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THE INTERPLAY OF GLOBALIZATION, DEMOCRACY AND CHILD HEALTH: EVIDENCE FROM PAKISTAN

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Abstract
This study examines the impact of globalization and democracy on child health in Pakistan analyzing how the economic, political and social changes shape health outcomes of children. By using different combination of empirical data and policy analysis this research explores the role of trade openness, foreign investment, and the democratic institutions in improving child health indicators such as infant mortality, malnutrition and access to healthcare. Findings suggest that while globalization fosters economic growth and technological advancements its benefits are not evenly distributed often worsen health inequalities. Similarly, the democracy increases policy responsiveness and healthcare investments. yet its effectiveness depends on institutional strength and governance capacity. The study highlights the need for inclusive policies that balance economic liberalization with social protections to ensure equitable health outcomes. Recommendations include strengthening democratic accountability, improving healthcare infrastructure and implementing targeted interventions to mitigate the adverse effects of globalization on vulnerable populations.
Keywords: *Adult Fertility Rates, GDP Per Capita, Inflation, Life Expectancy, Globalization, Democracy and Health Expenditure*

INTRODUCTION

Globalization significantly affects the health of children in Pakistan, which affects overall economic, social and environmental factors. Globalization facilitates the import and export of advanced medical technologies, vaccines and pharmaceuticals in the health sector, which has a positive impact on children's health. Different programs such as GAVI (Global Alliance for Vaccines and Immunization) have helped to reduce many childhood diseases in Pakistan through vaccines (Butt et al. 2020). The study also indicates that globalization has promoted foreign investments in the health sector in Pakistan, which can improve infrastructure and services. International NGOs and organizations run various programs to improve child health including funding to improve the child and maternal nutrition (Shahid et al. 2019). where globalization has fueled urbanization, it has played an important role in the health sector. Children living in urban slums face environmental pollution, poor sanitation and inadequate healthcare services that affect their health (Rossi-Espagnet et al. 1991). Modern resources in the health sector have improved access but it is also adversely affecting the lifestyle of children. In a developing country like Pakistan various Strategic policies are being made to improve the health of children.

On the other hand, the relationship between democracy and child health in developing country has become a multifaceted issue that has been explored through various studies in public health and development economics. Democratic governments are generally responsible for meeting the needs of their population, among them the children are the most important group. In a democracy the health sector is given special reason to improve the welfare of the population. Democracy is more likely to invest in the health sector due to voter pressure (Besley & Persson, 2011; Ito & Zhang, 2025). Democratic governments are strongly influenced by public demands and electoral competition, which makes them prioritize welfare and social work. Generally democratic governments strongly associate children's education with health and social spending. In democracies political progress is measured on health spending and democracies allocate more resources to social services that benefit not only society. This is usually seen in low-income areas (Deaton, 2007). Democratic governments generally make more child-centered policies. In addition, the freedom of media and civil society also puts more pressure on children to solve their problems (Hicks, 2000). Some studies show that that democracy has positive effects on children's health as it promotes them to get better education and better jobs in the future (Rodrik, 2006).

The impact of globalization on democracy is a complex and multifaceted issue, with both positive and negative aspects. Globalization has brought great progress in trade, communication, technology and domestic transactions. Globalization has affected democratic governance in various way i.e. it has developed democratic values. Globalization has not only changed people's views but also brought about many changes in cultures. It has exposed people to different political systems. Globalization has increased the spread of capitalist market economies and liberal democratic values; it has

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contributed to the global trend toward democratization after the Cold War. Democracy has played an important role in the global economic market, whereby the spread of universal principles such as human rights, freedom of expression and democratic governance has influenced non-democratic governments to adopt universal democratic reforms (Fukuyama, 2015; Stein, 2025). Globalization puts pressure on governments to adopt democratic reforms as foreign investors in global markets emphasize human rights alongside business transactions. All these pressures can lead to political liberalization and democratization. To take the advantage of globalization and expand international trade the government borrows financial funds from the World Bank and the various international organizations such as the IMF (International Monetary Fund) and provides incentives for democratic governments to integrate into the global economic system. Democratic reforms are often seen as a precondition for receiving foreign aid (Diamond, 1999).

On the other side economic globalization can also challenge democratic governance. While economic integration can create wealth but it can also create inequality in the distribution of wealth. It can also reduce social welfare, leading to political discontent that can lead to the rise of populist or authoritarian movements. In some cases, the economic forces associated with globalization have contributed to democratic retreat or the erosion of democratic argues that while globalization has benefited many countries economically it has also led to increasing economic inequality. This has fostered dissatisfaction with democratic systems and allowed populist and nationalist movements to gain traction, often undermining democratic institutions (Rodrik, 2011). Cultural globalization has advanced through the spread of information, media, and ideas, can also have a significant effect on democratic politics. Which can promote political engagement and awareness as well as lead to political polarization as people with different values and beliefs become more aware of global conflicts and ideologies. In some cases, this polarization can undermine democratic consensus and lead to political divisions (Huntington, 1996). Another positive achievement of globalization is that it has contributed to the rise of a global civil society, which can enhance democratic participation by empowering non-state actors such as NGOs and international advocacy groups to promote democracy. This expanded civil society allows for greater citizen engagement in global issues creating opportunities for democratic participation at both the local and global level. Globalization has not only led to the development of international networks but also to the rise of international social movements that are increasingly involved in global governance. These movements can serve to check the power of governments and international institutions promoting democratic values such as accountability and transparency (Held et al. 1999).

This study used time series data from 1972 to 2023 of Pakistan. The significance of this study lies in its exploration of how globalization and democracy affect the child health outcomes in Pakistan, along with how globalization affects socio-political and economic dimensions. As globalization reshapes economic technological, and cultural landscapes, and how political and economic changes have taken place and how this has led to advances in child health care, nutrition and medical advancements, while democratic governance shapes policies and resource allocation for child welfare. Given Pakistan's challenges including regional disparities, poverty, income inequality and political instability understanding the dual effects of globalization and democracy on child health is crucial for improving health outcomes and ensuring sustainable development. This study examines the role of international organizations, domestic policies and democratic institutions in addressing child health issues, by which better policies can be formulated at the national and local level.

This study is based on 5 sections. Section 2 is explaining about the literature review which is summarizing with previous studies ad identifying the research gap that current research addresses. In section 3 model, data and methodology of the study is discussed explaining the approach used for analysis. Section 4 explore the results of the study by using the ARDL method. Finally, the section 5 is about conclusion and suggested policy implication and provide guidelines for future research.

REVIEW OF LITERATURE

The relationship between globalization, democracy, and child health has been widely explored in the literature, highlighting both positive and negative impacts. Table 1 outlines selected studies that examine these linkages across various contexts. These studies provide important insights into how political and economic factors influence child health outcomes.

