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Financial Intermediation and Poverty in Pakistan: An Empirical Analysis of the Mediating Role of Gross Fixed Capital Formation

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Abstract

This research explores how gross fixed capital formation (GFCF) mediates poverty nexus between financial intermediation in case of Pakistan. Data were extracted from the Economic Survey of Pakistan, the World Bank and Pakistan Bureau of Statistics (PBS) for the years available preceded to this project, i.e., covering years 1996–2020. Poverty estimates were derived from an earlier study by the Cost of Basic Needs (CBN) method, which considers both food and non-food consumption based on the Household Integrated Economic Survey data. The empirical analysis uses the Autoregressive Distributed Lag (ARDL) model to estimate short-run and long-run relationships. The findings show that the effect of financial intermediation is a short-term reduction in poverty but in the long run it is positively associated with poverty. In addition, both the financial intermediation and the control of corruption index have a meaningful impact on strengthening GFCF. Transmission mechanism is evaluated with mediation analysis through Structural Equation Modeling (SEM). To link financial intermediation with poverty, they also explored whether financial intermediation to poverty runs through GFCF, the finding suggests that GFCF does not mediate. Financial intermediate action encourages capital accumulation, but its hoped-for trickle-down impact on poverty alleviation fails. They reflect some structural inefficiencies and economic leakages which hamper the smooth transmission of financial gains to unemployed and low-income groups. The study highlights the important roles that policy measures can play in enhancing institutional quality and ensuring that financial development and investment lead to poverty reduction that is inclusive and sustainable.

Keywords: Financial intermediation, GFCF, Structural equation modeling, Poverty, ARDL, Institutional dynamics

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Introduction

Poverty is still a constant issue in developing economies and indeed is often correlated with an unequal distribution of income, lack of resources availability and structural social injustices (OECD, 2020). Access to Financial Resources This is important for facilitating capabilities and productive investment. Reasons for financial inclusion limitation is a barrier for effective income generation and the poverty cycle which affects quite a number of countries especially developing country like Pakistan where there exists a remarkable difference between access to financial services.

Financial intermediation broadens the horizon of fund transfers from surplus to deficit units which has been considered one important determinant for economic growth and poverty alleviation. This has also re-enforced upon several workers to save later down the road; however, investing into financial institutions is crucial as they help channelize these savings into productive investments, thus supporting business expansion and creating jobs through entrepreneurial activity (Beck et al., 2004; Hassan et al., 2011). Access to financial services such as savings, credit, insurance and payment systems allows households and firms to make investments (purchasing physical and human capital, etc.), smooth consumption patterns by ensuring a steady income source with no fluctuations that prevent them from purchasing what they need when they need it/when they can afford it while making investments at the same time which helps reduce vulnerability to income shocks (which is the reason why many poor people are forced into loan traps) thus translating into lower poverty levels in general hence improving overall welfare(Jalilian & Kirkpatrick 2005; Odhiambo, 2010). However, the extent to which financial intermediation can contribute to poverty reduction depends on the country context, especially in cases where institutional inefficiencies limit the promotion of credit toward pro-poor economic sectors.

The recent literature has also raised questions about the potential costs associated with excessive financial depth. After the global financial crisis (2007–2008), studies indicated that untamed expansion of financial systems could result in resource misallocation, speculative actions and macroeconomic instability (Law et al., 2014). This is especially concerning as more credit has resulted in greater aggregate demand and inflationary pressures which, by diluting purchasing power, fall disproportionately on low-income households (see Bayoumi, 2008; Crotty, 2009). Inflation in Pakistan shows asymmetric effects as increased agricultural prices may benefit rural production actors and thus increase the cost of living for urban poor populations (Meo et al., 2018).

Investment dynamics, and notably through measures such as Gross Fixed Capital Formation (GFCF), also mediate the relationship between financial intermediation and poverty. GFCF function as an important conduit through which financial development impacts upon economic growth for me by increasing the productive capacity (Ali, 2015; Yanikkaya, 2003). Investment's potential to reduce poverty is contingent upon how it is allocated. In line with this, investments of a general nature create revenue and alstogeher development while the appropriation and sector-based investments provide high levels of inequality in payment when the consequences are centred on particular individuals process (Akobeng, 2017). In addition, institutional quality is a fundamental catalyst to influence the extent of financial intermediation and investment. Strong governance, regulatory quality and control of corruption improve efficient resource allocation whilst weak institutions result in inefficiencies with a misallocation of credit (Demetriades & Law, 2006; Haini, 2020).

