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Effect of foreign remittances on social and human resource development factors: Role of Saudization

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Abstract

This study focuses primarily on the impact of remittances on the social and human resource development of a panel of six developing nations from 1990 to 2020. To reach that goal, the study develops three distinct models that capture the social and human resource components of poverty, infant mortality, and school attendance. These models are experimentally evaluated utilizing Fully Modified Ordinary Least Square (FM-OLS), Dynamic Ordinary Least Square (DOLS), and Fixed Effect Ordinary Least Square (FEOLS), followed by the Methods of Moment Quantile Regression (MMQR) technique. In FMOLS, FEOLS, and DOLS calculations, it was discovered that remittances have a beneficial effect on school enrolment but a negative effect on infant mortality and poverty. Remittances have a significant and positive influence on school enrollment at all quantiles, a significant and negative impact on poverty at all quantiles, and a significant and negative effect on infant mortality only at medium to higher quantiles. The findings demonstrate that correctly utilized remittances can significantly improve human resources and reduce poverty in the economies analyzed. If correctly exploited, the results and conclusions may have significant policy implications for decision-makers in remittances.

Keywords: *Remittance, social development, human resource development; MMQR*

Introduction

Every responsible government endeavors to reduce the unemployment rate in its workforce while taking socioeconomic consequences into account. Developed nations often maintain unemployment rates below 10 percent. The Saudi Arabian government has taken several measures to alleviate the unemployment problem. The Saudization (localization) program, which aims to replace foreign workers with Saudis, is the most well-known government effort to reduce unemployment. To ensure the continuity of work, saudization is defined as replacing foreign workers with a trained and competent local workforce (Van Hoa et al., 2022). The political objective of Saudization under the current leadership is to prevent any rebellion among the middle class. Historically, the class got sufficient employment and benefits from the public sector. However, historical fiscal constraints have prevented the government from providing enough

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benefits and employment opportunities. Despite program successes, Saudis continue to confront the risk of high unemployment rates (Echreshavi, Esmaeili, & Al Jufaili, 2022). During the sixth Development Plan, an estimated 574,800 additional young people would enter the labor force (1995–1999). The number exceeds the estimated number of new jobs by more than double (Al-Dosary & Rahman, 2005). Specifically, saudization is associated with the achievement of goals such as an increase in Saudi national employment across all industries, a reduction and cessation of excessive reliance on foreign labor, and the reestablishment and reinvestment of revenue that would have otherwise been sent abroad as remittances to the home countries of international workers (Al-Dosary & Rahman, 2005).

Due to the termination of foreign workers, Saudization must significantly impact remittance inflows to remittance-receiving nations, and this issue requires empirical quantification. The importance of remittances to an economy cannot be contested due to their prevalence and worldwide economic significance (Liu, 2022). Remittances are a relatively new phenomenon in finance and the most important source of income (Meyer & Shera, 2017). After the foreign direct investment, foreign remittances are recognized as the second most important source of capital entering emerging countries (Rahman, 2010). These can encourage long-term community development and local business investment (Gao, Kikkawa, & Kang, 2021). In the poor world, remittances from migrants supply health care and education. Investing remittances on human capital is particularly crucial for countries with younger populations and lower educational attainment (Saha, Pal, Halder, Dhara, & Saha, 2022). Remittances can contribute to a country's development by enhancing its physical and human resources, eliminating poverty and inequality, and enhancing its human capital. Remittances allow for more significant investments in physical assets, education, health and access to vast information. Additionally, they reduce poverty by increasing income. This suggests that remittances can significantly increase revenue or consumption while reducing poverty dramatically (Mehedintu, Soava, & Sterpu, 2019).

