Does Financial Development Induce Inflation? ARDL Based Evidence from Pakistan

Ahmad Nawaz[1], Muhammad Shakeel[2] and. Bilal Tariq[3]

Abstract

The study explores the dynamic association of financial expansion in curbing inflation and thereby assessing the general economic welfare strategies employing data over 1974-2016 for Pakistan. Econometric sophistication rests in the employment of autoregressive-distributed lag (ARDL) bound test of co-integration with short run disequilibrium models. The outcome corroborate that inflation and financial development with other controlled variables are co-integrated. The findings also corroborate that broad money, domestic credit to private sector, government expenses, and personal remittances are crucial indicators of financial development and diversely linked with inflation over the period of analysis. Specifically, broad money and government expenses corroborate a long run impact on inflation conforming to the idea of quantity theory of money neutrality. Likewise, domestic credit has shown noteworthy but low positive drive to inflation in long time of span, albeit domestic credit has insignificantly linked to inflation for the short span of time. These findings inter alia imply for the promotion of sound domestic banking/financial sector for credit market and new strategies for controlling the broad money/government expenses to curb the unintended rampant level of inflation in Pakistan.

Keywords: Broad money; domestic credit; financial development; inflation; Govt expenses

1   Introduction

Financial development is a multi-dimensional evolution occurred due to the privatization of the extant economies of developing and developed nations of the globe (Honohan, 2004). Financial development means enhanced stability, access and efficiency of banking/lending sectors of the economy. Financial maturity is the set of well-established organizations, apparatuses and markets. The economic activity and sound financial sector in economic development are significant and sine qua non per se especially of curbing the culprits of inequality, poverty and unemployment (Beck et al, 2004, 2007; Odhiambo, 2009; Jeanneney and Kpodar, 2011; among others). The financial development strides via encouraging/ mobilizing the savings for domestic investors in the form of credit for economic enhancement found crucial on post hoc and post facto grounds (Loayza and Ranciere, 2005). These strides are unequivocally, delineating the role of sound financial institutions and thereby the fruitfulness of enhanced productivity, reduced obtrusive poverty level and

[1] Lecturer, COMSATS University Islamabad, Vehari Campus, Pakistan.
Email: ahmadnawazuosahiwal.edu.pk
[2] PhD Scholar, Federal Urdu University Islamabad, Pakistan and Corresponding Author
Email: m.shakeel32@gmail.com
[3] Assistant Professor, COMSATS University Islamabad, Vehari Campus, Pakistan.
Email: bilaltariqciitvehari.edu.pk

declined intrusive inflation for the economy (Bittencourt, 2011; Inoue and Hamori, 2012; among others).

Hicks (1969) evaluated the significance of financial markets in the modus operandi of new industrialization that provide the financial system expansion to emerge with the new expertise and innovation. Levine (2005) considers that financial institutions to promote the economic growth though several methods including mobilisation and collection of savings from investors and efficient use of resources, among others. Therefore, financial development corroborated as quite pivotal and profound for enhancing the economic efficiency and welfare with the optimal use of all kind of scarce resources (natural, financial and social) in the economy.

The pragmatic narrative on the subject of financial expansion variegated with respect to the data, country/region selected, proxy variables and econometric sophistications. Notwithstanding, the extant studies are evident enough in highlighting the affirmative function of the sound financial segment in the strides of economic expansion. Yet some of these studies are somewhat recondite in measuring the depth of financial system and variegated with different variables as a proxy to financial development. These proxies (financial) variable, nonetheless indicate sound and viable association between the economic expansion and financial sector per se and thus are of much interest and ubiquitous in the contemporary literature.

Furthermore, financial development and inflation are among the key factors that manipulate the economic progress/welfare in developing countries (Alimi, 2014). Moreover, inflation indicated a noteworthy adverse association with financial and banking progress (Huybens and Smith, 1999). The main function of financial development is information sharing, facilitate credibility, efficient resource utilization, pervasive economic development, among others.

