rural development. Therefore, policy makers should frame policies under broad horizon of such aspects. There is a limitation of the study that there might be some important aspects of remittances that play an important role in determining the consumption expenditure of households but have not been incorporated in the study. Such factors might include the effect of seasonal migration. There exist a limitation of remittance variable in the HIES data which might not be capturing households receiving remittance income from seasonal migrants so they might not be considered as an excluded part of the households while identifying the source of income.

For further analysis of the effect that remittances produce, researchers may compute budget share of commodities and apply the Working-Leser model or Propensity Score Matching analysis for the analysis of consumption patterns as the current study could not imply these techniques because of time limitations.

- Working-Leser involves relating budget share of a given item to the logarithm of total expenditures and its advantage is that it satisfies the adding up restriction, which means if the budget share of one commodity is increased, another share must be reduced to satisfy the budget constraint of the household.
- Propensity score matching analysis is a technique with a chief purpose to quantify the average effect related to the receipt of remittances by matching remittance-receiving households with households that do not receive remittances but have similar characteristics. Basically, PSM involves measuring the standard of living of the households receiving remittances before and after they receive it by constructing counterfactual groups describing the situation of households. This method is becoming imperative as it reduces the bias inherited in the non-observability of counterfactual outcomes (logic expressing that could, might or would happen under different conditions).

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APPENDICES

Table 1.1a: Parameter Estimates Of the Engel Curves for Pakistan and Its International Migrant and Non-Migrant Households

Consumption Expenditures of Pakistan								
COMMODITY GROUPS ⇨	FOOD	DURABLES	NON-DURABLES	HEALTH	EDUCATION	RECREATION	HOUSING	APPREL AND FOOTWEAR
SLOPES (STANDARD ERRORS)	0.4462 (0.0084)	0.7946 (0.0330)	0.4208 (0.0075)	0.3014 (0.0147)	0.6853 (0.0279)	0.7672 (0.0295)	0.5223 (0.0127)	0.4923 (0.0096)
Consumption Expenditures Of Pakistan- International Migrant Households								
SLOPES (STATNDARD ERRORS)	0.2140 (0.0235)	0.1473 (0.1189)	0.1841 (0.0198)	0.1886 (0.0464)	0.2746 (0.0998)	0.3326 (0.1201)	0.2940 (0.0397)	0.1767 (0.0269)
Consumption Expenditures Of Pakistan- International Non-Migrant Households								
SLOPES (STATNDARD ERRORS)	0.4683 (0.0086)	0.8653 (0.0336)	0.4432 (0.0077)	0.3143 (0.0156)	0.7326 (0.0288)	0.8112 (0.0293)	0.5427 (0.0133)	0.5210 (0.0098)

Table 1.2a: Parameter Estimates Of the Engel Curves for Punjab and Its International Migrant and Non-Migrant Households

Consumption Expenditures Of Punjab								
COMMODITY GROUPS ⇨	FOOD	DURABLES	NON-DURABLES	HEALTH	EDUCATION	RECREATION	HOUSING	APPREL AND FOOTWEAR
Table 1.2a – Cond.,								
SLOPES (STANDARD ERRORS)	0.4248 (0.0123)	0.7919 (0.0486)	0.4010 (0.0109)	0.3370 (0.0220)	0.6043 (0.0387)	0.7195 (0.0399)	0.4898 (0.0178)	0.4542 (0.0140)
Consumption Expenditures Of Punjab- International Migrant Households								
SLOPES (STATNDARD ERRORS)	0.2002 (0.0291)	0.0940 (0.1490)	0.1919 (0.0266)	0.1570 (0.0517)	0.2537 (0.1080)	0.2369 (0.1461)	0.2557 (0.0447)	0.1686 (0.0329)
Consumption Expenditures Of Punjab- International Non-Migrant Households								
SLOPES (STATNDARD ERRORS)	0.4552 (0.0128)	0.8974 (0.0499)	0.4280 (0.0113)	0.3635 (0.0240)	0.6594 (0.0409)	0.7930 (0.0388)	0.5183 (0.0191)	0.4913 (0.0147)