Since emerging nations receive approximately 74 percent, or $307.1 billion, of the total N416 billion in remittances, their effects on the economic system are more pronounced. According to the research, remittances can assist developing economies in enhancing their standard of living. There are both micro and macro-level effects of remittances (Rao, 2022). At the micro level, remittances significantly impact household consumption and income patterns. In addition, remittances help to eliminate poverty, enhance financial development, and expand economic prosperity. 59 percent of remittances are utilized for consumption, health, and education, according to research (Cuadros-Menaca & Gaduh, 2020). It is estimated that 59 percent of remittances are spent on consumption, education, and health care. If households invest their remittances in education, entrepreneurship, or new technologies instead of focusing solely on consumption, GDP may increase (Ahmad, Shafiq, & Gillani, 2019).

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The third Sustainable Development Goal focuses on health. Children are particularly susceptible to health issues. Even though the infant death rate has decreased from 31 per 1000 live births in 2000 to 19 per 1000 live births in 2015, infant mortality remains a significant problem. The infant mortality rate in Central Asia, South Asia, and Sub-Saharan Africa were 29 per 1,000 live births in 2015. Likewise, education is the fourth main objective of the SDGs. 61 million of the 263 million children in the primary school age range are missing from school. In addition, Sub-Saharan Africa and South Asia account for 70% of the world's non-schooled population (Ahmad et al., 2019).

Many economists are currently focusing on remittances due to their rising amount and stability. Consequently, this study aims to examine the impact of remittances on social and human resource development in Pakistan, Jordan, Egypt, Yemen, Sudan, and India from 1990 to 2020. According to the author, none of the prior research has quantified the impact of remittances on human resources and societal development in these nations. In earlier studies, the Human Development Index was typically utilized as the measure of human and societal development (Rakhmat, Aswar, Putri, & Dewi, 2022). In contrast, the current research examines the impact of remittances on social and human resources in terms of health, education, and poverty indicators. In addition, unlike earlier studies, the present study estimates the objective mentioned above using the MMQR method after calculating FMOLS, DOLS, and FEOLS. The MMQR method proposed by Machado and Silva (2019) has numerous advantages over conventional panel data approaches (section 3 for more details).

The remainder of the study is structured as follows: In part 2, a literature review is presented. The following section, section 3, covers data description, data sources, and methodology. Section 4 contains the findings and discussions of the study. Section 5 concludes the analysis and presents policy recommendations.

Review of Literature

Previous research has focused on the connection between remittances and economic and human growth. For instance, Ahmad et al. (2019) evaluated the influence of remittances on human resource development for 151 developing countries between 1990 and 2016. Using the GMM estimating method, the authors observed that remittances had a beneficial effect on human resource development as evaluated by newborn mortality and school attendance. The favorable influence of remittances on human resource development was further demonstrated by disaggregating the countries by income and area. Adenutsi (2010) evaluated the effect of remittances on human development in 15 Sub-Saharan African nations between 1987 and 2007. The study discovered that remittances have a positive long-term impact on human development. Using data from seven regions of the Kyrgyz Republic, Gao et al. (2021) estimated the impact

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of remittances on human capital investment. Using Instrumental variable regression and Fixed Effect estimates, they found that remittances harmed human capital development and education. Huay, Winterton, Bani, and Matemilola (2019) examined the impact of remittances on the human development index (HDI) in developing nations from 1980 to 2014. Using the GMM estimating method, the scientists discovered that remittances positively benefited human development. Using the OLS method, Irdam (2012) investigated the function of remittances in human development and found that remittances had a favorable effect on the degree of human development. Ponce, Olivé, and Onofa (2008) investigated the influence of remittances on the education and health outcomes of Ecuadorian households and found that remittances had no significant impact on education and health outcomes. Sami and El-Aziz (2018) examined the effect of remittances on educational attainment at Egypt's elementary and secondary school levels. According to the Ordered Probit model findings, remittances increased higher education but had no effect on elementary or secondary education (Hlongwane & Daw, 2022).