Table 1: Review of Assorted Studies

Authors	Time Period	Country	Methodology	Main Results
Studies on Globalization & Child Health				
Mejia (2024)	1990 to 2019	Less developed countries	Two Stage Least Squares (2SLS)	Due to the globalization in less developed countries FDI has a positive effect on child health, it has reduced the child mortality rate to great extent. It also improved economic growth and it helps to prevent taxation
Liu et al. (2024)	2006 to 2020	Low- and middle-income countries	Nonlinear two-way fixed effect model	In less developed countries the higher price of dairy has negative effect on the consumption of dairy a slight reduction in dairy tariff can significantly reduce the risk to children of surprise making dairy more affordable in a low-income country, in this way, the children will benefit as

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				much as they belong to the poor family and their health will also improve
Kishida et al. (2024)	2007 to 2018	Bangladesh	Fixed effect model	Malnutrition has negative effects on later born children's health, in less developed countries, due to lack of nutrition the health of second born children were more affected than their younger siblings
Liu et al. (2024)	2024	Developed and developing countries including US, Canada and China	Primary	Air pollution has negative effect on child's health in both develop and developing countries it also increases the risk of mortality rate, due to air pollution the children are suffering from many diseases such as allergic rhinitis, hypertension, asthma and pneumonia
Zhang et al. (2024)	2022 to 2024	Low-income countries	Primary	Global heating has negative effect on child health due to climate change, the temperature has increased, which has affected the health of children a lot and they were suffering from many diseases like asthma and allergy. Higher heat temperature increased the mortality rate
Tajuddin (2024)	2024	Developing countries	Qualitative Analysis	Due to globalization, both positive and negative effects have occurred on the health of children, in less developed countries the convenience of health has increased significantly due to globalization. Treatment of many serious diseases was now possible like Kidney and Liver transplant
McKenzie & Jensen (2024)		Thailand	Primary	Globalization has both positive and negative effect on culture and moral values that affected the child's behavior with society and parents.
Anyanwu et al. (2024)	2023 to 2024	Nigeria and USA	Primary	Globalization has positive impact on future child's health policies and promoted the gender equality and remove the social differences.
Akter et al. (2023)	1971 to 2021	G-7 countries	ARDL	Globalization, education, health expenditure and renewable energy consumption affected the child health in both positive and negative way, due to the globalization children used internet for bad activities their health starts deteriorating in childhood itself. They also start using drugs like tobacco and alcohol in their childhood itself.
Khan et al. (2023)	2004 to 2019	Indonesia, Brazil, Mexico, India, Russia and China	CS-ARDL	Energy poverty and child health negatively correlated in selected countries, it has adversely affected the health and education of children, through the use of globalization this poverty can be reduced and improve the child living standard
Rahman et al. (2022)	2000 to 2018	14 African countries	PCSE and FGLS	Socio economic factors negatively affected the child health, due to these factors child mortality rate has increased and created various problems for children's health. Due to lack of technology, shortage of physician and the lack of government health center, child mortality rate was very high I these countries as compare to developed countries
Galler et al. (2021)	2020 to 2021	China, Malaysia, Cuba, USA and Canada	EEG, MRI and FNIRS	Globalization has positive effect on child's life in the health sector it helps in making health policies that can prevent many diseases, but due to globalization children will fall victim to many wrong habits by using internet incorrectly. They follow the western life style
Josefsson & Wall (2020)	2018 to 2020	Sweden and central America	Primary	Globalization has both positive and negative effect on child and youth's life. Globalization has taken many important steps to end youth poverty, which has changed the lives of children and youth, it motivates people to migrate. Children's lives have been greatly affected by climatic change.
Headey & Ruel (2020)	1995 to 1997	Low- and middle-	Theoretical Analysis	COVID 19 pandemic has negative impact on children health, due to the barrier of food supply many children faced the malnutrition. Due to shutdown many people

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		income countries		become unemployed they could not afford to buy the notorious food for their children and its effect on the health of their children.
Athavale et al. (2020)	2012 to 2015	India and other low- and middle-income countries	Descriptive and Logistic Regression Analysis	The consumption of junk food has negative effect on child health in low income-countries, when people preferred to consume sugary food and snacks instead of traditional food their health badly affected.
Tsang et al. (2019)	2011 to 2019	Nepal	Bivariate and Multivariate Regression	Junk sugary food consumption has negative effect on child nutrition and oral health in urban and rural both areas of Nepal. Urbanization and globalization have affected the child health, it creates allot of problem for urban children when they use junk food, they have many dental issues as compare to rural children, however in urban areas they have many facilities like dentist and nutrition if they face any problem, they can easily approach them
Yang & Wang (2015)	2014 to 2015	US and non-US countries	PLS and LAC	The music piracy has negative effect on child health, their education and behavior. When child and adult both used social media, they listen songs, watched movies and played games due to these activities they have lost their health and social relationship they have no time for their parents, friends and siblings.
Van et al. (2014)	2007 to 2011	ESA countries	Multi-level Logistic Regression	Education has positive effect on sexual reproductive health in selected countries. education on people and tell us how they look different to uneducated people in the society, because more education makes people more aware and helps them to have less children and educate them better as compare to other people. More educated people have more knowledge
Bogin et al. (2014)	2011 to 2014	Mexico and Central America	FFQ Method	Globalization has positive effect on social, biological and ideological process but it has negative effect on Maya's children health because the Maya's people moved from traditional healthy food to modern unhealthy food which were more dangerous for their health and the cause of different diseases like sugar, heart attack, cancer and blood pressure.
Heymann et al. (2013)	1969 to 2000	OECD countries	Regression analysis	The labor policies have positive effect on child health because during break mother ca feed their children and take care of themselves.
Thompson (2012)		Worldwide	Multi method	Globalization has both positive and negative impacts on child health in worldwide. Social political and economic changes occurred due to the use of technological advancement.
Timimi (2009)		Canada, France, Germany, Bangladesh, Egypt and Afghanistan.	Theoretical	Globalization has negative impact on child's mental health, because due to globalization children adopted very dangerous activities and face many hurdles like poverty and mental illness.
Piquero-Ballescas (2009)	2001 to 2007	Philippines	Case studies and survey	Extreme poverty has negative effect on Filipino children, it forces them to work as a result of which their health and education suffer and they often become victims of diseases.
Gracey (2002)	Early 2000s	Developed and developing countries	Personal observation	Globalization has negative effect on child heath that create a lot of problems such as physical, social and environmental. When the child uses an electronic device, they become addicted, then they face many diseases like back pain, migraine and weakness of eye sight
Studies on Globalization & Democracy				
Schneider & Thomson (2024)	1970 to 2010	12 developed countries	Large-n Quantitative	Globalization negatively affected the governing parties fulfilling their election promises, it also created legal