Table 1.3a: Parameter Estimates of the Engel Curves for Sindh and Its International Migrant and Non-Migrant Households

Consumption Expenditures Of Sindh								
COMMODITY GROUPS →	FOOD	DURABLES	NON-DURABLES	HEALTH	EDUCATION	RECREATION	HOUSING	APPEL AND FOOTWEAR
SLOPES (STANDARD ERRORS)	0.5739 (0.0144)	1.0758 (0.0516)	0.6115 (0.0125)	0.4981 (0.0273)	1.0674 (0.0659)	1.1196 (0.0577)	0.0137 (0.0020)	0.0054 (0.0014)
Consumption Expenditures Of Sindh - International Non-Migrant Households								
SLOPES (STATNDARD ERRORS)	0.5747 (0.0144)	1.0791 (0.0517)	0.6130 (0.0124)	0.4995 (0.0274)	1.0712 (0.0658)	1.1201 (0.0578)	0.6682 (0.0230)	0.5953 (0.0189)

Table 1.4a: Parameter Estimates of the Engel Curves for Kpk and Its International Migrant and Non-Migrant Households

Consumption Expenditures Of Kpk								
COMMODITY GROUPS →	FOOD	DURABLES	NON-DURABLES	HEALTH	EDUCATION	RECREATION	HOUSING	APPEL AND FOOTWEAR
SLOPES (STANDARD ERRORS)	0.3114 (0.0165)	0.4729 (0.0872)	0.2814 (0.0151)	0.2428 (0.0322)	0.6218 (0.0567)	0.5280 (0.0601)	0.4379 (0.0316)	0.3575 (0.0187)
Consumption Expenditures Of Kpk - International Migrant Households								
SLOPES (STATNDARD ERRORS)	0.2239 (0.0338)	0.3683 (0.2020)	0.1537 (0.0268)	0.3604 (0.0995)	0.3484 (0.2007)	0.4894 (0.1481)	0.3641 (0.0725)	0.1804 (0.0472)
Consumption Expenditures Of Kpk - International Non-Migrant Households								
SLOPES (STATNDARD ERRORS)	0.5747 (0.0144)	1.0791 (0.0517)	0.6130 (0.0124)	0.4995 (0.0274)	1.0712 (0.0658)	1.1201 (0.0578)	0.6682 (0.0230)	0.5953 (0.0189)

Table 1.5a: Parameter Estimates of the Engel Curves for Balochistan and Its International Migrant and Non-Migrant Households

Consumption Expenditures of Balochistan								
COMMODITY GROUPS →	FOOD	DURABLES	NON-DURABLES	HEALTH	EDUCATION	RECREATION	HOUSING	APPREL AND FOOTWEAR
SLOPES (STANDARD ERRORS)	0.5775 (0.0262)	0.9822 (0.0734)	0.5201 (0.0182)	0.3037 (0.0336)	0.7103 (0.0822)	0.1250 (0.1522)	0.5415 (0.0361)	0.5195 (0.0243)
Consumption Expenditures of Balochistan - International Migrant Households								
SLOPES (STATNDARD ERRORS)	0.7366 (0.0985)	0.6852 (0.7258)	0.2508 (0.1204)	0.9000 (0.2547)	3.3810 (4.8105)	NA	0.3936 (0.1943)	0.1650 (0.3033)
Consumption Expenditures of Balochistan - International Non-Migrant Households								
SLOPES (STATNDARD ERRORS)	0.5740 (0.0263)	0.9828 (0.0739)	0.5184 (0.0183)	0.3011 (0.0337)	0.7141 (0.0823)	0.1236 (0.1529)	0.5383 (0.0362)	0.5195 (0.0243)