The current study endeavours to provide dynamic association amid financial sector expansion and inflation considering the paucity of literature on the subject discussed for the country. In view of the extant literature on the subject, financial development is measured with domestic credit, money supplies, Govt Expenses and remittances from abroad with other controlled variables. The rationale of the study is to address the answers of the following abstruse research questions:

- Does financial development/expansion have a noteworthy impact on inflation?
- Does the association between financial expansion and inflation remain same in short run and long run?
- What kind of policy mix for financial sector may indispensable and inevitable for controlling unintended inflation in Pakistan?

The findings of the study could potentially provide the insightfulness for dealing with the rampant inflation persistent by the aid of financial segment improvements in Pakistan.

2   Literature Review

Bettencourt *et al.* (2014) assessed the impact of tax evasion, financial expansion and inflation on 150 countries based panel of data over 1980-2009.The study explored that tax evasion is the reason of lower financial expansion and intense inflation, ceteris paribus.

Alimi (2014) evaluated the relation of inflation and financial sector expansion on the data over 1970 to 2012 for Nigeria. The variables of money supply, quasi money and credit to private sector were employed after normalizing them with GDP to assess alternative financial growth and performance in the country. They reported an adverse association between inflation and financial expansion ceteris paribus.

Lerohim *et al.* (2014) assessed the association involving financial expansion and economic development for Asia on panel data over 2002-2011. The findings reported a noteworthy linkage amid financial progress and economic expansion ceteris paribus.

Mhadhbi (2014) has assessed the connection between financial progress and economic expansion in a dynamic panel data framework. The panel data for 110 countries by applied the GMM technique during the time period 1973-2012. Credit as a indicator of financial expansion revealed significant depressing influence on growth in developing countries, albeit the converse was found true for the developed countries selected, ceteris paribus.

Almalki and Batayneh (2015) assessed the association of inflation with the progress of finance related sector in Saudi Arabia. ARDL approach was applied over the annual data from 1982-2013. The study found that inflation and financial progress contain an inverse association for short and long runs.

Mendonca and Tiberto (2017) examined about empirical cause of reliability and exchange rate traverse upon inflation employing panel data of 114 developing countries by the GMM technique. The study corroborate that inflation is noteworthy positive effect on exchange rate.

Mahyar (2017) analyzed empirical influence of inflation on financial expansion with VECM and co-integration test on the panel data from 2000-2015 in Iran. They confirmed about a major association amid inflation, financial expansion and economic enhancement. Inflation has adversely affecting the financial expansion but positively impacts on GDP and total deposits in banking sector.

Wide range of literature lacks the comprehensive evidence of financial expansion in reducing inflation in Pakistan. Moreover, financial progress is the main determinant of the degree to which finance promote economic development in the country. There is little concurrent evidence that gives clear insights on short-run and long run aspects of financial expansion and inflation. We have used various indicators of financial segment to observe the short-run and long-run aspects amid financial expansion and inflation. Thus, the present study provides pertinent information on the subject concerning the profound significance of financial expansion upon the rest of economy in Pakistan.

3   Methodology And Data

3.1   Models

We indicate models to be empirically assessed for the association between financial development and inflation. We started our work to determine the association amid the inflation, remittances, money, exchange rate, unemployment, import of goods and services and private sector credit. We used yearly time series data from the interlude 1974-2016. GDF deflator and other data have been taken from WDI (2018).

