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# Effects of Remittances on Household Welfare: An Econometrics Analysis from Kunar Province, Afghanistan

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**Abstract:** This study evaluates the effect of remittances on household welfare in Kunar province using primary cross-sectional data from 336 households receiving remittances. A composite index, including normalized income, healthcare access, education access, and standard of living, is developed to compute household welfare. The research utilized Ordinary Least Squares (OLS) and Logistic Regression (Logit) models to evaluate the influence of remittances on overall welfare and its individual components. The Ordinary Least Squares results indicate that household welfare is significantly and positively affected by remittances, access to healthcare, and employment status. The Logit model shows that remittances significantly affect access to healthcare and the standard of living, but not access to education. In addition, remittances were found to be the key determinants of household income, underscoring the vital role of livelihood sustainability amid limited employment opportunities. The study contributes to the limited empirical literature in this context by presenting the econometric analysis and developing a composite index of household welfare. The findings reveal the vital role of remittances as the most important and stabilizing source of household income in an environment characterized by low levels of employment opportunities, weak economic conditions, and long-term social and political instability. The study concludes that remittances remain an important socio-economic survival tool for Kunar province and recommends policies to utilize remittances best to ensure more sustainable welfare improvements.

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## INTRODUCTION

In developing economies, migrant remittances become the major source of household income (Ratha, 2007; Adams & Page, 2005; World Bank, 2023). Likewise, remittances may significantly impact household expenditure, health, education, and other aspects, all of which

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play a crucial role in enhancing household living standards (Mohammed et al., 2025). The International Organization for Migration (IOM) defines remittances as money migrants send back to their home countries, usually to friends and family (IOM, 2023). In the last four and a half decades, due to political, economic, and social instability, millions of Afghans have migrated to different countries worldwide (UNHCR, 2023). According to the National Statistics and Information Authority (NSIA) of Afghanistan, about seven million Afghans are refugees, asylum seekers, or living in refugee-like situations globally. Countries such as Pakistan and Iran host significant numbers of Afghan refugees, with approximately two million in Pakistan and more than one million in Iran, as well as many other countries, including Germany, Austria, and the United States of America, which also host large numbers of Afghan migrants (NSIA, 2023). In Afghanistan, remittances play a significant role in improving household well-being, especially in eastern Afghanistan, Kunar province. This province has experienced out-migration due to long-term conflict, economic problems, and limited employment opportunities. As a result, most families in Kunar rely on remittances sent by relatives (Family members and Friends) working abroad to meet their basic livelihood needs.

The major components of household welfare are income, access to education, access to healthcare services, and the standard of living. To evaluate the effects of remittances on household welfare, the following aspects are combined (Sen, 1999). The study further explores the role of remittances in shaping households' socioeconomic conditions in one of Afghanistan's most vulnerable provinces, using primary cross-sectional data collected from families receiving remittances. Finally, understanding the role of remittances in Kunar province can provide policymakers with evidence-based insights to appropriately utilize this source of income to improve household welfare, consistent with outcomes relevant to developing economies (Ratha, 2013; Adams & Page, 2005).

Since Afghanistan is an Islamic country, it is necessary to discuss the remittance (Hawalah) from the perspective of the holy religion of Islam. Below, remittance is introduced from the perspective of Islam, particularly Hanafi Fiqah, and the latest policy of the Islamic Emirate of Afghanistan regarding remittance is also included.

From the perspective of Islam, Remittance (Hawalah) is the transfer of a debt from a debtor to another person who can pay this debt, and it should be free from interest (Ribha) and uncertainty (Gharar). In Hanafi Fiqah, the elements of Hawalah include: Muhel (a person who is both the debtor and the third party's creditor), Mahal Lahu (a debtor who has the right to receive the debt), and Mahal Alihi (a third party who is responsible for paying the debt of the debtor) (Vianti, 2023). Hawala is not only a way to settle a debt, but it has also become a very popular means of transferring money in this era. After the Islamic Emirate of Afghanistan regained power, Da Afghanistan Bank has granted the right to transfer remittances only to money dealers who have a remittance transfer license. This regulation can prevent money laundering and financing of terrorism (DAB, 2022).

Due to decades of political, economic, social, and environmental instability in Afghanistan, many Afghans migrated and settled in different countries around the world. Despite the increasing reliance on remittances, the welfare of households in Kunar Province has become intertwined with these financial inflows. However, there is limited empirical evidence on the effects of remittances on both financial and non-financial aspects of household welfare.