The relationship between financial intermediation, investment and poverty reduction in Pakistan has so far yielded an inconclusive empirical investigation despite overwhelming global evidence on the positive role of financial intermediation and investment towards alleviating poverty. This implies structural and institutional shackles that hinder financial systems performance in realizing inclusive growth. This study adds to the literature in three ways. First, it analyzes the direct effect of financial intermediation on poverty and investment in Pakistan. Secondly, it examines the effect of governance indicators on Gross Fixed Capital Formation. Third, it explores the indirect impact of financial intermediation on poverty via GFCF as a mediating pathway. Integrating financial, institutional and investment dimensions, the study offers a holistic framework to understand the finance–poverty linkage for Pakistan.

Literature Review

The role of financial intermediation in promoting economic activity through efficient resource allocation from surplus units to deficit units is a well-established concept. A significant amount of early theoretical and empirical work argues that sound financial systems catalyse investment, boost productivity, create jobs and reduce poverty. For example, Beck and Levine (2004) demonstrate with cross-country data that financial development furthers the interests of the poor nation-wide by providing them with access to credit markets and income-generating opportunities. On similar lines, Jalilian and Kirkpatrick (2005) propose that financial development lowers poverty through a growth-reinforcing channel.

But the relationship between poverty and financial development is not linear. Jalilian and Kirkpatrick (2005) find a threshold effect such that financial development plays an inequality-increasing role at lower levels of development, while beyond a certain level it is poverty-reducing. Odhiambo (2010) shows that direction of causality between finance and poverty is sensitive to financial indicators. 14 Such evidence indicates the prevalence of heterogeneity in the finance–poverty nexus, with significant variation due to structural and institutional factors.

Empirical studies in developing regions yield even mixed results. In one such study, Quartey (2008) finds that the positive effect of financial development on economic growth does not help reduce poverty substantially but for the persistence of poor households' inability to access credit markets in Ghana. Likewise, Danquah et al. (2021) find that financial inclusion can enhance welfare in sub-Saharan Africa, but the poverty-reduction potential of financial services depends on how broad and comprehensive they are. In conclusion, these findings collectively suggest that financial access is not enough without equitable distribution mechanisms.

This unconditional link, however, has come into question in recent literature, especially after the Global Financial Crisis. Law and Singh (2014) argue that deeper financial markets may instead distort the allocation of resources, incentivize speculation and lead to lower savings. Furthermore, an increase in credit supply can lead to inflationary pressure that hits hardest at the bottom of the income distribution by reducing purchasing power. Macro-economic studies highlight that unruly financial deepening can destabilize economies and hinder poverty alleviation efforts (Bayoumi, 2008; Crotty, 2009). This body of literature stresses an important trade-off between financial development and macroeconomic stability.

Another major connection between finance and poverty occurs through investment, especially Gross Fixed Capital Formation (GFCF). The classical and neoclassical theory of growth including Harrod (1939) identifies capital accumulation as the engine of economic growth. Empirical evidence (Yanikkaya 2003; Ali, 2015) shows that GFCF has a positive impact on economic growth promotion in particular the developing economies. But the distributional effects of such growth are hotly disputed. Schultz et al. (1998) contend that capital-accumulation-led growth does generate inequality if investments are focused on the capital-intensive sectors.

The effectiveness of GFCF to reduce poverty is further conditioned by the quality of institutions. The work shows that governance, as measured by indicators like control of corruption and bureaucratic quality matters for poverty-reducing impact of investment in sub-Saharan Africa (Akobeng 2017). Indeed, Demetriades and Law (2006) suggest that "the presence of weak institutions obstructs the efficient allocation of financial funds, restricting the process of financial intermediation". These results indicate that the role of institutions is a key moderating factor in the finance–investment–poverty relationship. Specifically, in the Pakistani context, research has concentrated on economic growth and financial development while literature on poverty is rather scanty. However studies of GFCF always focus on its impact on aggregate growth rather than distributional outcome. Additionally, there appears to be limited empirical analysis on the mediating role of GFCF in the financial intermediation-poverty nexus, especially within an institutional context.