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			comparative analysis	constraint at international level and increased market uncertainty.
Papanikos (2024)	1961 to 2022	Greece	Theoretical analysis	In the world wide COVID -19 has negative effect on the economic growth and created a lot of social, political and cultural changes and deglobalization to grow after 1990s - 2000s.
Agustina & Mahardhita (2024)	18th century to 2020	Indonesia, France and US	Online survey, in-depth interview and analysis of official documents.	Globalization has both positive and negative effect on political process by the use of social media.
Novy (2022)	1940 to 2018	Austria, US, UK and Germany	Conceptual and theocratical analysis	Hyper globalization can limit the democratic decision making which can negatively affected the democracy but in the sense of economic development it also positively affected the democracy and globalization.
Volk (2022)		Germany	Conceptual analysis	Traditional sovereignty negatively affected the legal thinking in the globalized time. Due to this social, political and economic development affected the world.
Jahanger et al. (2022)	1990 to 2016	74 developing countries	STIRPAT, GMM and OLS	Globalization and democracy have both positive and negative effect on Co2 exclusion.
Paul (2021)	1991 to 2021	China, India, European, Asia, and US.	Primary	Globalization has both positive and negative effect on democracy after the end of the cold war, With the globalization, investment and trade have gained progressed but social, political and economic inequality also increased a lot.
Kellner & Kellner (2021)	1997 to 2014	Worldwide	CS-ARDL, AMG	The use of technology has positive impact on political movement and spread the democratic system around the world.
Heimberger (2021)	1980 to 2016	Developed and developing countries	Meta analysis and meta regression method	Globalization has both positive and negative effects on government spending and democracy.
Guzel et al. (2021)	1970 to 2017	16 low-income countries	BA-OLS and CUP-FM	Globalization and GDP per capita income both have positive impact on life expectancy in low-income countries.
Milner (2021)	1980 to 2020	Advance industrial and developing countries	Theoretical	Globalization and democracy both are negatively correlate across the world, because due to the use of technologies inequality and insecurity increased significantly as compare to past age, the political issues also increased which were affected democracies.
Lupel (2020)	1990 to 2000	Developing countries	Primary	Globalization has both positive and negative effect on democracy.
Torres & Bosio (2020)	2017	US and UK	Theoretical	Globalization has positive impact on global citizenship education and democracy.
Usman et al. (2020)	1971 to 2014.	South Africa	FM-OLS	Globalization and democracy positively correlate while energy consumption and environmental degradation both positively correlate.
Öniş, & Kutlay (2020)	2008 to 2018	Europe and global south.	Author's personal experience	Globalization has both positive and negative impact on democracy, after 1990s globalization affected the economic, political and social environment according to many people's globalization can be spread around the world while keeping human rights but with the voice of globalization, the trade competition between different countries started, as a result of which many evils like poverty and crime are born.

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Brand et al. (2020)	Over last 25 years	Austria and Germany	Theoretical	Globalization has positive effect on social ecological transformation and political policies.
Jha & Kodila-Tedika (2020)	2010 to 2013	125 developing countries	OLS	Social media has positive impact on democracy in developing countries as compare to developed countries. With the use of social media every citizen can convey its thought to the government.
Porta (2005)	1974 to 1995	US, Japan, North Europe & Southern Europe.	Linear multiple regression	Globalization has both positive and negative impact on democracy, cultural, economic and social development.
Cox (2004)	Last 30 years	Developed	Theoretical	Globalization has negative effect on democracy, labor force and the process of capital accumulation, the demand for labor in the domestic market has decreased due to international trade, that increased the unemployment and the balance of labor and capital has also deteriorated due to the accumulation of capital.
Hamilton (2004)	1995 to 2001	OECD and non-OECD countries	Correlation analysis	Globalization has positive impact on democracy it promoted the trade and enhanced the government income through taxations but according to this study globalization was undemocratic while financial international institutions like WTO, World bank and IMF should be more democratic
Maffre & Réau (2003)	1986 to 1995	Poland, Mexico, OECD countries and less developed countries	Median voter model, comparative analysis and Markov chain model	Globalization has negative effect on different political policies in different countries that's lead the taxation which affected the economic growth and increased the income inequality
Li & Reuveny (2003)	1970 to 1996	127 developing countries	OLS	The portfolio investment inflow has negative impact on democracy this effect may be long term, and the import of FDI has positive impact on democracy and this impact show the weakness over the time
Goodhart (2001)	Late 1990s to early 2001	Developed and developing countries	Theoretical	Globalization has positive effect on democracy and it became very helpful to solve the state issues with the help of advance international because the state can solve its financial and social issues through the help of international institutions like IMF and World bank.
Lynch (2000)	1998 to 1999	Developed and developing countries	Simultaneous estimation technique	Globalization has negative impact on legitimacy and political engagement. However, it created the problems for the citizens by shifting important political decisions to other place and many important democratic principles can affected by the globalists' misuse of communications
Held (1997)	1997	Worldwide	Theoretical	Globalization has both positive and negative impact on democracy because due to globalization in 1989 a huge change has been seen in politics, while social and traditional change was also occurred at global and regional level and due to the democracy state is less interested in solving globally issues.

The relationship between the globalization, democracy and child health is a complex topic especially in the developing countries like Pakistan. There are studies on globalization, democracy and child health exist but there is a lack of research on the interrelationship of all these in Pakistan individually. Most of the existing research on globalization has analyzed the effects of globalization on health and democracy and this study neglecting socio-economic and cultural factors of the Pakistan. In this study the data is taken from 1972 to 2023. According to the analysis there is a lack of evidence that democratic institutions in Pakistan have benefited from the use of globalization and improved child health. This research also ignores the impact of globalization and democracy on children from low-income families and rural communities in Pakistan. Only a few studies have examined the impact of changes in globalization on democratic governance using longitudinal methods. How globalization influence the democratic processes and interact with the policy implementation stage especially in Pakistan where is decentralized governance system. Globalization is beneficial for the public health but this dual impact on child health in Pakistan like the beneficial technologies and harmful promotion of unhealthy food is not fully understood. Through globalization improving child health in Pakistan democratic influence such as civil

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society organizations and media has been enhanced and Pakistan is being compared with other developing countries to see how globalization has improved child health in these countries. Sometimes these comparisons can also provide some valuable insights into policy recommendations. By filling in these gaps research can contribute to a more comprehensive understanding of how globalization and democracy is influencing to the child health in Pakistan and can identify the actionable strategies to improve the child health.

MODEL, DATA AND METHODOLOGY

MODEL SPECIFICATION

The main objective of this study is to examine the factors affecting child health in a developing country like Pakistan. A model is suggested to accomplish this objective.