To identify the real and valid research gap and develop research objectives, it is important to focus on the study's background. For this purpose, recent research on the topic across different contexts is reviewed as follows.

A study in Nigeria evaluates the relationship between international migration, remittances, and household welfare using descriptive statistics, quantile estimation, and the ordinary least squares model. The results show that having an international migrant and receiving remittances significantly increase household welfare (Ajaero et al.,2017). Likewise, a study in Ghana on the impact of migrant remittances on household welfare found that remittances have a significant positive impact on household welfare and help minimize the effects of economic shocks (Quartey, 2006). Similarly, evidence from Pakistan examines the impact of remittances on the economy and household welfare, using a general equilibrium framework and microeconometric analysis. The finding shows that a reduction in remittances will lower gross domestic product, investment, and household consumption, thereby increasing poverty. On the other hand, the probability of being poor decreases by 12.7% if the household receives remittances (Ahmad & Sugiyarto, 2010).

Additionally, a study conducted in Bangladesh examined the effects of international remittances on household expenditure and poverty, employing a computable general equilibrium model of the Bangladeshi economy alongside micro econometric analysis at the household level. The results of the Logit Regression suggest that the household’s poverty probability decreases by 5.9% if it receives remittances (Selim et al., 2009). The impact of international and internal remittances on household welfare is evaluated for Viet Nam during 2002- 2004. The results show that receipt of internal and international remittances increases household income and expenditure. As well, the impact of remittances on non-food expenditure was higher than on food expenditure. In the case of international remittances, the impact on income was greater than that on expenditure. This shows a higher MPS (marginal propensity to save). On the other hand, the impact of internal remittances was slightly higher on income than expenditure (Cuong, 2008).

A study using data from 69 low- and middle-income countries investigated the effects of international remittances on education and health. The study found that remittances play a vital role in enhancing primary and secondary education attainment, increasing life expectancy, and reducing mortality rates. The study also suggests developing policies to facilitate the flow of remittances as a source of revenue, paving the way for economic development. (Zhunio et al., 2011). Gyimah-Brempong & Asiedu (2014) in Ghana evaluated the effects of remittances on investment in the educational sector; their findings indicate that

remittances increase the probability of children's enrollment in school and the formation of human capital in the education sector. Likewise, the study shows that remittances to female-headed households increase education investment more than remittances to male-headed households. To evaluate the effects of remittances on higher education, a study has been conducted across the top eight remittance-receiving countries. Using annual data from 1994 to 2013, a hypothesized model was tested, and the coefficient for the pooled mean group (panel ARDL) indicated that remittances have a highly significant effect on higher education development (Arif et al., 2019). According to Ponce et al. (2018), remittances have a positive impact on health expenditure, medicine expenditure, and health knowledge, but no long-run relationship is detected.

A study in Afghanistan evaluates the impact of remittances from the Afghan diaspora and finds that remittances account for 25% of household income and that a 1% increase in remittances reduces income inequality by 0.04% (Barlas et al., 2025). Likewise, a study evaluating the major growth factors of Micro, Small, and Medium Enterprises (MSMEs) in Afghanistan lists remittances as one of the most important factors for MSMEs in the country (Fakhar, 2022).

Although previous studies conducted in Nigeria, Bangladesh, Ghana, Pakistan, and other developing countries have shown that remittances enhance household welfare, there is a lack of empirical research on this topic in Afghanistan. In particular, the impact of remittances on household well-being has not been assessed in Kunar province, where dependency on remittances is high due to limited employment opportunities. Furthermore, most studies have examined the impact of remittances on only one indicator, such as income or consumption, whereas this study examines welfare, which is a multidimensional concept. Therefore, this study enriches the relevant literature by constructing a composite index of household welfare to assess the impact of remittances through specific channels on household income, access to education and healthcare, employment status, and living standards. The composite index for household welfare is developed using the normalization method to ensure comparability across indicators measured in different units. All the variables were normalized using the Min-Max normalization method and transformed into a scale ranging from 0 to 1. After normalization, equal weighting was applied to each component because there was no strong theoretical justification for differential weighting (OECD, 2008). The lack of a comprehensive study in a fragile context limits the identification of remittances' role in improving household welfare across income, education, healthcare, employment, and overall living conditions. Below are the main research objectives:

- To examine the impact of remittances on household welfare in Kunar.
- To analyze how remittances influence the income level of households.
- To assess the role of remittances in improving access to education and healthcare.
- To evaluate the contribution of remittances to overall household living standards.