Which leaves a huge gap in realising how financial intermediation leads to poverty alleviation via investment channels, especially in Pakistan. This study fills this gap examining the direct and indirect effect of financial intermediation on poverty with Gross Fixed Capital Formation as mediating variable in their relationship, while institutional quality is treated as conditioning factor.

Operational Definition & Description of Variables

The operational definition and measurement of the study variables are given below. To study the definitions of the variables are borrowed from the World Bank Development Index database.

Variables	Notation	Definition	Data Sources
Poverty	**POV**	Level of per- capita consumption at which the members of a household can be expected to consume their “basic needs” in terms of both food and non-food consumption. Measured through Household integrated economic survey.	Pakistan bureau of statistics
Financial Intermediation	**FI**	Credit to domestic sector at the percentage of GDP.	World bank
Inflation	**INF**	Measured through Consumer price index (CPI) as percentage change in general price	State Bank of Pakistan

		level	
Economic Growth	**GDP**	Growth rate of value of all final goods and services produced	World bank
Gross Fixed Capital Formation	**GFCF**	Additions to the fixed assets of the economy plus net changes in the level of inventories as percentage of GDP	World Bank
Control of Corruption	**CC**	Control of Corruption captures perceptions of the extent to which public power is exercised for private gain, Estimate gives the country's score on the aggregate indicator.	World Governance indicators
Regulatory Quality	**RQ**	Regulatory Quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Estimate gives the country's score on the aggregate indicator.	World Governance indicators

Theoretical Framework and Empirical Model

The study is based on time series data from 1996 to 2020 and have been taken from Pakistan Bureau of Statistics (PBS) , World Developing Indicators (WDI) of World Bank (WB) and State Bank of Pakistan (SBP) for all the selected variables; First part of study develops simultaneous equations showing the direct impact of financial intermediation (as credit to private sector), to rate of poverty which was measured through 'COST OF BASIC NEEDS' approach by Pakistan bureau of statistic (PBS) and its Impact on gross fixed capital formation .In addition to this, role of governance indicators (source: WGI) on GFCF is also been examined. Second part of the Study examined the indirect impact through structural equation modelling and measured the mediating role of gross fixed capital formation between financial intermediation and poverty.

The following specification is used in the empirical model to examine the relationship between financial intermediation and poverty in Pakistan.

$$POV = f\,(FI, GFCF, CV)$$

For empirical purposes, all variables are converted into econometric model form. The empirical equation is modelled as follows:

$$POV_t = \sigma_0 + \sigma_1 FI_t + \sigma_2 GDP_t + \sigma_3 INF_t + \varepsilon_t \qquad \ldots (1)$$

$$GFCF_t = \beta_O + \beta_1 FI_t + \beta_2 cc_t + \beta_3 RQ_t + \varepsilon_t \qquad \ldots (2)$$

$$POV_t = \gamma_o + \gamma_1 FI_t + \gamma_2 INF_t + \gamma_3 GDP_t + \gamma_4 GFCF_t + \varepsilon_t \qquad \ldots (3)$$

Where Equation (1) estimates the direct effect of financial intermediation on poverty, Equation (2) tests for direct impact of FI on GFCF and equation (3) estimates for indirect effect of FI on poverty and for that purpose Structural equation modelling (SEM) will be used.

FI represents financial Intermediation. The series is computed by taking domestic credit distributed to the private sector as share of GDP, (Danquah et al, 2021). Domestic credit to private sector used here is the total amount of credit distributed by the financial intermediaries to the private sector. For our purpose, the measure is taken as ratio of GDP. This also is the amount of credit from the savers to private sector, through financial intermediaries. Private credit is a comprehensive proxy for financial development.

The poverty measures inequality in the distribution of income through (CBN) approach, which measures the percentage of population who can afford their basic needs in terms of both food and nonfood consumption (Pide, 2021), are said to be not poor and vice versa. Gross fixed capital formation (GFCF) has also been taken as the ratio of GDP from World Development Indicators (Akobeng, 2017).