We have estimated the following function;
Inflation = f (financial development, other controlled variables)

$$lngdf = \beta_o + \beta_1 mgdp + \beta_2 prc + \beta_3 gexp + \beta_4 unemp + \beta_5 oer + \varepsilon_t$$

(1)

- GDF shows the GDP deflator which measure the inflation rate
- MGDP shows the money supply/ GDP or Broad money
- PRC shows the personal remittances
- GEXP shows the government expenses
- UNEMP shows the unemployment
- OER shows the official exchange rate

$$lngdf = \alpha_0 + \alpha_1 dcps + \alpha_2 prc + \alpha_3 gexp + \alpha_4 unemp + \alpha_5 oer + \varepsilon_t$$

(2)

- GDF shows the GDP deflator which measure the inflation rate
- DCPS shows the domestic credit private sector
- PRC shows the personal remittances
- GEXP shows the government expenses
- OER shows the official exchange rate

3.2 Descriptive Analysis

Summary statistics shows total number of observations available for each variable, mean, median, standard deviation, minimum and maximum values. Jarque-Bera analysis employs the sample skewness and the sample Kurtosis measurements (Table 1).

Table 1
Descriptive Statistic

	GDF	DCPS	MGDP	GEXP	UNEMP	OER	PRC	GDPPC
Mean	68.11725	23.61020	44.82208	11.13694	4.270732	42.75649	14.72028	2.134687
Median	58.42909	24.18223	43.72386	10.79928	3.800000	31.64268	14.50866	2.095343
Maximum	125.2964	29.78608	58.86769	16.78491	8.300000	104.7691	17.95865	6.685581
Minimum	28.43212	15.35805	33.6679	7.780805	0.600000	9.90000	12.91399	-1.449514
Std. Dev.	26.09683	3.567696	5.875303	1.979392	2.034237	31.30461	1.343267	1.831505
Skewness	1.007033	-0.636245	0.435954	0.769469	0.216837	0.622205	0.677866	0.354612
Kurtosis	2.795313	3.081364	2.476064	3.668760	2.264481	2.094222	2.615584	2.727076
Jarque-Bera	7.342887	2.845239	1.810784	4.927247	1.245482	4.244445	3.309646	1.010599
Probability	0.025440	0.241082	0.404383	0.085126	0.536472	0.119765	0.191126	0.603325
Sum	2929.042	991.6284	1882.527	467.7514	175.1000	1838.529	588.8112	89.65685
Sum Sq. Dev.	28603.86	521.8666	1415.286	160.6377	165.5249	41159.09	70.37031	137.5309
Observations	43	42	42	42	41	43	40	42

According to the Jarque-Bera test the probability of GDP-deflator/inflation, broad money, credit to private sector, government expenses, remittances and other controlled factors are normally distributed. The analysis of mean/extreme values shows that the entire time series; namely inflation, financial development and other controlled variables are closely associated, free from potential outliers problem and moves together, indicating a potential long run equilibrium bond amid these time variables in the country for the selected time period.

4   Estimation and Results

4.1   Unit Root Test
The data collected with respect time is said to be stationary if the subsequent requisites are met namely; mean, variance, and covariance all are found to be invariable over time. These time based data is declared non-stationary if mean, variance and covariance of data or any one of them depends or vary with respect to time. Dicky and Fuller (1979) introduced the concept of Augmented Dicky- Fuller (ADF) to confirm the order of integration with the help of unit root test. The results of ADF and Phillips-Perron (PP) test for checking the non-stationarity of variables in the present analysis (see Table 2 and Table 3).

Table 2
Unit Root Analysis (ADF)

Variables	ADF P-value (Intercept)	ADF P-value(Trend and Intercept)	ADF(1^{st}difference) (trend and intercept)	Order of Integration
GDPPC	0.0003	0.0014	---------	I(0)
GDF	0.9770	0.9555	0.000	I(1)
DCPS	0.6972	0.8125	0.000	I(1)
MGDP	0.4457	0.0277	0.000	I(1)
OER	0.1000	0.9121	0.002	I(1)
GEXP	0.5121	0.7095	0.000	I(1)
UNEMP	0.3528	0.8345	0.000	I(1)
PRC	0.7599	0.1872	0.000	I(1)

The outcomes of the analysis reveal that the entire series of variables are non-stationary or first order integrated at levels except for the time series of inflation (GDP deflator). The variable of inflation indicates a stationary process. The analysis done with PP based unit root test also confirm that entire series of variable are first order integrated at levels except inflation as before (Table 3)