## RESEARCH METHOD

This section presents the research site, data, population, sampling, econometric model, and data analysis.

### *The research site and data collection*

The study used primary data collected from households receiving remittances in Kunar province, using structured questionnaires administered to household heads and representatives.

### *Population and Sampling*

The study population includes all households in Kunar Province that receive remittances from family members and friends abroad, as there is no official list of remittance-receiving households. The non-probability sampling approach was used due to the absence of comprehensive data on migration and remittances in Afghanistan, particularly in Kunar province, which makes probability sampling difficult. Therefore, due to time and resource constraints, non-probability sampling was used, which is commonly used in empirical studies in other developing countries (Bryman, 2012). However, a limitation of non-probability sampling is that the findings from the selected sample cannot be generalized to the entire population (Creswell, 2014). To mitigate this limitation, an attempt has been made to sample from different districts to increase the reliability and diversity of the sample. The Krejcie & Morgan (1970) table is used to determine the sample size for a given population. The study population, consisting of approximately 23,000 households, was drawn from the official annual population report of the National Statistics and Information Agency of Afghanistan, which represents the total family numbers for Kunar province (NSIA, 2023). Based on this population size, 384 households were selected as a sample to study the impact of remittances on household welfare, with a response rate of 87.5%.

### *Econometric model specification and estimation technique*

To assess the relationship between remittances and various dimensions of household welfare, such as income, education, healthcare, and living standard, the ordinary least squares (OLS) and Logistic Regression (Logit) Models are used. The OLS model is used to estimate the effects of remittances on continuous measures of household welfare. The Logit model was used because the data included binary variables (access to education, healthcare access, and living standard). This makes the model suitable for assessing these results (Hosmer et al., 2013). Furthermore, for the healthiness of the model, the diagnostic tests used are: the VIF test for Multicollinearity check (ensures that independent variables are not highly correlated with each other), the RESET test for model specification, and the Breusch-Pagan test for Heteroscedasticity check (checks for constant variance of the error terms). The mathematical forms of the equations are as follows:

$$HW_i = \beta_0 + \beta_1 Rem\_k_i + \beta_2 Edu\_years_i + \beta_3 Health_i + \beta_4 Emp\_status_i + \in_i \ldots (1)$$

$$income\_k_i = \alpha_0 + \alpha_1 Rem\_k_i + \alpha_2 Edu\_years_i + \alpha_3 Health_i + \alpha_4 Emp\_status_i + \in_i \ldots (2)$$

$$\log\frac{P(edu\_access_i = 1)}{1 - P(edu\_access_i = 1)} = \gamma_0 + \gamma_1 Rem\_k_i + \gamma_2 Edu\_years_i + \gamma_3 Health_i + \gamma_4 Emp\_status_i \ldots (3)$$

$$\log\frac{P(health_i = 1)}{1 - P(health_i = 1)} = \delta_0 + \delta_1 Rem\_k_i + \delta_2 Edu\_years_i + \delta_3 Emp\_status_i \ldots (4)$$

$$\log\frac{P(living\_standard_i = 1)}{1 - P(living\_standard_i = 1)} = \theta_0 + \theta_1 Rem\_k_i + \theta_2 Edu\_years_i + \theta_3 Health_i + \theta_4 Emp\_status_i \ldots (5)$$

In the above equation (1), the dependent variable Household welfare (HW) is explained by several independent variables like Remittance received (in thousand AFN) (rem_k), Level of Education (Edu years), Healthcare access (Health), Employment status of the household head (Emp_status), and epsilon (ϵ) indicates the Error term. Likewise, B0, B1, B2, B3, and B4 are respectively the coefficients of the explanatory variables. Similarly, equation (2) indicates the impact of remittances on household income using the OLS model, in which the income in thousand AFN is the dependent variable, and the remaining variables are the explanatory variables. The α0, α1, α2, α3, and α4 are the coefficients of the explanatory variables. The equations (3 and 4) show the impact of remittances on education access and healthcare using a logistic Regression Model (logit). The access to education (edu_access) and Health care access (health) are the dependent variables. The (γ0, γ1, γ2, γ3, γ4) and (δ0, δ1, δ2, δ3) are the coefficients for equations (3) and (4), respectively. Equation (5) shows the impact of remittances on households' living standards (living_standard) using a logistic regression model. The θ0, θ1, θ2, θ3, and θ4 represent the coefficients for the dependent variables in equation (5). The variable explanations, along with short definitions, are placed in the following table.