The CV refers to a set of control variables which includes inflation (INF) (Ehigiamusoe et al., 2019), GDP growth rate, regulatory quality (RQ) is an index showing the perception of people about the ability of government to implement sound policies and regulations to promote private sector development (Akram et al, 2011). Control of corruption index (CC) has been extracted from (WGI) that shows the perception of people that on which extent public power is exercised for private gain (Akram et al, 2011).

Estimation Techniques

Cointegration

In this study, we have applied Augmented Dickey Fuller test (ADF Test) which is a common statistical method used before applying the estimation techniques to test whether our time series data is stationary or not. It is one of the most used statistical tests when it comes to analyzing the stationary of a series. It determines order of integration before going for further estimation, Autoregressive Distributed Lag Model (ARDL) approach to Co-integration has been used. This method gives several advantages over traditional methods while providing consistent, reliable and significant results and considered as the best econometric method compared to others especially when the variables are stationary at level I (0) or integrated of order I (1). There are several approaches to co integration e.g., the residual-based Engle-Granger (Watson, 1994), maximum likelihood based (Johansen, 1991) and other tests. These approaches require that all variables be integrated of same order; or else create inadequacy (Pesaran et al, 2001) developed the Autoregressive Distributive Lag Model or ARDL bounds testing approach to co integration which is better suited to small data set. The ARDL also applies irrespective of the order of integration such as *I (0)* or *I (1)* (Pesaran et al, 2001).To estimate short run relationship, ARDL error correction model (ECM) is used and bound testing has been used to check the long run relationship. Following equations show the long run and short run ARDL equations of the model.

$$Pov_t = \alpha_o + \sum_{i=1}^{p} \Delta\, aiPov_{t-i} + \sum_{i=1}^{p} \Delta\, biFI_{t-i} + \sum_{i=1}^{p} \Delta\, ciINF_{t-i} + \sum_{i=1}^{p} \Delta\, diGDP_{t-i} + \varphi_1 Pov_{t-1} + \varphi_2 FI_{t-1} + \varphi_3 INF_{t-1} + \varphi_4 GDP_{t-1} + \mu_t \quad \ldots (4)$$

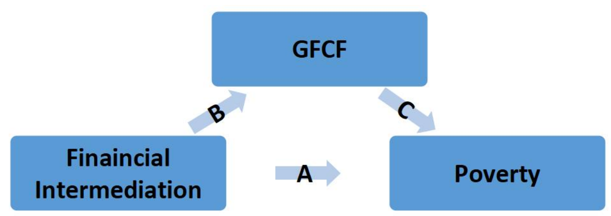
$$GFCF_t = \alpha_o + \sum_{i=1}^{p} \Delta\, eiGFCF_{t-i} + \sum_{i=1}^{p} \Delta\, fiFI_{t-i} + \sum_{i=1}^{p} \Delta\, giCC_{t-i} + \sum_{i=1}^{p} \Delta\, hiRQ_{t-i} + \gamma_1 GFCF_{t-1} + \gamma_2 FI_{t-1} + \gamma_3 CC_{t-1} + \gamma_4 RQ_{t-1} + \mu_t \quad \ldots (5)$$

In equation-4 (a, b, c, d) refer to the short run parameters and $(\varphi_1, \varphi_2, \varphi_3, \varphi_4)$ refer to the long run parameters. In equation-5 (e, f, g, h) are short run parameters whereas$(\gamma_1, \gamma_2, \gamma_3, \gamma_4)$ refer to long run parameters

Structural Equation Modeling

Structural equation modeling (SEM) is a powerful statistical tool used to estimate multivariate causal relationship. SEMs differ from other modeling approaches as they test the direct and indirect effects of multivariate causal relationships (Structural Equation Modeling). Therefore, SEM has been used for measuring direct and indirect effects as well as for path analysis. Similarly, to check whether GFCF mediates the relationship of poverty and financial intermediation, Baron and Kenny approach is used which confirms the role of mediation is significant or not (Baron & Kenny, 1986), also Sobel and Monte Carlo method helped in determining either indirect effect lies in the path or not. The Monte Carlo Method was first described and evaluated by (MacKinnon et al, 2004)

Zhao, Lynch & Chen's approach (Zhao et al, 2010) measures both direct and indirect effects and estimates the percentage change, financial intermediation is causing on poverty which is mediated by GFCF.