The model is presented in functional form as follows;

$$CH = f(AF, GDPPC, GLOB, HE, INFL, LFFP, LE, DEMOC, TAX) \quad (1)$$

The econometric specification of the model is expressed as:

$$CH = \beta_0 + \beta_1 AF + \beta_2 GDPPC + \beta_3 GLOB + \beta_4 HE + \beta_5 INFL + \beta_6 LFFP + \beta_7 LE + \beta_8 DEMOC + \beta_9 TAX + \varepsilon \quad (2)$$

This model examines the impact of globalization and democracy on child health in Pakistan. In this study child health is used as dependent variable while adult fertility rates, GDP per capita, inflation, female labor force participation, tax, life expectancy, globalization, democracy and health expenditure are used as the independent variables. The inclusion of adult fertility rate in the model explains how its high and low levels affect children's health. Similarly, by including GDP per capita in the model, its impact on child health is observed as increases and decreases in GDP also affect the child health.

Table 2: Variables Descriptions, Measurement Unit and Data Sources

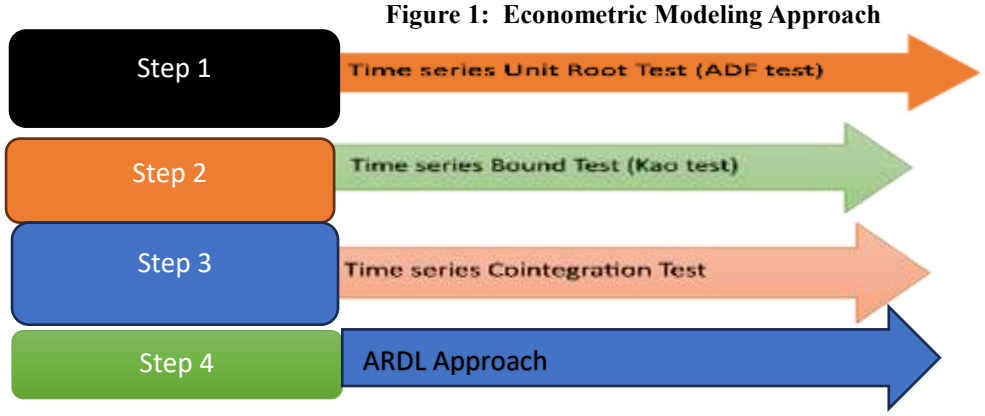
Variables	Description	Unit of Measurement	Data Source
CH	Child Health	Infant mortality rate (per 1000 live birth)	WDI
AF	Adolesce Fertility Rate	(births per 1,000 women ages 15-49)	
GDPPC	Gross Domestic Product Per Capita	(annual %)	
GLOB	Globalization	Koff Index	
HE	Health Expenditure	(% of GDP)	
INF	Inflation, GDP Deflator	(Annual %)	
LFFP	Female Labor Force Participation	(% of female population ages 15+)	
LE	Life Expectancy	(years)	
DEMOC	Democracy Index	Index	Polity-II
TAX	Tax	(% of GDP)	WDI

Along with this globalization is another factor that affects children's health, because globalization has brought many changes in the health sector. Inflation is one factor that affects people's disposable income and has a direct impact on their children's health because inflation reduces their resources to spend on their children's health. Similarly, the life expectancy and female labor force participation also play an important role in influencing the health of children in the country. Along with this the democratic government of any country has a strong influence on the growth rate of its population, while taxes which mainly play a crucial role in boosting the GDP per capita of any country, but they have a profound effect on the health of children. Thus, public health expenditure also affects the health of children in the country. The study used the time series data of Pakistan, which shows the time period from 1972 to 2023. The table 2 shows the description of the variables along with the unit of measurement and the source of data collection.

METHODOLOGY

This section presents the estimation methodology of the study, which based on advance econometric techniques that is divided into four steps. First, the augmented Dickey-Fuller (ADF) test is used to estimate the relationship of the stationary feature of the key variables (Dickey and Fuller 1979). In the second step, the time series Bound Kao test is used to determine whether there is a long run relationship between the variables. In the third step the long-term outcomes of the key variables are extracted by using the ARDL approach (Nazir et al. 2018). Last of all the cointegration tests is used in order to describe the long run relationship between dependent and independent variables. Figure 1 presents the flow chart of econometric modeling approach used in the study.

Figure 1: Econometric Modeling Approach



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The first strength of the autoregressive distribution lag technique (ARDL) is that it provides proper results of the variables which is used in the study (Pesaran et al. 2001). The ARDL approach also provides the significant advantages. However, this test has some limitations i.e. it is used in the study to look at long run relationship between dependent and independent variables. Unit roots of all the series are tested by applying ADF structural break unit root test. The augmented Dickey-Fuller (ADF) test is used to estimate the relationship of the stationary feature of the all variables which is used in the study (Dickey and Fuller 1979). This method is used to estimates the stationary situation of all variables including I(0) or I(1), and mixed order. While the cointegration test is used to describes the long-run relationship between the variables. The null hypothesis of the ADF test assumes that there is stationarity of the time series data. In case of rejecting the null hypothesis, non-stationarity is assumed which have no impact on the validity of data (Azam et al. 2023).

The model's ARDL long run equation is as follow:

$$\Delta(CH_t) = \alpha_1 + \alpha_2(AF)_{t-1} + \alpha_3(GDPPC)_{t-1} + \alpha_4(HE)_{t-1} + \alpha_5(INFL)_{t-1} + \alpha_6(LFFP)_{t-1} + \alpha_7(LE)_{t-1} + \alpha_8(DEMOC)_{t-1} + \alpha_9(TAX)_{t-1} + \sum_{j=1}^{\rho 1}\beta_1\Delta CH_{t-j} + \sum_{j=0}^{\rho 2}\beta_2\Delta AF_{t-j} + \sum_{j=0}^{\rho 3}\beta_3\Delta GDPPC_{t-j} + \sum_{j=0}^{\rho 4}\beta_4\Delta GLOB_{t-j} + \sum_{j=0}^{\rho 5}\beta_5\Delta HE_{t-j} + \sum_{j=0}^{\rho 6}\beta_6\Delta INFL_{t-j} + \sum_{j=0}^{\rho 7}\beta_7\Delta LFFP_{t-j} + \sum_{j=0}^{\rho 8}\beta_8\Delta LE_{t-j} + \sum_{j=0}^{\rho 9}\beta_9\Delta DEMOC_{t-j} + \sum_{j=0}^{\rho 10}\beta_{10}\Delta POL_{t-j} + \sum_{j=0}^{\rho 11}\beta_{11}\Delta TAX_{t-j} + \varepsilon_t \quad (3)$$

RESULTS AND DISCUSSIONS

DESCRIPTIVE STATISTICS AND CORRELATION ANALYSIS

This section describes the descriptive statistics of the key variables. Table 3 shows the descriptive statistics of the key variables.