Table 3
Unit Root Analysis (PP)

Variables	PP P-Value (intercept)	PP P- value (trend and intercept)	PP(1st difference) (trend and intercept)	Order of integration
GDPPC	0.0004	0.0015	---------	I(0)
GDF	0.9722	0.9395	0.000	I(1)
DCPS	0.5248	0.7771	0.000	I(1)
MGDP	0.4568	0.1277	0.000	I(1)
OER	0.9997	0.7236	0.003	I(1)
GEXP	0.4224	0.6276	0.000	I(1)
UNEMP	0.3876	0.8807	0.000	I(1)
PRC	0.9299	0.1878	0.000	I(1)

4.2   Selection of Model 1

Ramsey RESET has been employed to assess the functional form of the presented by equation (1) and its accuracy/consistency. Testing of hypothesis is conducted for accurate model selection.

Ho = the assessed model with respect to functional form is accurate
H₁ = the assessed model with respect to functional form is not accurate

Table 4
Ramsey RESET Test

	Probability Value
t-statistics	0.8915
F- statistics	0.8915

The empirical output of the test corroborates the acceptance of Ho that implies for the accuracy of the functional form of our model.

We have employed the ARDL model to empirically explore the long-run association amid GDP deflator, broad money, unemployment rate, official exchange rate, imports, government expenses and personal remittances. For lag selection, we have used the Hannan-Quinn Criteria.

Graph 1
Hannan-Quinn Criteria (top 20 models)
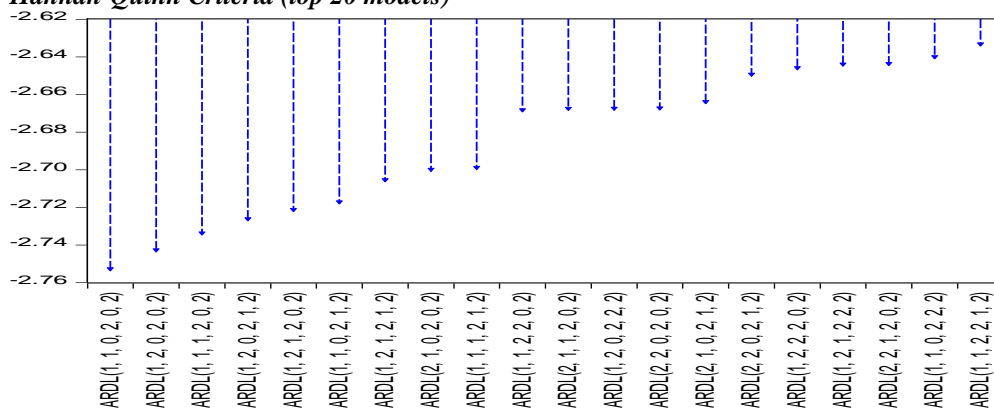
The lag choice based on the Hannan-Quinn measure, we used the 1 lag for the GDP deflator and for broad money we used 1 lag. Similarly, we have zero lag used of personal remittances, but we used 2 lags for the government expenses and same lags used for the official exchange rate. Hence, we have zero lag used for the unemployment rate.

4.3   Bounds test

we applied bound test technique to uncover the association amid the series/variables of the study. We construct null hypothesis and alternative hypothesis.

Null hypothesis   Ho: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

Alternative hypothesis $H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$

Table 5
Bound Test for Model 1

Test- information	Value	K
F- Value	4.0141	5
Critical value		
Significance	1(0) bound	1(1) bound
10%	2.26	3.35

We calculated the values of ARDL bounds to ensure that whether there exists a long-term association amid the series/variables (Table 5) and the F- statistics is greater than I(1), hence Ho is rejected, and the F- statistics is less than I (1), hence Ho is accepted. We have concluded that there exist a long-term association amid the series of the model.