Empirical Results

Table1: ***Unit-Root Test***

VARIABLES	LEVEL	PROB –VALUE	1ST DIFFERENCE	PROB VALUE
POV	-0.106158	0.9380	-3.337492	0.0248
GFCF	-2.075719	0.2553	-5.588090	0.0001
INF	-3.276673**	0.0301	-----------	--------
GDP	-1.921987	0.3172	-4.413168	0.0022
FI	-0.888243	0.7742	-3.781646	0.0094
CC	-3.565267**	0.0147	-----------	---------
RQ	-3.399358**	0.0212	-----------	---------

*Note: *, ** and *** represent significance at 1%, 5% and 10%*

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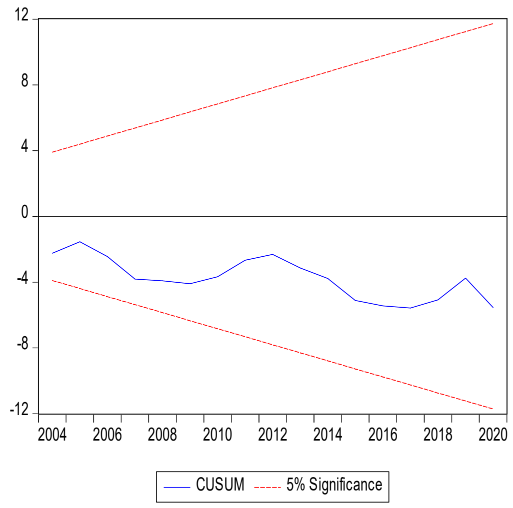
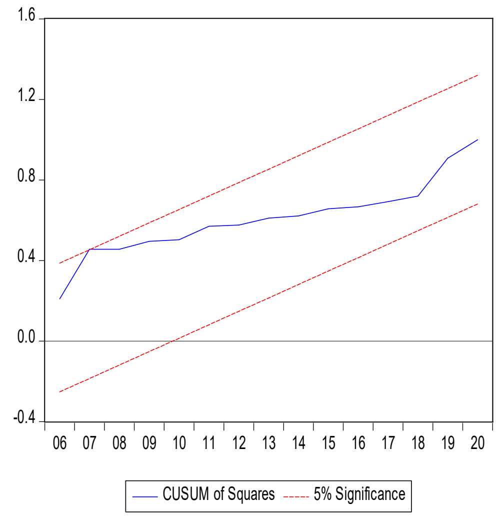
The results of the ADF unit root test developed by Dickey and Fuller (1981) reported in the table shows that INF, CC and RQ are stationary at level and remaining variables are integrated of order one. Hence, ARDL approach is the best choice for estimation. Moreover the appropriate lag order chosen by AIC and Hanan criteria in both equations is 2.

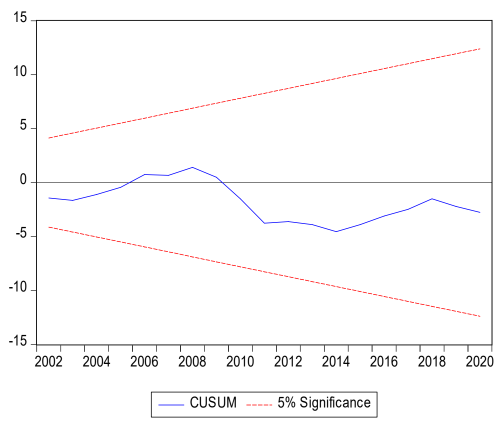
The stability test of long and short run parameters are checked by using the cumulative sum of recursive residuals (CUSUM). In the graphs shown below both CUSUM and CUSUM SQUARE are lying within the critical bounds so it shows that the model is stable structurally.

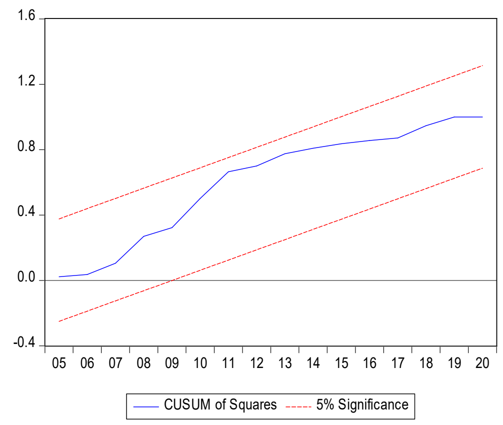
Plot of CUSUM of Eq 1.