The mean value of adult fertility rate (AF) as the ratio of child health (births per 1,000 ages 15-19) is 79.03, with the median of 81.26 which is the slightly higher than to the mean value. The maximum AF is 117.98% however the minimum is 41.21% showing the wide range. The standard deviation is 24.59 which is the deviation from the mean value of AF. The skewness is -0.15 which is close to the 0 suggests the normal distribution and shows the data is tlutyaurty and kurtosis is 1.50 which is less than to 3 that indicate the flat distribution, supported by the Jarque-Bera test with the probability value of 0.08 which is close to the normal distribution and significant.

The mean value of child health (CH) is 98.92 which is a little higher to the median value of 97.00 indicating the positive skew. The maximum value of child health is 142.60 and a minimum of 55.80, with the standard deviation of 26.46 which is diverge from the mean value. The positive skewness of 0.04 which is showing the normal distribution and indicating the kurtosis of 1.68 suggest the distribution of long right tail which is corroborated by the Jarque-Bera test with the probability value of 0.16 that show the non-normality with insignificant distribution.

GDPPC represents the gross domestic product per capita income, it has a mean of 2.33 and the median of 2.28. The GDPPC has the maximum of 6.60 and the minimum of -1.91 with the standard deviation of 1.90, which is converge to the mean value. The positive skewness of 0.03 and kurtosis is 2.72 which shows the flat distribution with the long right tail, supported by Jarque-Bera test probability of 0.91, confirming non-normality.

Table 3: Descriptive Statistics of Key Variables (1972-2023)

	AF	CH	GDPPC	GLOB	HE	INF1	LFFP	LE	DEMOC	TAX
Mean	79.03	98.92	2.33	42.84	0.51	10.30	13.33	61.32	0.65	11.05
Median	81.26	97.00	2.28	44.00	0.42	9.62	13.10	60.60	0.67	11.06
Maximum	117.8	142.60	6.60	54.00	1.04	25.44	22.45	66.76	0.83	37.05
Minimum	41.21	55.80	-1.91	29.00	0.27	2.46	4.18	55.24	0.07	1.87
Std. Dev.	24.59	26.46	1.90	9.30	0.23	5.25	5.43	3.45	0.13	4.68
Skewness	-0.15	0.04	0.03	-0.08	1.05	1.39	-0.01	-0.06	-2.36	3.43
Kurtosis	1.50	1.68	2.72	1.35	2.81	4.62	1.74	1.89	10.14	20.69
Jarque-Bera	4.97	3.70	0.18	5.82	9.40	22.03	3.37	2.66	155.71	764.66
Probability	0.08	0.16	0.91	0.05	0.01	0.00	0.19	0.26	0.00	0.00
Observations	51	51	51	51	51	51	51	51	51	51

Mean value of globalization (GLOB) is 42.84 while the median is 44.00 which is a bit higher to the mean value of GLOB in Pakistan. The maximum globalization is 54.00 and the minimum is 29.00, with the standard deviation of 9.30, reflecting the deviation to the mean value. The negative skewness of -0.08 and kurtosis of 1.35 recommend the distribution with long left tail, supported by the Jarque-Bera test with the probability value of 0.05 suggesting the significant distribution.

The health expenditure (HE) has the 0.51 average value with the median of 0.42, which is a little lower to the mean value and indicating the positive skew. The maximum value of health expenditure is 1.04, while the minimum value is 0.27 with the standard deviation of 0.23 which is converge to the mean value and show the normal distribution of, HE in Pakistan. The positive skewness of 1.05 and kurtosis of 2.81, which is close to the 3 that is showing the high variability, which is confirmed by the Jarque-Bera with the probability of 0.01, suggesting normality.

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Inflation (INF1) measured by GDP deflator (annual %) has a mean of 10.30 and the median is slightly lower at 9.62, indicating the positive skew. The maximum inflation is 25.44% and the minimum is 2.46%. The standard deviation of 5.25, highlighting considerable dispersion in inflation rates. The skewness of 1.39 and high kurtosis of 4.62 suggest the highly positively skewed and peaked distribution with the long right tail and extreme value, confirmed by the Jarque-Bera probability of 0.00 indicating non-normality.

Female labor force participation rate (LFFP) has the mean value of 13.33 with the median of 13.10 which is the slightly lower to the mean value. The maximum of the LFFP is 22.45 and the minimum is 4.18, with the standard deviation of 5.43, reflecting high variability. The skewness of -0.01 and kurtosis of 1.74 suggest a flat distribution with the long-left tail more extreme values than normal, supported by the Jarque-Bera test with probability of 0.19 suggesting insignificant.

Life expectancy (LE) measured by has a mean of 61.32 and a median of 60.60 which is little lower to the mean value, indicating the negative skew. The maximum value of life expectancy is recorded in Pakistan is 66.76 and the minimum is 55.24, with the standard deviation of 3.45 which is diverge to the mean value, reflecting low variability. The negative skewness of -0.06 and kurtosis of 1.89 point to a distribution of long left tail, which is validated by the Jarque-Bera with the probability value of 2.66, suggesting the non-normality distribution.

DEMOC has the mean of 0.65 and the median is 0.67 which is the little higher to the mean value. The maximum value of DEMOC in Pakistan is 0.83 in y and the minimum is 0.07, indicating the standard deviation of 0.13, reflecting high variability. The negative skewness of -2.36 and high kurtosis of 10.14 suggest the distribution with the long-left tail and extreme values, which is corroborated by Jarque-Bera test with probability value of 0.00 signifying non-normality.

Tax revenue rate (TAX) has a mean of 11.05 and the median of 11.06 with the slightly higher to the mean value, indicating a positive skew. The maximum value of tax revenue is 37.05% while the minimum of 1.87%, with a standard deviation of 4.68 indicating high variability. The positive skewness of 3.43 and kurtosis of 20.69 suggest a highly positively skewed and peaked distribution with a long right tail, which is validated by the Jarque-Bera test with probability of 0.00 suggesting the significant distribution.

Table 4 shows the results of correlation analysis of the variables which are used in this study.

The first variable adult fertility shows a strong positive correlation with child health, while the variables life expectancy, globalization, health expenditure and female labor force participation have a strong negative relation with adult fertility rate. Tax and inflation have weak positive relation with adult fertility, while GDPPC has weak negative relation with adult fertility. The democracy has moderate negative relation with adult fertility. The second variable child health has a strong negative relation with LE, LFFP, Glob and HE. Inflation has moderate positive relation with child health, while the variable DEMOC is moderate negative correlate with child health. Tax has weak positive relation with child health and the GDPPC variable has weak negative relation with CH.

The weak positive correlation is existed between GLOB, HE, LFFP and LE with the variable GDPPC. The variable GDPPC has weak negative relation with INF1, DEMOC and TAX, which is described in the below table. Glob is the moderate positive corelate with the variables HE and DEMOC. The variable LFFP and LE have strong positive relation with Glob, however the INF1 is weak positive correlate with variable Glob. The Glob has weak negative relation with TAX.

