Effect of External Remittance on Health Outcome in Kenya

Weldon Kibet and Dr. Yasin

Department of Economics, Maseno Univeristy, Kisumu

DOI: https://doi.org/10.47772/IJRISS.2026.10100160

Received: 06 January 2026; Accepted: 13 January 2026; Published: 28 January 2026

ABSTRACTS

A healthy population contributes significantly to a nation's economic development. Despite this, Kenya has reported an average infant mortality rate of 40.4 deaths per 1,000 live births, exceeding the global average of 27.9 per 1,000. This situation has hindered the country's productivity, reduced national income, and slowed efforts to alleviate poverty. The study aimed to examine how external remittances influence health outcomes. It relied on time series data from multiple sources covering the years 2004–2024. A multivariate regression model was developed, and the Ordinary Least Squares (OLS) method was applied to estimate the relationship between remittances and infant mortality. The study was guided by the Grossman theoretical framework. Results showed that remittances were associated with a reduction in infant mortality. Based on these findings, the study recommends that the government, together with financial institutions, facilitate affordable, secure, and efficient channels for transferring earnings from abroad to help improve national health outcomes.

INTRODUCTION

Although the number of migrants has grown, the proportion relative to the world population has remained slightly above 3%. Most migrants relocate to countries within the Organization for Economic Cooperation and Development (OECD) and the Gulf region. As of 2024, the global number of international migrants reached 304 million, making up 3.7% of the world's population (OECD, 2025)

Global remittance flows in 2024 were estimated to surpass USD 905 billion, with approximately USD 685 billion directed to developing nations (OECD, 2025). Actual remittance levels are believed to be much higher when informal and unrecorded transfer channels are considered (World Bank, 2016). The volume could increase further if transfer costs were lower; in the third quarter of 2015, the global average remittance fee was 8%, far above the 3% target outlined in the Sustainable Development Goals (SDGs). Remittances therefore remain an important source of household income in developing countries, contributing to improved living standards. Sub-Saharan Africa received an average of USD 30.56 billion in remittances between 2006 and 2015 (World Bank, 2016).

Kenya has also experienced a steady increase in remittance inflows, averaging USD 1.857 billion between 2004 and 2024 (World Bank, 2025). This growth is linked both to improved methods of tracking remittances and to a rising number of Kenyans living abroad. In 2022, emigrants represented 5.5 % of Kenya's population (World Bank, 2025).

Between 2004 and 2024, external remittances to Kenya continued to rise. In 2013, Kenya surpasses USD 1 billion threshold in remittances. This was a significant increase from 2004, when remittances totaled USD 45 million (World Bank, 2016). The upward trend is attributed to advancements in ICT that enabled mobile-based money transfer systems, growing government engagement with the diaspora, and increased migration from Kenya. According to Kenya National Bureau of Statistics (2018) Kenyans used 9.8% of external remittance on health while education and foods recorded 29.4% and 22.8% respectively. Existing literature consistently shows that external remittances contribute positively to health outcomes across different contexts, and Kenya is no exception (Hildebrandt & McKenzie, 2005; Lu, 2013; Ponce et al., 2011).

According to Bloom and Canning (2000), the health status of a population can influence a nation's income in four main ways. First, good health enhances workers' productivity, as healthy individuals are able to work more

hours and perform tasks more efficiently than those who are ill. Second, health affects education outcomes. It shapes cognitive development, learning ability, and school attendance among students. For non-students, good health supports their ability to finance education through their labour earnings; when they fall ill, their capacity and incentive to invest in education diminishes. Third, health influences savings behavior. Longer life expectancy encourages individuals to save and invest in order to accumulate wealth, while high medical expenses can lead to catastrophic spending that pushes households into poverty. Finally, population health affects both the size and structure of the population. In many developing countries, healthcare costs are jointly financed by governments and private individuals, and since many rely on low incomes, remittances from abroad may serve as an important supplementary source of funds for health investment.

Improved health enhances both the quantity and quality of human capital (Schultz, 1961). People seek healthcare to build their stock of health, which functions as a productive asset (Grossman, 1972). Health outcomes reflect the results of healthcare interventions. As a key input in production, a healthy labour force can boost income levels, worker productivity, savings, investment, and overall economic growth (Acaroğlu & Ada, 2014; Bloom & Canning, 2008; Weil, 2007).

METHODOLOGY OF THE STUDY

The study employed a non-experimental time-series design, appropriate because the variables of interest could not be manipulated. This design enables inference through observation and interpretation. Annual data from 1985 to 2018 were used to estimate the impact of remittances and selected socio-economic factors on Kenya's health outcomes.