Plot of CUSUM of Eq 2.





Co-integration Results

The estimation results of Eq 1 are shown in Table 2 and Table 3 below:

$$POV_t = \sigma_0 + \sigma_1 FI_t + \sigma_2 GDP_t + \sigma_3 INF_t + \varepsilon_t \qquad \dots (1)$$

Table 2: ***Results of ARDL bound test of Eq . 1***

Dependent variable: Pov		
F-Statistics	5.640133**	
Critical values	**5% level**	**10%level**
Lower bounds	2.79	3.67
Upper bounds	2.37	3.2
$Adj - R^2$	0.9783	

*Note: *, ** and *** show the significance at 1%, 5% and 10% levels respectively.*

In the ARDL bounds testing, if the calculated F-statistic exceeds the upper critical bound (UCB), then the series are co integrated; and if it is below the lower critical bound (LCB), there is no co integration. If the calculated F-statistic is between the UCB and the LCB, then decision about co integration is inconclusive. The results in Table 2 confirms the existence of co integration.

Table 3: ***Long run and short run results of Eq . 1***

Dependent variable = Pov

Variable	Coefficient	t-statistics	Prob-values
Long run results			
Constant	-10.34037	-0.776025	0.4484
FI	3.325042***	5.475980	0.0000
INF	3.198207**	5.475980	0.0011
GDP	-3.412379	-2.122948	0.0487
Short run results			
ΔFI	-0.409253 **	-2.027837	0.0585
ΔINF	0.230466 **	2.019604	0.0595
ΔGDP	-0.927372	1.382637	0.93972
ECM_{t-1}	-0.168916	-5.902213	0.00000

The estimation results of Eq 2 are shown in Table 4 and Table 5 below:

$$GFCF_t = \beta_0 + \beta_1 FI_t + \beta_2 cc_t + \beta_3 RQ_t + \varepsilon_t \qquad \dots (2)$$

Table 4: ***Results of ARDL Bound test of Eq. 2***

Dependent variable = GFCF		
F-Statistics	5.640133**	
Critical values	**5% level**	**10%level**
Lower bounds	2.79	3.67
Upper bounds	2.37	3.2
$Adj-R^2$	0.89634	

*Note: *, ** and *** show the significance at 1%, 5% and 10% levels respectively.*

Table 4 shows that F-statistics exceeds the upper bound therefore co integration exists.

Table 5: ***Long run and short run results of Eq. 2***

Dependent variable = GFCF

Variable	*Coefficient*	*t-statistics*	*Prob-values*
Long Run Results			
Constant	0.145270	9.534127	0.0000
FI	0.271671	4.765768	0.5080
RQ	0.0131415	0.674736	0.5080
CC	0.026772	0.015237	0.0915
Short run results			
ΔFI	-0.0292	3.1768	0.0041

ΔRQ	0.0002	0.5203	0.0555
ΔCC	0.0174	2.0124	0.6076
ECM_{t-1}	0.746808	-5.797720	0.00000
R^2=0.82752	Adj-R^2 = 0.72987		
SIC=0.82979	F-statistic = 0.553545		
D.W=1.927			

Long run results for the first equation under ARDL approach indicates that financial intermediation and inflation is positively and significantly affecting poverty at the long run in Pakistan (Moorthy & Kolhar, 2011) . This means that due to greater access of finances to a certain and selected group of people and leakages in financial system generates income inequality in our country, poor on the other hand are not benefiting from this due to lack of collateral and business proposals. Purchasing power of people decreases due to increased inflation, pushing them under the poverty line. As far as the GDP growth rate is concerned, it is negatively and insignificantly affecting poverty in long run. Table displays short run coefficients under ARDL approach. Results indicate that the inflation is positively and significantly affecting the poverty in the short run whereas financial intermediation is negatively and significantly affecting the poverty in the short run, so short run results are consistent with Beck and Levine (2004). The adjustment coefficient is statistically significant at 1% level and has correct sign (negative).It indicates that financial intermediation in short run helps reduce poverty in Pakistan because greater money supply in short run increases aggregate demand and ultimately the general price level increases, These increased prices helps firms and rural agricultural sector to earn more returns and generate more employment but in long run due to increased inflation and decrease in real income ,employment level comes back to natural rate of employment.