Table 4: Correlation Analysis of Key Variables (1972-2023)

	AF	CH	GDPPC	GLOB	HE	INF1	LFFP	LE	DEMOC	TAX
AF	1.00									
CH	0.98	1.00								
GDPPC	-0.11	-0.09	1.00							
GLOB	-0.97	-0.97	0.05	1.00						
HE	-0.75	-0.77	0.04	0.69	1.00					
INF1	0.01	0.05	-0.14	0.02	-0.04	1.00				
LFFP	-0.96	-0.97	0.11	0.95	0.67	-0.09	1.00			
LE	-0.97	-0.99	0.14	0.95	0.75	-0.10	0.97	1.00		
DEMOC	-0.42	-0.40	-0.05	0.45	0.30	0.40	0.40	0.34	1.00	
TAX	0.28	0.25	-0.15	-0.24	-0.06	-0.14	-0.23	-0.24	0.07	1.00

The 5th variable HE is weak negatively correlate with INF1 and TAX, and weak positive correlate with variable DEMOC. HE variable has moderate positive relation with LFFP, and it has strong positive relationship with LE. Inflation has weak negative relation with LFFP, LE and TAX. The moderate positive correlation exists between the variable INF and DEMOC.LFFP showing the strong positive relation with LE, while it has moderate positive relation with the variable DEMOC. LFFP has weak negative relation with TAX. Life expectancy is weakly positive correlate with variable DEMOC. This has the weak negative relationship with variable TAX. The second last variable DEMOC has weak positive relation with TAX.

UNIT ROOT ANALYSIS

This section conducts a unit root test to determine either particular series is stationary or non-stationary. Table 5 presents the unit root analysis to check the stationarity and the non-stationarity of the key variables. The first variable adult fertility in series none test statistics has -2.781612 value with the 0.0064 p value which is less than 0.1 and shows the stationarity,

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the intercept test statistics value is -0.543615 and its p value is 0.8733 which is greater than our significant level and shows the non-stationarity in this series, in intercept and trends our test statistics value is -2.392485 and its p value is 0.8737 which is greater than to our significant level and it is non-stationary. The series become stationary only in none case while in other two cases it becomes non-stationary. In CH series the none statistics value is -0.722792 and its p value is 0.3984 which is greater than to our significant value 0.1 and it is non-stationary. The intercept test statistics value is -1.112518 with the p value of 0.7031 and become the non-stationary because its p value is greater than 0.1. In intercept and trend test statistics value is -4.125947 and its p value is 0.0110 which is less than to significant level and become the stationary. This series become stationary only in intercept and trend while in other two cases it is non-stationary. In GDPPC series the none statistics value is -2.845301 and its p value is 0.0053 and it is stationary. The intercept statistics value is -5.827312 with 0.0000 p value and become stationary because its p value is less than to our significant value, in intercept and trend the statistics value is -5.741545 and its p value is 0.0001 which shows the stationarity. This series become stationary in all cases because p value is less than to 0.1 in all cases.

Table 5: ADF Unit Root Test Results

Variables	None	Lag	Intercept	Lag	Intercept and Trends	Lag
AF	-2.781612	1	-0.543615	1	-2.392485	2
	(0.0064)		(0.8733)		(0.8737)	
CH	-0.722792	1	-1.112518	4	-4.125947	2
	(0.3984)		(0.7031)		(0.0110)	
GDPPC	-2.845301	0	-5.827312	0	-5.741545	0
	(0.0053)		(0.0000)		(0.0001)	
GLOB	3.729510	0	-1.164435	0	-0.257480	0
	(0.9999)		(0.6826)		(0.9898)	
HE	0.093406	0	-1.152495	0	-3.192036	0
	(0.7078)		(0.6876)		(0.0977)	
INF1	-1.568186	2	-5.420024	0	-5.407782	0
	(0.1089)		(0.0000)		(0.0003)	
LE	5.197482	0	-1.083867	0	-2.281367	0
	(1.0000)		(0.7152)		(0.4359)	

The Globalization has the none statistics 3.729510 value and its p value is 0.9999 and shows the non-stationarity. The intercept statistics value is -1.164435 with 0.6826 p value and become non-stationarity, while in intercept and trend the test statistics value is -0.257480 and its p value is 0.9898 which is greater than our significant value and become non-stationary. This series is non-stationary in all cases because its p value is greater than to our significant value in all cases. In none case the health expenditure statistics value is 0.093406 and its p value is 0.7078 and it is non-stationary, in intercept test statistics value is -1.152495 and p value is 0.6876 which is greater than our significant value and shows the non-stationarity. The intercept and trend have the -3.192036-test statistics value and its p value is 0.0977 and become stationary. This series become stationary only in one case which is intercept and trend while in other two cases it becomes non-stationary due its p value. In Inf1 series the none statistics value is -1.568186 and its p value is 0.1089 that is exactly equal to our significant level and shows the stationarity, in intercept case the test statistics value is -5.420024 with 0.0000 p value and it is stationary. The intercept and trend have the -5.407782-test statistics value and its p value is 0.0003 which is less than to significant value and become the stationary. Over all this series is stationary in all cases because its p value fulfils the significant level. At the end the Le series has the 5.197482 statistics value in none case with 1.0000 p value and it is stationary. In intercept the statistics value is -1.083867 and its p value is 0.7152 which is greater than to our significant value and becomes no-stationary. The intercept and trend test statistics value are -2.281367 with 0.4359 p value which is greater than to 0.1 and shows the non-stationarity. This series is stationary in single case and in other two case it is non-stationary because its p value is greater than in both these cases.

BOUNDS TEST RESULTS

This section conducts the Bound Testing Approach in order to describe the long-run relationship among the selected variables.

Table 6: Results of Bounds Test based on F-statistic

Test Statistic	Value	Signif.	I(0)	I(1)
	20.5221	10%	1.8	2.8
		5%	2.04	2.08
K		2.5%	2.24	3.35
		1%	2.5	3.68

Table 6 interprets the result of Kao-Test (F-Statistics) for long run relationship at different significant levels, which are given in 3rd column of the table. I(0) shows the lower bond and it describes in the 4th column of the table, while the I(1) shows the upper bond which is describes in last column of the table. if F-Statistics is greater than I(1) the test indicate that there exist long-run relationship between the variables in this model. If the F-Statistics is less than to I(0) the result shows there is no long-run relationship. At 10% level of significance the I(1) has greater value as compare to I(0) there is the long run relationship exist in this model. While the 5%, 2.5% and 1% level of significance also shows the long-run relationship.

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LONG RUN RESULTS

This section describes the long run results of the determinants of dependent variable by using the ARD technique. In this study we used the child health as the dependent variable, C is used as the constant variable while the all-other variables are used as the independent which are included AF, GDPPC, GLOB, INF, LE, LFFP, DEMOC, TAX and HE. The result of these variables is show in Table 7. In the long run the first variable AF shows the negative relationship with child health if we increase 1% AF the child health will decrease with -0.446213 which is highly statistically significant at 10% level. There are different reasons behind this adverse effect.