4.4   Estimated Coefficient through ARDL Approach

Estimation results demonstrate that lagged value of error (EC) term is -0.20 and significant indicating convergence for the model 1 towards long run value of equilibrium/stability (Table 6). The magnitude of EC term shows that if any shock arises in

the equilibrium, that distance will automatically reduce by 20% annually. Coefficient of broad money indicates negative but insignificant impact on inflation. Nonetheless, personal remittances have a negative noteworthy influence upon inflation in short-run. Similarly, Govt Expenses has insignificant impact on inflation. Unemployment rate have negative noteworthy influence on inflation in short-term. Moreover, official exchange rate corroborates insignificant relationship with inflation (Table 6).

Table 6
Estimations of Coefficients for Model 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Short Run Coefficients				
D(MGDP)	-0.004153	0.003344	-1.241769	0.2254
D(PRC)	-0.036376	0.015948	-2.280880	0.0310
D(GEXP)	0.046111	0.104092	0.442984	0.6614
D(GEXP(-1))	-0.271367	0.114457	-2.370911	0.0254
D(UNEMP)	-0.057996	0.016326	-3.552407	0.0015
D(OER)	-0.001033	0.003735	-0.276522	0.7843
D(OER(-1))	-0.015238	0.003611	-4.219576	0.0003
CointEq(-1)	-0.208538	0.077143	-2.703280	0.0119

Table 7
Long-run Coefficients for Model 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MGDP	0.041079	0.016611	2.472984	0.0203
PRC	0.174434	0.111188	-1.568814	0.1288
GEXP	0.503197	0.338579	-2.486202	0.0493
UNEMP	-0.278109	0.118289	-2.351104	0.0266
OER	0.013585	0.004680	2.902645	0.0074

C	6.238179	1.888142	3.30387 2	0.0028

The findings of long run estimation show that broad money, personal remittances, official exchange rate is the main determine of inflation in Pakistan (Table 7). Specifically, variable of money creation corroborates significant impact on inflation and a one percent raise in broad money (MGDP) leads to 0.04% raise in GDP deflator. Furthermore, long run coefficient of PRC is 0.17 yet insignificant upon inflation. Likely, coefficient of government expenses has shown a significant impact on inflation for long-term. This means a one percent boost in government expenses leads to 0.50% boost in GDP deflator/inflation of the country. Coefficient of unemployment is -0.27 having probability p-value of 0.02 and it has significant impact on inflation. This means a one percent rise in unemployment (UNEMP) leads to -0.27 decline in GDP deflator. In this way, in long run coefficient of official exchange rate is 0.01 having probability p-value of 0.00. This means it has significant but low (in magnitude) impact on inflation. The findings highlight that money supply and government expenses are amid the major causes of inflation in the country.

In the last step, autocorrelation among the variables are analyzed through Breusch-Godfrey Serial correlations LM test (see Table 8).

Table 8
LM Test

F-statistics	0.744103	Prob. F (2,24)	0.4858
Obs*R-squared	2.218744	Prob. Chi-square(2)	0.3298

The above results showed that probability value is 0.4858 indicating the acceptance of H_0 of no autocorrelation among the time series variable of Model 1 estimated before. This implies that our results are free from any potential problems lead by autocorrelation.

4.5 Selection of Model 02:

$$lngdf = \alpha_o + \alpha_1 dcps + \alpha_2 prc + \alpha_3 gexp + \alpha_4 unemp + \alpha_5 oer + \varepsilon_t$$

Ramsey RESET test has been applied to confirm the model's functional form. Testing of hypothesis is conduct for analyzing the model.

Ho = Observed model has accurate functional form.