Second equation using same technique estimates that financial intermediation and control of corruption is positively and significantly affecting gross fixed capital formation in the long run (Law et al., 2014) (Haini, 2020) whereas regulatory quality is positively and insignificantly impacting GFCF. Showing that increase in financial intermediation cause increase in gross fixed capital formation and control of corruption is also a very important component that affects Investment. More the people perceive that there's a control over corruption, more of the investment will take place.

Results of Structural Equation Modeling

Table 6: ***Structural Equation Modeling***

	Coefficient	**Std.Err**	**Z**	**P> (z)**	**[95% Conf.Interval]**	
Structural POV🡐						
GFCF	-1.471379	1.74094	-0.85	0.398	-4.883488	1.940729
FI	3.602718	.5451394	6.61	0.000	2.534264	4.671172
GDP	-2.649297	1.01085	-2.62	0.009	-4.630526	-.6680672
INF	2.243064	.4928543	.4.55	0.000	3.209041	.277088
-cons	.2086823	.2213568	0.94	0.346	-.2251691	.6425337
GFCF🡐						
FI	.1910388	.0344089	5.55	0.000	.1235986	.2584791
CC	.0305762	.0122777	2.49	0.013	.0065124	.0546399
RQ	.02445599	.0102795	2.38	0.017	.0043084	.0446033
-cons	.1628325	.0132164	12.32	0.000	.1369288	.1887362

Here, Structural equation modelling (SEM) technique has been used which provides the multivariate path analysis that captures both direct and indirect impact of pre assumed causal relationships. Results indicates that GFCF in the first path is negatively affecting poverty, means that increase in gross fixed capital formation is causing decrease in poverty rate in Pakistan however it's insignificant. This indicates that in the case of Pakistan, GFCF is not significantly reducing poverty (Akobeng, 2017). This is primarily because for last many years, primary recipients of investment inflows are sectors with lower employment elasticities like power sector, financial sector, telecom etc. On the other hand, financial intermediation and inflation are causing positive and significant affects.

Second path which is from GFCF to financial intermediation has all positive and significant coefficients so, increase in financial intermediation is causing increase in GFCF (Yanikkaya, 2003). These results are showing a path analysis that financial intermediation impacts the rate of gross fixed capital formation, which does not lead to poverty reduction in Pakistan.

Testing Mediation

Table 7: ***Barron and Kenny approach***

Estimate	Delta	Sobel	Monte Carlo
Indirect effect	-0.281	-0.281	-0.301
Std. Err	0.336	0.336	0.346
z-value	-0.836	-0.836	-0.870
p-value	0.403	0.403	0.384
Conf. Interval	-0.940, 0.378	-0.940, 0.378	-1.025, 0.350

Barron and Kenny approach to testing mediation

STEP 1 – GFCF : FI (X- > M) with B=0.191 and p=000

STEP 2 – POV: GFCF (M- > Y) with B=1.471 and p= 0.398

As either STEP 1 or STEP 2 (or both) are not significant

There is no mediation.

RIT=(Indirect effect / Total effect)

(0.281/3.322) = 0.085

Meaning that about 8% of the effects of FI on POV is mediated by GFCG

Table 8: ***Zhao Lynch & Chen's approach***

Zhao Lynch & Chen's approach

Zhao, Lynch & Chens approach to testing mediation

STEP 1	POV:FI (X- >Y) with B=3.603 and p=0.000 As the Monte Carlo test above is not significant and STEP 1 is Significant you have direct-only no mediation (no mediation)
RIT	= (Indirect/Total effect) (0.281/3.322) = 0.085 Meaning that about 8% of the effects of FI on POV is mediated by GFCF
RID	= (Indirect effect/Total effect) (0.281/3.322) = 0.078 That is, the mediated effect is about 0.1 times as large as the direct effect of FI on POV

Both approaches above suggest that financial intermediation doesn't impact poverty through the channel of GFCF.