The methodological framework was grounded in the Grossman Model, which assumes that individuals behave rationally and seek to improve their health throughout the life cycle. In this model, lifespan is endogenously determined by one's health stock, and death occurs when this stock reaches a minimum threshold. The representative consumer's intertemporal utility function is expressed as:

$$U = U(\phi_0 H_0, \phi_1 H_1, \phi_2 H_2 \dots\dots, \phi_n H_n, Z_0, Z_1, Z_2 \dots, Z_n) \quad (3.1)$$

where H_0 denotes initial health stock, H_i the health stock in period i, ϕ_i the service flow from that stock, $H_i = \phi_i H_i$ the total consumption of health services, and , Z_i is the consumption of other goods.

Net investment in health is defined as gross investment minus depreciation:

$$H_{i+1} - H_i = I_i - \mu_i H_i \quad (3.2)$$

where I_i is gross investment and μ_i the (exogenous but age-varying) depreciation rate. Gross health investment is produced via a household production function:

$$I_i = i_i(M_i, TH_i; E_i) \quad (3.3)$$

Here, M_i represents market-purchased inputs, TH_i time allocated to health production, and E_i the stock of non-health human capital. Individuals maximize intertemporal utility subject to income and time constraints. The resulting first-order conditions yield a reduced-form health demand function:

$$H_t = f(X_t) \quad (3.4)$$

In this expression, H_t denotes health outcomes—such as infant mortality—while X_t includes inputs to health production, such as genetic endowments, nutrition, time devoted to health activities, income, environmental conditions, public goods consumption, healthcare access, and education.

RESULTS, INTERPRETATION AND DISCUSSION

Correlation coefficient

Table 1: Correlation Matrix

	REM	**PC**	**IUL**
REM	1.0000		
PC	-0.2187	1.0000	
IUL	0.2787	0.2899	1.0000

The findings indicated that external remittances, private consumption expenditure, and immunization uptake were not strongly correlated, suggesting the absence of multicollinearity. Assessing the magnitude of the correlation coefficients was useful for determining the extent of multicollinearity in the dataset. According to Gujarati (2005), a correlation coefficient above 0.8 signals serious multicollinearity.

Unit Root Tests Results

Table 2: Test for Stationarity

Time Series Variable	**KPSS**		**Conclusion**
	Intercept	**Intercept +Trend**	
Infant Mortality rate	0.6434	0.1198	Stationary
External remittance	0.6073	0.1757	Stationary
Private Consumption Expenditure	0.1468	0.1468	Stationary
Immunization uptake level	0.3178	0.1622	Stationary
Critical Values at 1%	**0.739**	**0.216**	
Critical Values at 5%	**0.463**	**0.l46**	
Critical Values at 10%	**0.347**	**0.119**	

Stationarity tests were conducted to determine whether the variables contained unit roots. All time-series variables underwent unit root analysis. The Kwiatkowski–Phillips–Schmidt–Shin (KPSS) test was used due to its suitability for assessing stationarity when a deterministic trend is present. Under the KPSS framework, the null hypothesis states that the series is stationary. The results showed that the null could not be rejected, as the test statistics were lower than the critical values at the 1% significance level.

Residuals Based Tests Results

The tests were performed to ascertain the normality of residuals over time, to be assured of its constant variance, and to guard against autocorrelations of error term for different years. The outcome of the residuals based tests were displayed in Table 3.

Table 1: Residual Based Tests Results

Dependent Variable	**Infant Mortality Rate**	
Type of Test	Test Statistics	Probability

Jarque-Bera	0.215282	0.89795
Breusch-Godfrey	3.203679	0.0735
Breusch-Pagan-Godfrey	0.6205170	0.1020

The normality of the residual was assessed using the Jarque–Bera statistic derived from the histogram–normality test. The Jarque–Bera test assumes, under the null hypothesis, that the regression residuals are normally distributed. Since the p-values for the model exceeded 0.05, the null hypothesis could not be rejected at the 5% significance level, indicating that the residuals followed a normal distribution. This normality suggests that the regression coefficients are also normally distributed, as any linear combination of normally distributed variables is itself normally distributed (Greene, 2012).

To ensure efficient and unbiased estimates, an autocorrelation test was performed using the Breusch–Godfrey Lagrange Multiplier test. The null hypothesis for this test states that no autocorrelation exists. Because the chi-square p-value was greater than 5%, the null hypothesis could not be rejected.

Lastly, heteroskedasticity was examined using the Breusch–Pagan–Godfrey test, which tests the null hypothesis that the residuals have constant variance. Since the model's F-statistic p-value exceeded 5%, the null hypothesis was not rejected, indicating that the residuals were homoscedastic.