In continuation, Azizi (2021) investigated the impact of remittances on inequality and poverty using data from 103 economies from 1990 to 2014. Using the Instrumental Variables method, the authors discovered that remittances positively impacted poverty and inequality reduction. Kumar (2019) investigated whether or not remittances decreased household poverty in Bangladesh. This was estimated using a binary logistic regression model, and according to the study's findings, remittance-receiving households were less impoverished than those that did not get remittances. Musakwa and Odhiambo (2019) evaluated the influence of remittances on poverty in Botswana as measured by infant mortality rate and household consumption expenditures. Based on ARDL Bound testing results, the authors concluded that remittances reduced infant mortality but had no effect on household consumption expenditures. Abduvaliev and Bustillo (2020) investigated the impact of remittances on poverty and economic growth in ten Commonwealth of Independent States and found that remittances increased economic growth but decreased poverty in the countries. Additionally, Mehedintu et al. (2019) investigated the influence of remittances on poverty and economic development in European Union countries and found that remittances positively affected poverty reduction.

Literature Gap

The available literature evaluation reveals several study gaps. Many previous studies have focused on different panels of developing countries to estimate the impact of foreign remittances on social and human resource development. However, previous researchers have neglected mainly the panel consisting of Pakistan, Egypt, Sudan, Jordan, Yemen, and India. This study identifies and fills this knowledge gap by assessing the influence of social and human resources in Pakistan. In addition, the study calculates human resource development by analyzing education, health,

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and poverty separately.

In contrast, the conventional method uses the human development index as a proxy for human resource development. In addition, the work is innovative from a methodological standpoint. The study used the MMQR methodology to evaluate the effect of remittances on social and human resources at various quantiles. To the best of our knowledge, this technique has never been used in the context of the study's purpose, making the current work an original contribution to the body of knowledge.

Data and Econometric Methodology

The objective of this study is to evaluate the impact of foreign remittances on social and human resource development for a panel of six developing nations (Pakistan, India, Jordan, Sudan, Egypt, and Yemen) throughout the 1990-2020 time frame. To estimate this relationship, we create three distinct models for poverty, education, and health that indicate the growth of social and human resources. All models use foreign remittances as their primary explanatory variable. Important independent variables are incorporated into the models to avoid omitted variable bias. In Table 1, variables and data sources are described in detail.

The models are formulated as follows:

Model 1

INFMORT = f (REM, GDP, PHYSICIAN, URB)

Model 2

EDU= f (REM, GDP, PTRATIO, URB)

Model 3

POV = f (REM, GINI, GDP)

The econometric forms of the models are given as

$$EDU_{it} = \alpha_0 + \beta_1 REM_{it} + \beta_2 GDP_{it} + \beta_3 EEXP_{it} + \beta_4 PTRATIO_{it} + \beta_5 URB_{it} + \varepsilon_{it} \quad (1)$$

$$INFMORT_{it} = \alpha_0 + \beta_1 REM_{it} + \beta_2 GDP_{it} + \beta_3 HEXP_{it} + \beta_4 PHYSICIAN_{it} + \beta_5 URB_{it} + \varepsilon_{it} \quad (2)$$

$$POV_{it} = \alpha_0 + \beta_1 REM_{it} + \beta_2 GDP_{it} + \beta_3 GINI_{it} + \varepsilon_{it} \quad (3)$$

Table 1: Data Description and Sources

Variables	Measurement	Data Sources

Economic Growth	Gross Domestic Product Per Capita (US$ 2015 constant)	WDI
Poverty	Domestic credit to the private sector (%)	WDI
Infant Mortality	Infant Mortality rate (per 1,000 live births)	WDI
Education	Primary School Enrollment (% Gross)	WDI
Pupil-teacher ratio	Pupil-teacher ratio, primary	WDI
Number of physicians	Physician per 1000 people	WDI
Government Expenditures	Government expenditures on education (% of GDP)	WDI
Government Expenditures	Government expenditures on health (% of GDP)	WDI
Urbanization	Urban population (% of the total population)	WDI
Foreign remittances	Personal Remittances (% of GDP)	WDI
Income Inequality	Gini Coefficient	WDI