***Table 1****. Variables explanation*

| Variable | Type | Description |
|---|---|---|
| hw | Continuous | Composition of welfare index (income normalized, access to education, access to health care, standard of living) |
| rem_k | Continuous | Remittances received by households (in thousand AFN) |
| Edu_years | Continuous | Education years of the household head |
| Health | Binary/dummy | 1 = access to healthcare, 0 = otherwise |
| Emp_status | Binary/dummy | 1 = employed, 0 = unemployed |
| Income_k | Continuous | Household income (in thousand AFN) |
| Edu_access | Binary/dummy | 1 = children enrolled in school, 0 = otherwise |
| Living_standard | Binary/dummy | 1 = satisfied living condition, 0 = otherwise |

### *Data processing and analysis tools*

The data collected from households were processed, coded, and analyzed using Stata 17, and Microsoft Excel was used for data entry, coding, and descriptive analysis. In contrast, Stata 17 was used for econometric and statistical estimation (StataCorp, 2021). The ordinary least squares (OLS) regression model was used to determine the effects of remittances on welfare and income (Gujarati & Porter, 2009). In addition, a Logistic Regression (Logit) model was used to determine the effects of remittances on access to education, health, and household living standards. This model was used because the dependent variables are binary (Hosmer et al., 2013).

### *Diagnostic tests*

To ensure the models' validity and robustness, several post-estimation diagnostic tests were performed. We used the Variance Inflation Factor (VIF) test to see if the independent variables were too closely related. This is because high multicollinearity can increase standard errors and reduce the accuracy of coefficient estimates (Kutner et al., 2004). The Breusch–Pagan test was used to confirm the presence of heteroscedasticity in the error term (Breusch & Pagan, 1979), and the Ramsey RESET test was used to assess model specification errors and potential omitted variables bias or incorrect functional form (Ramsey, 1969). The results were presented in tabular and graphical formats for clear interpretation.

## FINDINGS

This section presents the study's empirical findings based on data collected from 336 households. The analysis was done using Stata 17 and Microsoft Excel. First, descriptive statistics were presented to summarize the variables, followed by a correlation analysis to assess their relationships. After that, regression models (linear and logistic) were implemented to assess the impact of remittances on household welfare and their related aspects, such as income, education, health, and living standards. The results are interpreted in accordance with the study's objectives and the relevant literature.

### *Descriptive Statistics*

The descriptive statistics of the variables in the analysis are shown in Table 2. The average household welfare (HW) is 0.70, indicating that surveyed households enjoy, on average, 70% of welfare and suggesting relatively high access to welfare dimensions. The mean monthly remittance received by households is 19,600 AFN, ranging from 800 to 150,000 AFN, indicating substantial variation in remittance inflows across households.

The mean household income is 42,390 AFN, with a higher standard deviation (33,470 AFN), indicating greater household income inequality. The mean years of education of household heads is 15.42, indicating that most household heads have graduated from secondary or bachelor's levels.

**Table 2.** *Descriptive Statistics of the Variables*

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| HW | 336 | 0.701 | 0.183 | 0.01 | 0.94 |
| Rem_k | 336 | 19.608 | 22.250 | 0.083 | 150 |
| Income_k | 336 | 42.396 | 33.470 | 2 | 200 |
| Edu_years | 336 | 15.417 | 3.120 | 0 | 22 |
| Emp_status | 336 | 0.518 | 0.500 | 0 | 1 |
| Health | 336 | 0.911 | 0.286 | 0 | 1 |
| Living_standard | 336 | 0.762 | 0.427 | 0 | 1 |

*Source:* Author's calculation using STATA

Among respondents, about 52% have jobs, indicating that half depend on remittances. On the other hand, 91% of households have access to healthcare facilities. Moreover, approximately 76% of households have a satisfactory standard of living. In sum, these

statistics show that most households in the studied population receiving remittances have access to initial services and a moderate to high level of living standard.

### *Correlation Matrix*

Table 3 shows the correlation matrix for the different variables. The findings indicate that remittances exhibit a positive correlation with household welfare (r = 0.394), income (r = 0.611), and healthcare (r = 0.252), suggesting that households may have better welfare outcomes when receiving higher remittances. Education years show a weak correlation with most variables, suggesting that the household head's level of education differs little with remittance income or other welfare indicators.