3.4: Effects of External Remittances on Infant Mortality Rate in Kenya

The objective of this research was to investigate how external remittances affects Infant mortality rate in Kenya. To achieve this objective, the OLS estimation was carried out. The outcome of the regression examination is given by Table 4.

Table 2: Effects of External Remittances on the Infant Mortality Rate.

Dependent Variable: IMR

Method: Least Squares

Included Observations: 21

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	101.1819***	17.5998	5.7490	0.0000
REM	-0.0029***	0.0003	-9.0252	0.0000
PC	-0.4512**	0.2447	-1.8438	0.0827
IUL	-0.2371***	0.0795	-2.9828	0.0084

R-Squared: 0.8826 Durbin-Watson Stat.:0.9986

Adjusted R-Squared:0.8619

F-statistics: 42.60896

Prob.(F-statistics): 0.0000

Note: *** Shows that the coefficient is statistically significant at 1%, ** Shows that the coefficient is statistically significant at 5%,

The F-statistics from the regression outputs were statistically significant at the 1% level, indicating that the explanatory variables collectively account for the observed variation in the infant mortality rate. Together, these variables explained approximately 86.19% of the changes in infant mortality, suggesting that the model provides a strong fit for analyzing fluctuations in the infant mortality rate.

The coefficient for external remittances was negative and highly significant, indicating that increases in remittance inflows lead to reductions in infant mortality, holding other factors constant. As anticipated, external remittances help ease household financial constraints, enabling better access to quality health services. Comparable results were documented by Thoumi (2016) and Amega (2018), who also found that remittances are significantly associated with lower infant mortality rates. These findings highlight the crucial role of external transfers in supporting Kenya's health sector. A decline in infant mortality strengthens the country's human capital base and expands future markets for goods and services due to population growth.

CONCLUSION

The study was driven by the observation that remittances to the country have increased, with approximately 10% of these funds being spent on healthcare by recipients. Private consumption expenditure and immunization uptake were included as control variables in the analysis. The results indicated that the coefficient for external remittances was negative and statistically significant, leading to the conclusion that remittances contribute to improved health outcomes and a reduction in infant mortality.

Consequently, it is recommended that the government, in partnership with financial institutions, ensure that remittance transfers are affordable, efficient, and secure. Remittance channels should have low transaction costs, minimal requirements, and reliably deliver funds to the intended recipients.

REFERENCES

1. Acaroğlu, H., & Ada, A. A. (2014). The Relation between Human Capital and Economic Growth in MENA Countries. Journal of Public Administration and Governance, 205-216.
2. Amega, K. (2018). Remittances, education and health in Sub-Saharan Africa. Cogent Economics and Finance.
3. Bloom, D., & Canning, D. (2000). The Health and Wealth of Nations. Science, 1207-1208.
4. Bloom, D., & Canning, D. (2008). Population Health and Economic Growth. Commission on Growth and Development, Working Paper No. 24, 1-25.
5. Greene, W. (2012). Econometrics Analysis (7th ed.). Prentice Hall: Pearson Education.
6. Grossman, M. (1972). On the Concept of Health Capital. The Journal of Political Economy, 224-225.
7. Gujarati, D. (2005). Basic Econometrics. Newyork: The McGraw-Hill Companies.
8. Hildebrandt, N., & McKenzie, D. J. (2005). The Effects of Migration on Child Health in Mexico. World Bank Policy Research Working Paper 3573.
9. Kenya National Bureau of Statistics. (2018). Basic Report Based on 2015/2016 Kenya Integrated Household Budget Survey. Nairobi: KNBS.
10. OECD (2025). International Migration Outlook 2025. DOI: https://doi.org/10.1787/ae26c893-en.
11. Ponce, J., Olivie, I., & Onofa, M. (2011). The Role of International Remittances in Health Outcomes in Ecuador: Prevention and Response to Shocks. International Migration Review, 727-745.
12. Schultz, T. (1961). Investment in Human Capital. The American Economic Review, 1-17.
13. The World Bank. (2025). Migration and remittance forecast. Washington D.C: The World Bank.
14. The World Bank. (2016). Migration and Remittances Factbook (3rd ed.). Washington D.C: The World Bank.
15. Thoumi, A. (2016). The Effect of Remittances on Population Health: An Analysis of Remittances, Health Outcomes, and Health Expenditures. Retrieved 2019, from A Masters Thesis, submitted to the Faculty of the Graduate School of Arts and Sciences of Georgetown University.
16. Weil, D. (2007). Accounting for the Effect of Health on Economic Growth. NBER Working Paper No. 11455, 1-53.