Table 7: Long run ARDL Estimates of Determinants of Child Health

Dependent Variable: D(CH)
Selected Model: ARDL (1, 1, 1, 0, 0, 0, 0, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AF	-0.446213	0.114539	-3.895737	0.0004
GDPPC	-1.014088	0.322985	-3.139736	0.0035
GLOB	-0.718514	0.199219	-3.606648	0.0010
INF	0.004876	0.098817	0.049341	0.9609
LE	-1.921638	0.719653	-2.670230	0.0115
LFFP	-0.458694	0.116418	-3.940068	0.0003
DEMOC	0.519502	0.316056	1.643702	0.1077
TAX	-0.390774	0.182285	-2.143753	0.0393
HE	-7.708136	3.336692	-2.310113	0.0271
C	237.7997	46.58966	5.104130	0.0000

The first reason for the negative relationship between child health and adult fertility rate is resource scarcity. When the number of children in a family increases, resources for those already present are reduced, which has negative effect on child health. In addition, poor maternal health also affects the health of the unborn child. When the number of children increases the parents also cannot take care of the children properly, they spend their time in the struggle to make a better future for them, which has a negative impact on the health of their children (Montgomery & Lloyd, 1996). Secondly the major reason is the shorter interval between the birth of the first child and the second child. This process deprives the baby of mother's milk before its age, which affects its physical health and makes the baby susceptible to many infections. When the birth interval is short the chances of infant mortality is also increase (Zebrack, et al. 2004). The last but not least reason of negative correlation among child health and fertility rate is the lack of education. Generally high fertility rates are higher in less educated families because less educated mothers are not familiar with modern health facilities, because of which their children are deprived of good treatment (Harville & Boynton-Jarrett 2013; Lopez & Peters, 2025). According to our findings all these factors collectively show a negative relationship between child health and high fertility rates.

The second variable is GDPPC that represents the gross domestic product per capita income its coefficient value is -1.014088 which shows this variable has negative relationship with child health and this is highly statistically significant for the following reasons. A negative link can sometimes be found between child health and GDPPC due primarily to economic inequality. As a result, the countries with high GDPPC are generally found to have an inequitable distribution of wealth. This results in less funding for child health care in over populated areas, resulting in inadequate child health services and affecting children's health (Hall et al. 2020; Wang & Zaman, 2025).

Environmental degradation is another major cause of adverse effects of GDPPC growth on children's health. Rapid industrialization is increasing environmental degradation, which is having adverse effects on children's health. Due to air and water degradation children are suffering from many diseases among which asthma is the most important (Levine & Rothman, 2006). Third reason of this inverse relationship is socioeconomic development. GDPPC growth is emphasized on socioeconomic development and economic growth often benefits high income groups, which has an impact on the health of children in low-income groups and within the communities such children are often seen as victim of inferiority complex (Harttgen et al., 2013; Chen & Yu, 2025).

The variable globalization has negative impact on child health, which is highly statistically significant. It means that an increase in globalization has negative effect on child health due to different reasons. The first major reason for the negative impact of globalization on child health is the changes in diet and lifestyle that are affecting children's health globally. Children prefer fast food instead of homemade food, which affects their physical health, and nowadays most of the children are suffering from mental, dental and physical diseases (Gracey, 2002). Secondly globalization often leads to economic inequality that affects the low-income families particularly affected more which has negative impact on their children's health. Due to the lack of income resources their children are deprived of good food and quality treatment which affects their mental and physical health, such children have a very weak immune system and cannot fight any infectious disease and die before reaching adulthood (Cornia, 2001). The third biggest reason of negative impact of globalization on child health is the increasing industrialization, which is increasing the emission of toxic gases which is not only degrade the environment but also affecting the health of children very badly. These toxic gases are causing children to suffer from various diseases such as eye infections, throat infections and asthma etc. (Okyay, 2021; Marc, 2025).

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When inflation has negative effects on children's health but there are some ways in which positive effects of inflation are seen. Table 8 shows the positive impact of inflation on child health which is highly statistically significant. It means that when we increase the inflation the child health is automatically increase as the same ratio for the following reasons. Firstly, it increased the parental time when the inflation is high the real income of household can be reduced which is directly affected the opportunity cast of their parental time. In this way they take more time to take care of their children, mothers especially feed their children on time and also take care of their good nutrition. In this way the health of their children improves and they are protected from many diseases (Kidane & Woldemichael, 2020; Audi et al., 2025). Secondly an inflation has a profound positive effect on children's food, due to which many parents cannot afford market food so mothers prepare food at home and home cooked food is rich in nutrients, which is very beneficial for children's health thus children are protected from many diseases and their health becomes better than before (Woldemichael et al. 2022; Sadiq et al., 2025). Third major reason for the positive relationship between child health and inflation is the implementation of food aid support programs. The aim of these programs is to provide nutritious food to children who belong to low-income groups. Through these programs mothers are educated about child health, how to take good care of their children, also provided with nutritional supplements (Headey & Ruel, 2023; Marc et al., 2025).

Life expectancy is negatively correlate with child health which is highly statistically significant. An increase in life expectancy has a negative impact on child health due to several reasons. Socio-economic factors are also a major cause of the negative relationship among life expectancy and child health. Children who belong to disadvantaged families are often deprived of nutritious food and safe living, due to these factors they suffer from many diseases which affects their health and reduces their life expectancy (Liu et al., 2023). The second reason is the increase in child mortality rates in areas where there is no health care centers for child care. In regions where modern vaccinations and other medicines are not available to treat children, mostly they do not survive childhood, reducing overall life expectancy (Barthold et al., 2018). Poor maternal health leads to various complications during pregnancy and childbirth which can often lead to infant mortality. Even if babies are saved during delivery they suffer from many diseases and usually die before the age of 1 year (Ranabhat et al. 2018). Female labor force participation has negative effect on child health which is highly statistically significant. There are different reasons behind this effect. Financial considerations also found a negative relationship between child health and female labor force participation. Some mother prefers to work more hours to meet the financial needs for a better quality of life for their children and they do not have time to take care of their children, which affects the health of their children (Spiess & Dunkelberg, 2009). Mothers who work have the pressure of family responsibilities and childrearing along with work and these mothers often suffer from stress, due to which she cannot take care of her children properly and her children are suffering from some disease to every day (Lokshin & Fong, 2006). Working mothers do not have enough time to prepare nutritious food for their children, they often feed their children processed food, which has negative effects on their children's health (James-Burdumy, 2005).