**Table 3**. *Correlation Matrix of Variables*

| Variables | rem_k | edu_years | income_k | emp_status | health | hw | living_standard |
|---|---|---|---|---|---|---|---|
| rem_k | 1.000 | | | | | | |
| edu_years | 0.0438 | 1.000 | | | | | |
| income_k | 0.6110 | 0.1444 | 1.000 | | | | |
| emp_status | −0.1715 | 0.2246 | −0.0064 | 1.000 | | | |
| health | 0.2517 | 0.0754 | 0.1833 | 0.0530 | 1.000 | | |
| hw | 0.3940 | 0.1022 | 0.3322 | 0.1515 | 0.7532 | 1.000 | |
| living_standard | 0.2174 | −0.0464 | 0.0650 | 0.1039 | 0.3151 | 0.7471 | 1.000 |

*Note*. None of the coefficients exceeds 0.80, indicating no serious multicollinearity.
*Source:* Author's calculation using STATA

Employment status shows a weak, negative correlation with remittances (r = −0.172) but a positive association with household welfare (r = 0.152), suggesting that households receiving remittances may depend less on formal employment. In contrast, employment itself remains an important contributor to welfare. The strongest correlations are seen between health access and household welfare (r = 0.753) and between household welfare and standard of living (r = 0.747), denoting that healthcare and living conditions are the main determinants of household welfare. As the no-correlation coefficient increases (0.80), multicollinearity is not a serious issue in the model.

### *Regression Analysis*

In this section, the effects of remittances and other household characteristics on household welfare are shown through regression results. OLS models are used for continuous dependent variables, and logit models are used to estimate binary outcomes. Each model is interpreted in terms of coefficients, strength, direction, and statistical significance.

**OLS regression for household welfare.** The model result ($R^2$ = 0.636) indicates a strong fit, suggesting that about 63.6% of the variation in welfare is explained by remittances, education level, healthcare, and employment status. As $p < 0.001$, the model is statistically significant.

**Table 4**. *OLS regression results for household welfare*

| Source | SS | df | Ms | Number of Obs | = | 336 |
|---|---|---|---|---|---|---|
| Model | 7.1685 | 4 | 1.7921 | F (4, 331) | = | 144.58 |
| Residual | 4.1029 | 331 | .01239 | Prob > F | = | 0.0000 |
| | | | | R - squared | = | 0.6360 |
| Total | 11.271 | 335 | .03364 | Adj R-squared | = | 0.6316 |
| | | | | Root MSE | = | .11134 |

| hw | Coefficients | Std. err. | t | P>\|t\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| rem_k | .00205 | .00028 | 7.12 | 0.000 | .00148 | .00262 |
| edu_years | .00026 | .00201 | 0.13 | 0.893 | -.00368 | .00422 |
| health | .43798 | .02214 | 19.78 | 0.000 | .39442 | .48154 |
| emp_status | .05755 | .01275 | 4.52 | 0.000 | .03247 | .08262 |
| _cons | .22818 | .03516 | 6.49 | 0.000 | .15900 | .29736 |

*Source:* Author's calculation using STATA

In the above table, the coefficient of the remittances is (0.00205), with a p-value of zero. The findings indicate that remittances exert a positive and substantial influence on household welfare. This indicates that a 1,000 AFN increase in remittances changes the welfare index by 0.002. The positive, statistically significant effect of remittances indicates that external financial inflows play a critical role in improving household welfare, particularly in low-income-generating contexts. On the other hand, the effect of education level on household welfare is very small and statistically insignificant. This is not strange, because education affects income and welfare in the long run. Moreover, health access is the most important factor explaining the household welfare with a coefficient of (0.4380) and a p-value of (0.001). Likewise, employment is affecting the household welfare positively by having a significant coefficient of (0.05755). Lastly, the constant term indicates the level of welfare when all explanatory variables are set to zero.

**Impact of remittances on household income:** The effects of remittances on household income are assessed using an ordinary least squares (OLS) Model, with household income (in thousand Afghanis) as the dependent variable and remittances, years of education, employment status, and access to healthcare services as independent variables. The $R^2$ is (0.3929), which indicates that (39.3) percent of the variation in household income is explained by the remittances, years of education, employment status, and access to healthcare services. The F value also indicates that the model is statistically robust.