WDI= World Development Indicators

Heterogeneous Techniques for Panel Data Estimation

To give reliable and consistent results, the present study employs three estimate techniques designed for heterogeneous research designs: FM-OLS, DOLS, and FE-OLS. Comparative analysis and internal consistency can be attained when all three methods yield identical results, which is the objective of employing different methodologies. The Driscoll and Kraay standard errors, which serve as the foundation for the FE-OLS approach, can produce accurate results when there is autocorrelation over a specified period and cross-section dependence at a particular level. The cross-sectional units in the dataset differ concerning their mean and cointegration equilibrium; hence, Pedroni (2004) developed the FMOLS, which preserves "heterogeneous correlation for error -terms" for each cross-section in the panel data. In addition, the FMOLS and FEOLS approaches are inferior to the DOLS estimation described by Kao and Chiang (2001), an improved method for estimating panel data. In addition, DOLS can address endogeneity by increasing divergences between lag and lead data.

MMQR Estimation

The approaches mentioned above employ the means of the variables to compute correlations

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between study variables, ignoring the constrained data distribution. In contrast, panel quantile regressions analyze relationships by repeatedly examining the quantiles of numerous variables (Sarkodie & Strezov, 2019). Koenker and Hallock (2001) proposed evaluating the parameters based on the quantile asymmetries of the variable being explained, which are simultaneously influenced by the average of the various independent variables. This strategy has the potential to generate consistent results even when conditional estimations are demonstrated to have little or no influence, and it appears to be equally effective in addressing any outliers which can disrupt the overall distribution of the data (An, Razzaq, Haseeb, & Mihardjo, 2021; Binder & Coad, 2011). Nevertheless, typical quantile regressions do not traverse different cross-sections at different quantile levels during computation, resulting in an incorrect distribution of the dependent variable. This study also employs a novel estimation method called MMQR, developed in this study (Machado & Silva, 2019). As stated previously, quantile regression is the most accurate against outliers since it cannot discover the heterogeneity that remains unexplained in all data cross-sections (Lekhawichit, Sriyakul, Jermsittiparsert, & Chienwattanasook, 2022). The MMQR allowed for particular individual effects by permitting the "conditioned heterogeneity of variable effects" to produce and impact outcomes by extracting dependent variables. Conventional quantile regressions lack this characteristic because they are generated by essentially moving the averages (Koenker, 2004).

Moreover, it is asserted that MMQR is more applicable in scenarios where parameters display endogeneity qualities if the data are categorized according to particular personal effects. If the model is nonlinear, this strategy is effective. MMQR is superior to other nonlinear techniques, such as NARDL, since it can incorporate a nonlinear estimator that frequently explains nonlinear characteristics in terms of exogenous variables by omitting benchmark criteria. In addition, this methodology allows for location-dependent asymmetry, as the coefficients of variables are sensitive to their position within the distribution conditions. These findings indicate that the MMQR is more dependable and robust, particularly when establishing asymmetrical quadratic connections and links and addressing the issues of variability and endogeneity. The outcome given by MMQR is unambiguous and unambiguous.

Equation (1) explains the conditional quantile assessments for a scale of a specific location $\boldsymbol{i.e.,}\ \boldsymbol{Q_y}$ (**δ**! Ẍ′it)

$$\dot{Y}_{it} = \dot{\alpha}_i + X_{it}\emptyset + (\lambda_i + Z'_{it}\psi)\ddot{U}_{it} \quad (4)$$

Probability is denoted by þ (ƛi + Ƶ'it $\psi > 0$) equal to 1, while (F, α̇, J, ƛ,) ' is computed based on the coefficients. (ƛi, α̇i), is equal to 1 to n denotes the different fixed effects while Ƶ modules of Ẍ are described in the vector k. The following are obvious changes/variations when using j:

$$Z_j = Z_j(\ddot{X}).j = 1,2,\ldots\ldots,k \quad (5)$$

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Beyond cross sections (i) and period (t), $\ddot{X}'_{it}$ and $\ddot{U}_{it}$ are identically spread. $\ddot{U}_{it}$ represents standardized momentum conditions orthogonal to $\ddot{X}'_{it}$. A different way to write equation (1) is as follows:

$$Q_y\ (\delta!\ \ddot{X}'it) = (\dot{\alpha}_i + \lambda_i q(\delta)) + \ddot{X}_{it}\ \phi + Z'_{it}\ £\ q(\delta) \quad (6)$$