DEMOC is positively correlate with child health and this relationship is statistically significant due to different reasons. Democratic governments often play an important role in providing public health and social services, and they introduce special programs to care for youth and children in the community, which have a positive impact on children's health (Burroway 2016). Democracy often promote education in the population, which increase the number of literate mothers in the community, such educated mothers take better care of their children due to which reducing infant mortality rates (Pieters et al., 2016; Audi et al., 2024; Mehdi et al., 2025). Economic Democracies are implemented in democratic governments to improve the economic condition of people by eradicating poverty so that they can consume nutritious food and take better care of their children (Ali & Rehman, 2015; Zounkifirou et al., 2021). Tax has negative impact on child health which is highly statistically significant. This relationship shows that when we increase the taxes the child health will reduce for the following reasons. Tax increases reduce access to services, leaving parents with less time for child care, which is critical to children's development and this has a negative impact on children's health (Yama & Rook, 2024). Families often make large purchases that often results in debt and then use EITC refunds to pay off those debts, which has an impact on children's health, because its use reduces money to spend on children's health and children do not get enough nutritious food which has negative effect on their health (Hamad et al. 2018). Taxation can reduce disposable income, which has an impact on investment because it limits human resources and they have less money for the better health of their children (Ali et al., 2021; Coughlin et al., 2022).

Health expenditure is negatively correlate with child health which is highly statistically significant. This inverse relationship is explained through the following reasons. Funds allocated for health use are often misused, it means the corruption in the health sector affects health expenditure, which has negative impact on children's health (Ali & Audi, 2016; Zounkifirou et al., 2021). Increasing spending on health centers alone cannot improve health, many geographical issues, lack of professional health care and poor infrastructure also affect children's health due to which good health facilities are provided to children on time can't be done (Novignon & Lawanson, 2017). Socioeconomic factors such as poverty and lack of higher education negatively affect the health costs of children, due to all these problems who belong to poor families are deprived of better life, it means lack of health spending has negative effects on children's health (Dhrifi, 2020).

ERROR CORRECTION RESULTS

Table 8 describes the error correction results for the determinants of child health. The estimated coefficient of $ECM_{ti}$is -0.077523, which is highly statistically significant with a negative. The negative of the error correction term means that if for some reason growth slowdown in the long run, it will converge by 7% every year for achieve the equilibrium.

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STABILITY ANALYSIS

The stability of the long run relationship between dependent and independent variables was tested by using the cumulative sum of recursive residual (CUSUM) and CUSUM of squares. The results are illustrated in Figures 2 & 3 which shows the failure to reject the null hypothesis at the 5% level of significant because the blue line in both graphs is plot in the critical range, so we can say that our ARDL model is stable in the long-run.

Table 8: Error Correction Results of Determinants of Child Health

Dependent Variable: D(CH)
Selected Model: ARDL (1, 1, 1, 0, 0, 0, 0, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-18.43500	5.291160	-3.484113	0.0014
CointEq(-1)*	-0.077523	0.012734	-6.087755	0.0000
AF(-1)	-0.034592	0.007718	-4.481975	0.0001
GDPPC(-1)	0.078615	0.020091	3.912928	0.0004
GLOB**	0.055702	0.018182	3.063537	0.0043
INF1**	-0.000378	0.007661	-0.049339	0.9609
LE**	0.148972	0.064929	2.294376	0.0281
LFFP**	0.021319	0.029104	0.732500	0.4689
DEMOC(-1)	-0.441753	0.372893	-1.184662	0.2444
TAX(-1)	-0.030294	0.013280	-2.281189	0.0289
HE(-1)	0.597560	0.300181	1.990667	0.0546
D(AF)	-0.007240	0.026098	-0.277414	0.7831
D(GDPPC)	0.049895	0.016132	3.092861	0.0039
D(DEMOC)	0.001879	0.336776	0.005580	0.9956
D(TAX)	-0.011320	0.022816	-0.496162	0.6230
D(HE)	0.186366	0.328562	0.567216	0.5743

Figure 2: CUSUM Test

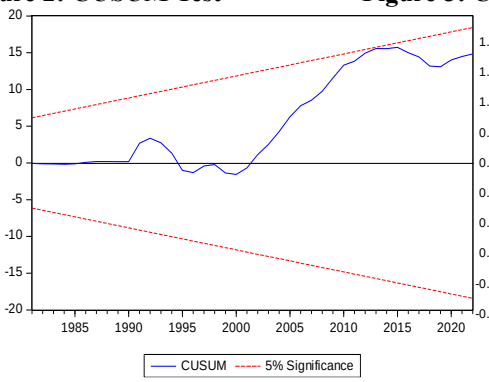
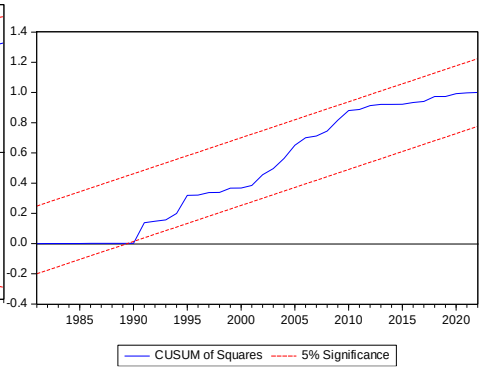


Figure 3: CUSUM Square Tests



CONCLUSION AND POLICY RECOMMENDATION

The study aims to explore the relationship among globalization, child health and democracy in Pakistan. This study has one objective to identify the determinants of child health and to assess the effects of child health on democracy and globalization. This study used data from 1972 to 2023 of Pakistan. This study used methodology ARDL, ADF Bound test and Kao test. The model representing the results of a Long Run ARDL model estimating the determinants of child health. The AF adult fertility rate has negative effects on the child health and is highly significant. The GDPPC gross domestic product per capita has negative and significant correlation the child health. The GLOB globalization is affecting negative and strongly significant on the child heath. INF inflation is affecting positive significantly on the dependent variable child health. The life expectancy is impacting negative with the child health. The female labor force participation is affecting inversely on the dependent variable child health and it has significantly direct relationship with the dependent variable. The income tax is showing negative results on the child health and the health expenditure also has significant inverse correlation. The variables AF, GDPPC, GLOB, LE, LFFP, TAX and HE has statistically significant influence on the child health in the long run and INF and POL doesn't have statistically significant impact on the child health. GDPPC, globalization, health expenditure and taxation are showing negative influence effect on the child health.

Based on the results, the study recommends the following policies:

- The findings of the study indicate that adolescent fertility has a negative impact on child health in Pakistan. So, it is suggested that government would take such steps that can reduce the fertility rate in order to improve the child health.
- If the government improve the tax structure the revenue should be generate through taxes in the best way and spend on the health sector specially on child health this can improve the quality of child health.

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- If there is improvement in globalization it should increase the jobs opportunities which can improve the quality of life and can ultimately improve the child health.
- If the government controls the inflation, which can reduce the child labor force that can ultimately improve the child health.
- If government spend revenue on the health sector. This could improve the standard of health sector due to this can control the infant mortality rate, increase life expectancy which can improve the child health.

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