**Table 5.** *Result of the impact of remittances on household income*

| Source | SS | df | Ms | Number of Obs | = | 336 |
|---|---|---|---|---|---|---|
| Model | 147446.744 | 4 | 36861.6859 | F (4, 331) | = | 53.55 |
| Residual | 227841.27 | 331 | 688.342207 | Prob > F | = | 0.0000 |
| | | | | R - squared | = | 0.3929 |
| Total | 375288.014 | 335 | 1120.26273 | Adj R-squared | = | 0.3856 |
| | | | | Root MSE | = | 26.236 |

| income_k | Coefficients | Std. err. | t | P>\|t\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| rem_k | .92571 | .06799 | 13.62 | 0.000 | .79196 | 1.0594 |

| | | | | | | |
|---|---|---|---|---|---|---|
| edu_years | 1.06287 | .47364 | 2.24 | 0.025 | .13113 | 1.9946 |
| emp_status | 5.08155 | 3.0035 | 1.69 | 0.092 | -.82682 | 10.989 |
| health | 1.97862 | 5.2180 | 0.38 | 0.705 | -8.2860 | 12.243 |
| _cons | 3.42510 | 8.2874 | 0.41 | 0.680 | -12.877 | 19.727 |

*Source:* Author's calculation using STATA

The remittance coefficient of (0.9257) indicates that for every thousand Afghanis of remittances received, household income increases by 926 Afghanis. This indicates that households that receive remittances rely more on direct remittances than on investment and savings. This is consistent with the pattern of low-income and high-reliance households. Moreover, an additional year of education is associated with a higher income of 1,063 Afghanis. These effects are positive and significant, but are weaker than those of remittances. So, education is also effective, but it shows that education is not sufficiently rewarded in the Afghan labor market. Employment status shows a positive but weak effect, indicating that employed heads of household earn about 5000 AFN more than unemployed ones, though the impact is only significant at the 10% level. Access to healthcare does not have a statistically significant or meaningful impact on household income because it is not an income-generating factor. Overall, the findings indicate that remittances play a primary role in determining household income levels.

Impact of remittances on access to education and healthcare. Table 6 shows the outcomes of the logistic regression model, which estimates the likelihood of household access to education. By having the LR chi² (4) of (46.90) and p-value of (< 0.001), the model is statistically significant with a pseudo $R^2$ of 0.2635, showing an intermediate level of explanatory power.

**Table 6.** *Result of the impact of remittances on education access*

| Logistic Regression | | | | Number of Obs | = | 336 |
|---|---|---|---|---|---|---|
| | | | | LR chi2 (4) | = | 46.90 |
| | | | | Prob > chi2 | = | 0.0000 |
| Log likelihood | = | -65.5501 | | Pseudo R2 | = | 0.2635 |

| edu_access | Coefficients | Std. err. | z | P>\|z\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| rem_k | -.000039 | .01249 | -0.00 | 0.997 | -.02453 | .02445 |
| edu_years | .093700 | .05472 | 1.71 | 0.087 | -.01354 | .20095 |
| emp_status | 1.72141 | .61229 | 2.81 | 0.005 | .52134 | 2.9214 |
| health | 2.74741 | .58296 | 4.71 | 0.000 | 1.6048 | 3.8900 |
| _cons | -1.58337 | .86770 | -1.82 | 0.068 | -3.2840 | .11729 |

*Source:* Author's calculation using STATA

Remittances show no significant impact on educational access (p = 0.997), indicating that increases in remittance inflows do not translate into improved educational access for households receiving them. The household head's education level has a nearly positive effect (p = 0.087), but it is not strong. In contrast, employment status has a significant and strong effect: households with an employed head are about 5.6 times more likely to have access to education than households with an unemployed head. Access to healthcare is the most

powerful explanatory variable, increasing the odds of educational access by about 15.6 ($p < 0.001$). These results show that structural welfare indicators, especially employment status and healthcare access, play a more vital role in educational access than remittance.

**Table 7**. *Result of the impact of remittances on healthcare*

| | | | | | | |
|---|---|---|---|---|---|---|
| Logistic Regression | | | | Number of Obs | = | 336 |
| | | | | LR chi2 (4) | = | 75.97 |
| | | | | Prob > chi2 | = | 0.0000 |
| Log likelihood | = -63.11156 | | | Pseudo R2 | = | 0.3757 |

| health | Coefficients | Std. err. | z | P>\|z\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| rem_k | .613105 | .16087 | 3.81 | 0.000 | .29779 | .92842 |
| edu_years | .031869 | .07217 | 0.44 | 0.659 | -.10959 | .17333 |
| emp_status | 1.06109 | .46482 | 2.28 | 0.022 | .15005 | 1.9721 |
| _cons | -1.12340 | 1.1010 | -1.02 | 0.308 | -3.2813 | 1.0345 |