H_1 = Observed model has not accurate functional form.
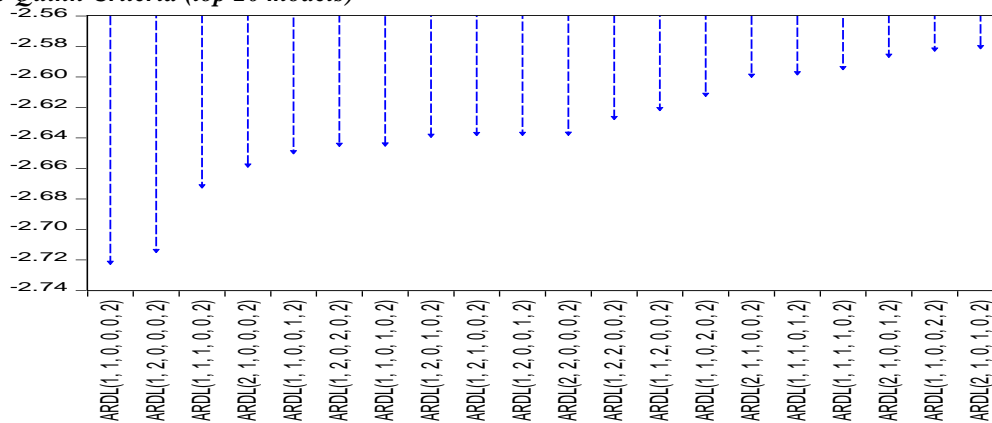
Table 9
Ramsey RESET Test

	Probability value
t- statistics	0.9579
F- statistics	0.9579

P-Value is greater than 0.1 (at 90% confidence interval), hence results of the test suggest that we do not reject the Ho which corroborates that functional form of our model is accurate.

We used the ARDL technique to assess the long-term association amid GDP deflator, domestic credit, unemployment, official exchange rate, government expenses and personal remittances. For lag selection, we have used the Hannan-Quinn Criteria.

The lag selection based on the Hannan-Quinn Criteria, 1 lag used for the GDP deflator, 1 lag used for credit, zero lag used for personal remittances and zero lag used for the government expenses. Similarly, zero lag used for the unemployment and 2 lags used for the official exchange rate.

Graph 2:
Hannan-Quinn Criteria (top 20 models)

4.6 Bound Test

To ensure the association amid the variables, we calculated bound test stats. We construct null hypothesis and alternative hypothesis.

Null hypothesis   Ho: $\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = 0$

Alternative hypothesis $H_1: \alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq \alpha_5 \neq 0$

Table 10
Bound Test for Model 2

Test	Calculated	K
F-Value	4.417	5

Critical Level		
Significance	I(0) bound	I(1) bound
10%	2.26	3.35

The observed values of the calculated bounds and relevant F-statistics is greater than I (1), hence Ho is not accepted. If the f-statistic is less than I (1), hence Ho is accepted. We concluded about a long-term association amid the series of the model (Table 10).

4.7   Estimated Coefficient through ARDL Approach

Estimation results illustrate that Error Correction (EC) is -0.17 and noteworthy indicating a stable convergence mechanism for Model 2 of the study. The magnitude of EC term shows that if any shock arises in the equilibrium that distance will automatically reduce by 17% annually towards a stable equilibrium level. Coefficient of domestic credit is -0.39 with the p-value of 0.00, it shows that in short run increase in domestic credit causes negative and noteworthy influence upon inflation. Personal remittances are insignificant with respect to inflation in short run. Government expenses are noteworthy and adversely related towards the inflation. Unemployment has negative noteworthy contact to inflation in short run. Furthermore, official exchange rate has insignificant impact on inflation in short-term (see Table 11).

Table 11
Coefficients for Model 2

	Short Run Coefficient			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DCPS)	0.399209	0.136624	-2.921960	0.0068
D(PRC)	0.002547	0.016874	-0.150960	0.8811
D(GEXP)	-0.111142	0.056288	-1.974506	0.0583
D(UNEMP)	-0.038909	0.017298	-2.249387	0.0325
D(OER)	-0.003726	0.004010	-0.929075	0.3608
D(OER(-1))	-0.014891	0.003779	-3.940671	0.0005
	-0.176726	0.072886	-2.424680	0.0220
CointEq(-1)				