Conclusion and Policy Recommendation

Our statement of problem was focusing on financial intermediation and GFCF relationship impact poverty reduction in Pakistan and as to whether GFCF acts as a mediator between financial intermediation and poverty reduction in Pakistan. The key conclusion of the whole study is that in the short run financial intermediation is causing poverty reduction but in long run, the effects become opposite due to the distortion found in the financial sector. The inflation-poverty nexus in Pakistan is unique as if agriculture deflator is higher than CPI, rural poverty tends to fall even with higher inflation. This is because higher deflator for agriculture means higher income transfers to rural areas which will lower incidence of poverty. Similarly, in the long run financial intermediation and control of corruption are positively correlated with gross fixed capital formation and regulatory quality is positively but insignificantly correlated with GFCF. The results are quite in line with expectations and also substantiated in the (*National Poverty Report 2015-16*, n.d.)-16.As far as the mediating role of GFCF is concerned, increase in financial intermediation caused increase in gross fixed capital formation but it did not lead to poverty reduction because of insufficient quality investment in Pakistan .Investments are taking place in sectors that have not or less carry forward and backward linkages for example IT, banking and real estate sectors that do not significantly benefit our poor class. On the other hand sectors like construction, manufacturing and agriculture have strong such linkages and investments in these sectors can lead to more employment generation and resultantly poverty reduction with change in social indicators. Secondly another factor that could be a reason of GFCF not affecting poverty in Pakistan is that fixed capital investment take years to deliver and impact other indicators so projects with time taking processes and building would affect poor class in long run which is not reported in our small data set. Although, the decline we have seen in poverty rate was due to increased foreign remittances, growth of informal sector associated with rising urbanization, social protection programs like Benazir income support etc (*National Poverty Report 2015-16*, n.d.). But, this decline was not supported by progress in social indicators.

Recommendations

Considering the above analysis and discussion this study proposes the following recommendations to address the challenges.

1. Rule of law must be practiced to lower distortion and leakages: Our financial system contains distortions of various degrees at different levels, which is against the rule of law. Financial system should be made transparent to gain trust of investors
2. Facilitate collateral-free loan screening mechanisms: In countries like Pakistan condition of collateral is a big road block for access to credit. Counties facilitating collateral free credit systems have managed to improve expansion in private sector which in turn promotes private investment
3. Improving the investment climate through one window operation for company incorporation, simplification and rationalization of taxation, timely service delivery, and dealing with cumbersome over-regulations are some of the measures, which if implemented with letter and spirit can be instrumental to improve business environment and can reduce regulatory burden on the businesses.
4. To reduce uncertainty for businesses; Regulators should be bound by a code of practice and principles. In smart regulations a few principles such as time bound regulations, risk-based approaches and zero NOC etc are the backbones and regulators are bound to comply with these principles or codes. Hence, we need to eliminate all unnecessary NOCs and Permits to reduce Sludge cost. Low risk businesses should be allowed to be established without any requirements of Permits, approvals and NOCs. However, Audit and Surveillance should not be exempted.
5. Significant upgradation of SME sector through direct measures e.g., access to credit, technology upgradation, and export-orientation and /or indirect measures e.g. vendor development for LSM enterprises are key areas demanding interventions for growth of SMEs. Moreover, skill development for SME sector needs to be sensitized to improve the quality of human resource and to activate population, being the most abundant resource available in the country.
6. Research and development should be linked with the needs of industries. We need to encourage and facilitate industrial clusters for efficient utilization of resources and having more focus on R&D which will also reduce cost of doing business and improve productivity. We also need to establish a bank dedicated for investment on new ideas to promote innovation in the country.
7. Government should aggressively cut down its borrowing from banking channels to reduce crowding out effect so that private sectors get financial resource at lower cost. This will not only improve private sector credit but overall business and investment activities as well.
8. FBR should formulate systematically targeted tax policy to encourage conducive business environment. We also need to reform our tax regime on modern lines by reducing tax rates and modernizing tax collection through introduction of end-to-end automation. This will improve transparency and accountability.
9. Entrepreneurs need to be cultivated, motivated and remunerated to the extent possible. While promoting entrepreneurship, due diligence may be done to regulations as unregulated entrepreneurship may lead to unwanted social outcomes including unfair market practices, pervasive corruption, financial crisis and even criminal activity.

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