In equation (6), $\ddot{X}'_{it}$, represents descriptive variable vectors. Qy (d| $\ddot{X}'_{it}$) shows the distribution at quantile $\dot{Y}_{it}$, $\ddot{X}'_{it}$. where $\dot{\alpha}i\ (\boldsymbol{\delta}) \equiv \dot{\alpha}i + \lambda i\ q\ (\boldsymbol{\delta})$ denotes scalar that displays the fixed effects in individual quantiles. q($\boldsymbol{\delta}$) displays model particular quantiles produced by addressing optimization.

$$Min_q = \sum_i \sum t\eta\delta\ (R_{it} - (\lambda_i + Z'_{it}\gamma)q) \quad (4)$$

$\dot{\eta}0\ (\dot{R}) = (\boldsymbol{\delta} - 1)\ \dot{R}\hat{I}\ (\dot{R} < 0) + T\dot{R}\hat{I}\ (\dot{R} > 0)$ shows the estimated operator.

Results and Discussion

Table 2: Descriptive Statistics

Series	REM	GDP	POV	INFMORT	EDU	GINI	PTRATIO	URB	PHYSICIAN
Average	7.410	1392.7	13.44	51.366	88.86	32.92	30.99	41.977	0.965
St. dev	6.307	1063.4	14.48	23.93	12.20	3.018	8.318	19.17	0.673
Min	0.103	263.08	0.00	12.9	58.62	28.3	16.90	20.93	0.007
Max	26.53	4477.6	65.51	106.9	110.6	43.4	47.63	91.62	2.807

Table 2 offers a statistical overview of all study factors. GDP has the highest mean value and the highest variability about the mean or standard deviation among all series. In contrast, the PHYSICIAN variable has the lowest mean and standard deviation across all series. According to Table 2, GDP has the most significant data range, whilst PHYSICIAN has the smallest data range among all series.

Before estimating the long-run coefficient, it is necessary to validate specific properties of the time series and cross-sectional variables. The Im, Pesaran, and Shin (2003) test and the CIPS test (Pesaran, 2007) are utilized for this purpose. Tables 3 and 4 show that unit root tests indicate that the variables REM, GDP, URB, PHYSICIAN, POV, INFMORT, and GINI are integrated in order 1.

Table 3: Im et al. (2003) Test

Variables	Level		First difference	
	Intercept	Intercept & Trend	Intercept	Intercept & Trend
GDP	3.723	3.440	-5.5441***	-6.754***

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REM	4.237	5.534	-6.731***	-3.847***
POV	2.163	4.444	-4.140***	-5.715***
INFMORT	4.244	5.366	-4.464***	-7.255***
EDU	3.889	4.872	-5.981***	-4.887***
URB	4.713	5.861	-4.234***	-5.221***
PHYSICIAN	2.087	4.776	-3.374***	-6.663***
PTRATIO	4.009	4.117	-5.987***	-6.774***
GINI	3.176	5.865	-4.844***	-5.552***

Author's calculation

The table reveals the results of the CSD, which indicate that all series are significantly dependent across cross sections.