Long-term coefficient of domestic credit demonstrates a value of 0.12 having probability p-value of 0.01 indicating a significant impact on inflation. This means a one percent increase in domestic credit to private sector (DCPS) causes a 0.12% boost in GDP deflator. As the monetarists suggest inflation is always a monetary phenomena. In long run coefficient of personal remittances is 0.01 having probability p-value of 0.03 indicating a significant impact but low in magnitude on inflation. Coefficient of government expenses in long run is 0.62 having probability p-value of 0.017 indicating a statistically significant impact on inflation. This means a one percent rise in government expenses (GEXP) causes a 0.62% boost in GDF deflator/inflation. Similarly, in long run coefficient of unemployment is -0.22 having probability p-value of 0.08 indicating a noteworthy negative impact on inflation. This implies a one percent raise in unemployment (UNEMP) leads to 0.22% reduces in GDF deflator. The official exchange rate also shows significant but low level impact on inflation in the country (see Table 12). The findings have some resemblance to the study of Zaman et al. (2010) for Pakistan and Wahid et al. (2011) for Bangladesh.

Table 12
Long Run Coefficients for Model 2

Variables	Coefficient	Std. Error	t-stat	Prob.
DCPS	0.122136	0.415416	-2.053286	0.0157
PRC	0.014414	0.097528	-2.147793	0.0346
GEXP	0.628892	0.452704	-2.389189	0.0175
UNEMP	-0.220164	0.123649	-1.780562	0.0858
OER	0.012414	0.005059	2.453960	0.0206
C	6.125988	2.477851	2.472299	0.0198

Lastly, autocorrelation among the variables has analyzed through Breusch-Godfrey Serial correlation LM test (Table 13).

Table 13
LM tests

F- statistics	0.332691	Prob. F (2,26)	0.7200
Obs*R-squared	0.948214	Prob. Chi-square	0.6224

The above results showed that probability value is 0.72 indicating a lack of evidence calculated with the LM based test for potential autocorrelation in time series of the study. Thus, the present findings are found to be unbiased for the model 2.

5   Concluding Remarks and Implications

This study assessed the empirical association between financial expansion and inflation with other controlled variables for the Pakistan over 1974-2016. To find long-term and short-term relationship, ARDL based models are utilised. The models demonstrate that broad money is insignificantly related to inflation in short run nonetheless; broad money had positive noteworthy impact on inflation in long run. This implied that money creation has neutral impact in the short run while money creation just causes intrusive inflation in the long-run conforming to the idea of quantity theory of money neutrality. Likely, domestic credit is insignificant with respect to inflation in short run, albeit domestic credit is significant but low influence upon inflation in long run. These findings implied that credit to private sector might help increasing long run welfare of economy without creating much cost of unintended inflation in the country. Therefore, financial expansion followed by the credit provision to investor is critical and much promising in the development strides of the country.

Personal remittances have negatively related with inflation in short run but statistically insignificant impact on inflation in long run employing short run benefit of remittances that may handy to reduce inflation in the country. Government expenses in short run has negative impact on inflation but in long run these variable has also positive significant impact on inflation. Notwithstanding, unemployment has negative noteworthy influence on inflation both in short and long runs implying to the substitution between unemployment and inflation. This also conforms to the phenomenon of Phillips curve, which suggest that there is trade-off between unemployment and inflation.

These findings guide us towards endorsement of sound financial sector via developing trustworthy credit markets in the country. Furthermore, based on findings, it is recommended that a new policy mix should be grounded with shrinking the size of both government expenses as well as money supply for achieving sustainable economic welfare and low levels of inflation in Pakistan.

REFERENCES

Alimi, R. S. (2014). Inflation and Financial Sector Performance: the Case of Nigeria. *Timisoara Journal of Economics and Business*, *7*(1), 55-69.DOI: 10.2478/tjeb-2014-0003

Almalki, A. M., & Batayneh, K. I. (2015). The relationship between inflation and financial development in Saudi Arabia. *The Journal of Developing Areas*, *49*(6), 321-332.-DOI10.1353/jda.2015.0088.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2004). Finance, inequality, and poverty: Cross-country evidence. The World Bank.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. Journal of economic growth, 12(1), 27-49.