*Source:* Author's calculation using STATA

The healthcare access model shows the opposite pattern compared to education. Remittances have a highly positive and significant effect on health access ($p < 0.001$). These results indicate that households receiving remittances have greater access to health services. The education level of the household head does not affect health access ($p = 0.659$), suggesting that financial status rather than educational characteristics largely determines access to health care. Employment status also shows a statistically significant, positive relationship with healthcare access, indicating that employed households have better access to health services than unemployed households. Overall, the model fits with a pseudo $R^2$ of 0.376, indicating that approximately 38% of the variation in health access is explained by the model.

**Effect of Remittances on Household Living Standards.** The logistic regression model is used to estimate the impact of remittances and other explanatory variables on household living standards. The LR chi2 (4) is (47.99), p-value is less than (0.001), along with a pseudo R2 of (0.1301), which shows the statistical significance of the model and meaningful variation in living standard is captured by explanatory variables.

**Table 8**. *Result of the effect of remittances on living standards*

| | | | | | | |
|---|---|---|---|---|---|---|
| Logistic Regression | | | | Number of Obs | = | 336 |
| | | | | LR chi2 (4) | = | 47.99 |
| | | | | Prob > chi2 | = | 0.0000 |
| Log likelihood | = -160.4249 | | | Pseudo R2 | = | 0.1301 |

| health | Coefficients | Std. err. | z | P>\|z\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| rem_k | .030807 | .00951 | 3.24 | 0.001 | .01216 | .04945 |
| edu_years | -.124193 | .06210 | -2.00 | 0.046 | -.24592 | -.00246 |
| emp_status | .844668 | .29823 | 2.83 | 0.005 | .26014 | 1.4291 |
| health | 1.71090 | .44476 | 3.85 | 0.000 | .83918 | 2.5826 |
| _cons | .684611 | .95381 | 0.72 | 0.473 | -1.1848 | 2.5540 |

*Source:* Author's calculation using STATA

Remittances significantly affect living standards (β = 0.0308, p = 0.001). An additional thousand AFN in remittances helps households improve housing quality, increase consumption, or access essential needs. In contrast, education has a negative and statistically significant impact on living standards. In Afghanistan's context, higher education does not lead to higher living standards due to unemployment, underemployment, and a mismatch between market demand and skills. It suggests that education raises expectations but does not guarantee a better standard of living.

On the other hand, employment status significantly predicts a higher standard of living (β = 0.845, p = 0.005). In reality, it makes sense that employed individuals have higher living standards than the unemployed. Finally, access to healthcare is another strong factor that influences households' living standards. Households with access to healthcare are socially and economically better off.

### *Diagnostic Tests*

The Variance Inflation Factor (VIF) test was utilized to evaluate multicollinearity. As the VIF values in Table 9 for all independent variables are below 10, this indicates the absence of multicollinearity among the explanatory variables.

**Table 9.** *Result of the VIF test for multicollinearity*

| Variable | VIF | 1/VIF |
|---|---|---|
| rem_k | 1.11 | 0.8978 |
| emp_status | 1.10 | 0.9095 |
| health | 1.08 | 0.9253 |
| edu_years | 1.06 | 0.9407 |
| Mean VIF | 1.09 | |

*Source:* Author's calculation using STATA

The Breusch–Pagan/Cook–Weisberg test was used to examine heteroskedasticity, and all OLS models were estimated with robust standard errors. The test confirmed heteroskedasticity (p < 0.001), indicating that the residual variance varied across observations.

**Table 10.** *The Ramsey RESET test result*

| Model | F-statistic | Degrees of Freedom | p-value |
|---|---|---|---|
| OLS Welfare Model | 2.51 | (3, 328) | 0.0586 |

*Source:* Author's calculation using STATA

The Ramsey RESET test was used to check the model specification. The test shows a p-value of 5.8%, which is greater than the 5% significance level, indicating no evidence of misspecification or omitted-variable bias.

## DISCUSSION

This study evaluated the effects of remittances on the multidimensional index of household welfare in Kunar province. The findings provide clear insight into the objectives.