Table 4: CIPS and CSD Findings

Series	**CSD**		**CIPS**	
	t-statistics	Prob-value	Level	first difference
REM	25.577	0.000	1.556	-1.844***
GDP	24.861	0.000	0.445	-3.274***
POV	24.409	0.000	0.556	-3.844***
INFMORT	21.554	0.000	1.345	-4.567***
EDU	28.065	0.003	0.876	-3.765***
URB	24.771	0.005	1.976	-2.776***
PHYSICIAN	21.098	0.000	0.754	-1.998***
PTRATIO	19.234	0.009	0.538	-0.853***
GINI	20.765	0.000	1.335	-0.283***

Cointegration tests and Pedroni (2004) and Westerlund (2007) fail to accept the null hypothesis, as Tables 5 and 6 suggest that long-term cointegration is present among the study variables. This shows that the variables of all models are co-integrated over the long run. So, after establishing that long-run cointegration is present, we proceed to estimate long-run coefficients.

Table 5: Pedroni (2004) Cointegration Findings

Estimation	**t-statistics**	**prob-value**
EDU= f (REM, GDP, PTRATIO, URB)		
v statistic	0.655	0.001
rho statistic	3.344	0.000
PP statistic	5.939	0.000

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ADF statistic	-4.941	0.000
Alternative hypothesis: individual AR coefficient		
rho stat (group)	-1.222	0.006
Group-PP stat (group)	-1.023	0.002
Group-ADF stat (group)	-3.433	0.003
INFMORT= f (REM, GDP, PHYSICIAN, URB)		
v stat	2.623	0.000
rho stat	3.344	0.000
PP stat	3.949	0.000
ADF stat	-4.941	0.005
Alternative hypothesis: individual AR coefficient		
rho stat (group)	-2.219	0.000
PP stat (group)	-1.232	0.000
ADF stat (group)	-3.641	0.000
POV= f (REM, GINI, GDP)		
v statistic	0.889	0.000
rho statistic	4.341	0.000
PP statistic	5.959	0.000
ADF statistic	-4.941	0.000
Alternative hypothesis: individual AR coefficient		
rho stat (group)	-2.249	0.005
PP stat (group)	-1.445	0.020
ADF stat (group)	-2.641	0.001

H0= no cointegration

Table 6: Westerlund (2007) Cointegration Findings

Statistics	Value	Z value	P- value
Gt	-3.934	-7.637	0.000
Ga	-3.833	-13.435	0.000
Pt	-5.213	-12.430	0.000
Pa	-3.836	-7.693	0.000

Null hypothesis= no cointegration

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Table 7: D-OLS, FM-OLS and FE-OLS Estimations for

Variables/series	FMOLS	DOLS	FE-OLS
Outcome variable: EDU			
REM	1.331***	1.541***	0.324***
	(0.000)	(0.008)	(0.000)
GDP	0.733***	1.691***	1.334***
	(0.003)	(0.040)	(0.011)
PTRATIO	-0.892***	-0.560***	-0.366***
	(0.000)	(0.000)	(0.000)
URB	0.0812***	1.755***	0.135***
	(0.009)	(0.007)	(0.000)
Outcome variable: INFMORT			
REM	-1.041***	-1.454***	-2.244***
	(0.000)	(0.008)	(0.000)
GDP	-1.455***	1.771***	1.998***
	(0.000)	(0.000)	(0.000)
PHYSICIAN	-0.082	-0.850	-0.468
	(0.213)	(0.113)	(0.981)
URB	-1.653***	-1.765***	0.621***
	(0.000)	(0.008)	(0.007)
Outcome variable: POV			
REM	-2.509***	-1.781***	-0.045***
	(0.000)	(0.006)	(0.000)
GDP	0.078***	0.060***	0.304***
	(0.000)	(0.000)	(0.000)
GINI	-0.972	-0.098***	-0.751***
	(0.123)	(0.333)	(0.971)

The findings of FMOLS, DOLS, and FE-OLS are presented in Table 7. Estimated results for Model 1 for education indicate that all series are highly significant in all three parameters. First, remittances strongly and favourably affect education or school enrolment in FMOLS, DOLS, and FEOLS. The conclusion is reasonable since remitting workers encourage their families to invest in their children's education by reducing the household's credit limitation. Due to the household's lower credit limit, remittances not only enable out-of-school children to enrol in school but also aid previously enrolled children in remaining in school for an extended period.

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Our findings are substantially supported by the results of Khan and Khan (2016), Chaaban and Mansour (2012), and Sami and El-Aziz (2018). Following Ahmad et al. (2019), Jayasuriya and Wodon (2002) and Ahmad et al. (2019), school enrollment appears to be positively connected with urbanization in all three models (Bataineh, 2019). This pattern can be explained by urbanization enhancing educational facilities by producing jobs and increasing the supply of essential commodities, such as education. Similarly, in FMOLS, FE-OLS, and DOLS calculations, economic growth is found to have a considerable and beneficial effect on school enrollment. Bataineh (2019) and Ahmad et al. (2019) provide substantial support for our findings. However, the pupil-teacher ratio coefficient is negative and significant in all models, consistent with Alspaugh (1994) and (Ahmad et al., 2019); Alspaugh (1995). Due to the high student-teacher ratio, fewer students enroll in school, thus affecting educational performance.

For Model 2, remittances had a significant and negative impact on child mortality in FMOLS, DOLS, and FE-OLS estimations, consistent with Ponce, Olivié, and Onofa (2011), Amuedo-Dorantes and Pozo (2011) and Ahmad et al. (2019). According to the conclusions of this study, an increase in GDP decreases the newborn mortality rate. In all settings, the GDP coefficient is negative and statistically significant. The negative influence of per capita GDP on infant mortality may be explained by the fact that higher per capita income increases purchasing power and enables households to afford better healthcare facilities, decreasing infant mortality risk. The estimation findings of Baird, Friedman, and Schady (2011), Ahmad et al. (2019), and Baird et al. (2011) are compared (Nishiyama, 2011). In addition, there is evidence that urbanization negatively affects infant mortality. Following Ely, Driscoll, and Matthews (2017), the coefficient is significant and negative in the estimation of FMOLS, DOLS, and FEOLS (Dutta, Gupta, Sarkar, & Sengupta, 2020). Living in an urban area is connected with convenient access to medical services and preventing infant illness. In contrast, the number of physicians had a negligible impact on infant mortality in all three models (FEOLS, DOLS, and FMOLS).

For Model 3, it is determined that remittances have a negative and significant influence on poverty in the FMOLS, FEOLS, and DOLS models. This may be because remittances immediately increase the income of the poor, sustain household expenditure, and alleviate capital limitations. Our findings are supported by Javid, Arif, and Qayyum (2012), Qayyum, Javid, and Arif (2008), and Acharya and Roberto (2013). GDP harms poverty in FMOLS, FEOLS, and DOLS, consistent with Tahir, Perveen, Ismail, and Sabir (2014), Hassan (2015), and Fosu (2009); Tahir et al. (2014). Nonetheless, the coefficients of the GINI index are insignificant across all specifications, including FMOLS, FEOLS, and DOLS.

Applying MMQR regression, we now move to quantile estimations following a long-run analysis. The MMQR estimation results are shown in Table 8 below. Surprisingly, the signs of the

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coefficients in DOLS, FE-OLS, and FMOLS estimations are identical. In Model 1, it is found that remittances have a favorable effect on schooling at all quantiles. The coefficient is also significant throughout the whole quantile range. Like FMOLS, FE-OLS, and DOLS, GDP greatly and positively affects school enrolment across the full quantile range.

In contrast to FMOLS, FEOLS, and DOLS specifications, the influence of PTRATIO is considerable from the lowest to the middle quartiles (0.10-0.40). According to the estimation, this finding demonstrates that an increase in the student-teacher ratio is inversely correlated with an increase in school enrolment (Ahmad et al., 2019). Urbanization has a considerable favorable effect on school enrollment, but only at the middle and upper quantiles (0.50-0.90).

Similarly, for model 2, it is noted that similar to prior formulations, remittances harm infant mortality, but the effect is only significant at medium to high quantiles (0.40-0.90). At all quantiles, the GDP has a negative and substantial effect on infant mortality, whereas the number of physicians has no effect. Urbanization has a negative and significant impact on infant mortality in all quantiles.