Related to the first objective, the findings show that remittances have a positive and strong impact on household welfare, which is consistent with the results of other developing countries, such as Ghana, Pakistan, Nigeria, and Vietnam (Ajaero et al., 2017; Quartey, 2006; Ahmad & Sugiyarto, 2010; Cuong, 2008). In these countries, it has been observed that remittances strengthen household economies, and the current study also confirms this in Kunar, Afghanistan. Due to a lack of local employment opportunities and limited access to public services, remittances become more important to the household economy.
Concerning the second objective, remittances are the most important determinant of household income, accounting for almost a one-to-one increase in income. These results support research conducted in Bangladesh (Selim et al., 2009). Where remittances decrease poverty and improve household purchasing power. Educational attainment also shows a positive, though relatively weak, effect, suggesting that human capital continues to play a role. However, its magnitude is lower than that of financial inflows in the current context.

Regarding the third research objective, remittances have different effects on the non-income dimensions of welfare. Remittances significantly increase households' access to healthcare, aligning with Zhunio et al. (2011) and Ponce et al. (2018), who found that remittances improve households' access to healthcare. However, remittances do not have a significant impact on access to education; this result varies across studies in Ghana and in other contexts (Gyimah-Brempong & Asiedu, 2014). This shows that in Kunar province, access to education is determined by factors such as school availability, distance, and cultural norms rather than solely by financial capacity.

In line with the last research objective, remittances positively affect household living standards, aligning with findings from other developing economies where remittances play a significant role in enhancing housing, consumption, and overall assets. The very interesting finding is that higher levels of education are associated with a negative relationship with the standard of living. This result reflects the reality of Afghanistan's labor market, where education does not guarantee better employment.

In sum, the results confirm that remittances improve household income, healthcare access, and overall living standards. In contrast, remittances are not a strong determinant of educational access, underscoring the need to examine structural barriers to education beyond financial factors.

The study is aligned with several limitations. First, the use of non-probability sampling limits the generalization of the findings to the population. Second, the composition of the welfare index may cause measurement bias. Third, excluding relevant variables may lead to omitted-variable bias. Finally, focusing solely on Kunar province may limit the applicability of the results to other regions of Afghanistan.

## CONCLUSION

The study evaluates the effects of remittances from around the world on the welfare of the households located in Kunar province. Around 336 families were evaluated to examine the effects. The study indicates that remittances have a significant and highly strong impact on enhancing the multi-dimensional level of welfare. The Ordinary Least Squares Model results show that remittances, along with healthcare access and employment status, substantially improve welfare levels. While education does not play a significant role in determining welfare, it reflects the current reality of Afghanistan's labor market.

For the remaining objectives, remittances play a vital role in improving household income, suggesting that households depend heavily on them. Likewise, the Logit Models indicate that remittances substantially influence the healthcare and living standards, but do not affect access to education. These findings support studies from diverse contexts worldwide that show remittances significantly improve consumption, health, and other dimensions of welfare.

In sum, these findings are consistent with the comprehensive literature indicating that remittances improve welfare. Similarly, the insignificant impact of remittances on educational access highlights structural weaknesses, such as low-quality schooling, economic instability, and other social and administrative norms. The study provides new evidence from Kuanr, Afghanistan, where empirical research on the topic is limited. It underscores the need to develop policies that ensure remittances help improve public services and create employment opportunities.

### RECOMMENDATIONS

1. The findings show that remittances play a significant role in improving households' welfare, income, access to healthcare, and living standards. Therefore, the government should provide people with low-cost, formal channels for remittance transfers.
2. Public awareness programs should be provided to households receiving remittances on the effective use of remittances, so that they can use hawala as an income-generating source rather than a source of consumption.
3. Donors of remittances should be encouraged to send their remittances to support the productive activities.
4. Since households receiving remittances have access to adequate welfare and basic needs, the government and NGOs should target households that do not receive remittances in their assistance.

### CONFLICT OF INTEREST

The authors clarify that there is no conflict among them regarding the paper, authorship, or publication. For the publication of the study, no financial support was received.

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## AUTHOR CONTRIBUTION

The research was designed, conceptualized, and supervised by Iftikharullah Fakhar. Likewise, he finalized the manuscript or final draft. Mohammad Talha Siddiqui and Abdullah Faizi were engaged in data collection and developing the initial draft of the paper. All authors reviewed and approved the submitted version. Finally, the follow-up with the journal was done by Iftikharullah Fakhar.

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## DATA AVAILABILITY STATEMENT

Research data is not publicly available due to confidentiality and privacy, but can be provided upon reasonable request.

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