Similar to FMOLS, DOLS, and FELS, the effect of remittances and GDP is substantial and adverse across the full quantile range for model 3. However, the influence of the GINI index or income inequality is negligible across the whole quantile range.

Table 7: Findings of MMQR

EDU = f (REM, GDP, PTRATIO, URB)										
Series	Location	Scale	Quantiles							
			0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.90
REM	0.444***	0.430***	0.537***	0.445**	0.432***	0.413***	0.332***	0.345***	0.470***	0.454***
GDP	0.315***	0.231***	0.3420***	0.286***	0.425***	0.525***	0.321***	0.346***	0.320***	0.315***
PTRATIO	-0.214**	-0.314**	-0.291***	-0.410**	-0.341**	-0.273**	-0.013	-0.032	-0.093	-0.045
URB	0.009	0.087	0.072	0.012	0.017	0.043	0.457***	0.442***	0.356***	0.451***
INFMORT= f (REM, GDP, PHYSICIAN, URB)										
Series	Location	Scale	Quantiles							
			0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.90
REM	-0.004	-0.030	-0.014	-0.098	-0.065	-0.456***	-0.462***	-0.420***	-0.483***	-0.379***
GDP	-0.479**	-0.335**	-0.432***	-0.460**	-0.459***	-0.498***	-0.327***	-0.366***	-0.426***	-0.455***
PHYSICIAN	-0.009	-0.013	-0.071	-0.018	-0.016	-0.023	-0.076	-0.039	-0.043	-0.065
URB	-0.299***	-0.288***	-0.300***	-0.333***	-0.717***	0.443***	0.555***	0.476***	0.423***	0.443***
POV= f (REM, GDP, GINI)										
Series	Location	Scale	Quantiles							
			0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.90
REM	-0.455**	-0.344**	-0.453***	-0.477**	-0.399***	-0.352***	-0.458***	-0.409***	-0.555***	-0.455***
GDP	-0.356***	-0.432***	-0.454***	-0.532***	-0.451***	-0.478***	-0.435***	-0.542***	-0.643***	-0.376***
PHYSICIAN	-0.006	-0.053	-0.061	-0.011	-0.026	-0.013	-0.067	-0.019	-0.032	-0.045

*** shows a 1 % level of significance

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Authors own calculation

Concluding Remarks and Policy Implications

This study aimed to evaluate the impact of remittances on the social and human resource development of six developing nations, namely Pakistan, Jordan, Sudan, Yemen, Egypt, and India, from 1990 to 2020. In contrast to prior research on the effect of remittances in human and social development, which utilized the human development index, the current study employs three distinct indicators for social and human resource development: poverty, newborn mortality, and school enrolment. In terms of methodology, this study differs from others in that it uses the newly-introduced MMQR approach following long-run estimates via FMOLS, DOLS, and FEOLS to conduct a comprehensive assessment across a broad range of quantiles. According to the data, remittances positively and substantially affect school enrollment among FMOLS, FEOLS, and DOLS. In FMOLS, DOLS, and FELS models, remittances significantly lower infant mortality and poverty. In MMQR analysis, remittances have a positive and statistically significant effect on school enrollment at all quantiles, a negative and statistically significant impact on poverty at all quantiles, and a negative and statistically significant effect on infant mortality only at medium to higher quantiles.

In light of these findings, the study suggests that policymakers and governments should utilize remittances for social and human resource development by establishing policies that will increase the flow of remittances into the economy. This can unquestionably be achieved by reducing transaction fees and streamlining the sending process to international workers. This will encourage more employees to transfer money out more frequently and significantly than before. Direct remittance transfers will streamline the inflow process and simplify beneficiaries' consumption. In conclusion, it is easy to assert that the government should focus on expediting the remittance process and transactions by developing rules that align with these goals.

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