Bittencourt, M. (2011). Inflation and financial development: Evidence from Brazil. Economic Modelling, 28(1-2), 91-99.

Bittencourt, M., Gupta, R., & Stander, L. (2014). Tax evasion, financial development and inflation: Theory and empirical evidence. *Journal of Banking & Finance*, *41*, 194-208.https://doi.org/10.1016/j.jbankfin.2014.01.009

Caporale, G. M., Rault, C., Sova, R., &Sova, A. (2009). Financial development and economic growth: Evidence from ten new EU members. **URI:** http://hdl.handle.net/10500/21863

Cutorabi, M. A. (2012). The effect of inflation on financial development: The case of Iran. *Journal of Basic and Applied Scientific Research*, *2*(8), 8394-8400.

Giuliano, P., & Ruiz-Arranz, M. (2009). Remittances, financial development, and growth. *Journal of Development Economics*, *90*(1), 144-152. https://doi.org/10.1016/j.jdeveco.2008.10.005

Hami, M. (2017). The Effect of Inflation on Financial Development Indicators in Iran (2000–2015). *Studies in Business and Economics*, *12*(2), 53-62.DOI 10.1515/sbe-2017-0021

Honohan, P. (2004). Financial development, growth and poverty: how close are the links?. In Financial development and economic growth (pp. 1-37). Palgrave Macmillan, London.

Inoue, T., & Hamori, S. (2012). How has financial deepening affected poverty reduction in India? Empirical analysis using state-level panel data. Applied Financial Economics, 22(5), 395-408.

Jeanneney, S. G., & Kpodar, K. (2011). Financial development and poverty reduction: can there be a benefit without a cost?. The Journal of development studies, 47(1), 143-163.

Lensink, B. W., & Scholtens, L. J. R. (2004). *Financial development and the transmission of monetary shocks*. University of Groningen.

Lerohim, S. N. F., Affandi, S., Mahmood, W., &Mansor, W. (2014). Financial Development and Economic Growth in ASEAN: Evidence from Panel Data.https://mpra.ub.uni-muenchen.de/id/eprint/62224

Loayza, N., & Ranciere, R. (2005). Financial development, financial fragility, and growth (No. 5-170). International Monetary Fund.

Mahawiya, S. (2015). *Financial sector development, Inflation and Openness: A comparative panel study of ECOWAS and SADC* (No. 528).

Mendonça, H. F., &Tiberto, B. P. (2017). Effect of credibility and exchange rate pass-through on inflation: An assessment for developing countries. *International Review of Economics & Finance*, *50*, 196-244. https://doi.org/10.1016/j.iref.2017.03.027

Mhadhbi, K. (2014). Financial development and economic growth: A dynamic panel data analysis. *International Journal of Econometrics and Financial Management*, *2*(2), 48-58. https://doi.org/10.1108/IJSE-12-2012-0232

Odhiambo, N. M. (2009). Finance-growth-poverty nexus in South Africa: A dynamic causality linkage. The Journal of Socio-Economics, 38(2), 320-325.

Pesaran, M. H., & Shin, Y. (1998). An autoregressive distributed-lag modelling approach to cointegration analysis. Econometric Society Monographs, 31, 371-413.

Rousseau, P. L., &Wachtel, P. (2002). Inflation thresholds and the finance–growth nexus. *Journal of international money and finance*, *21*(6), 777-793. https://doi.org/10.1016/S0261-5606(02)00022-0

Rousseau, P. L., &Yilmazkuday, H. (2005). Inflation, Finance and Growth: A Trilateral Graphical Analysis.

Venâncio, S. F. M. (2013). *Does financial development promote economic growth?* (Doctoral dissertation, Instituto Superior de Economia e Gestão).

Wahid, A. N., Shahbaz, M., & Azim, P. (2011). Inflation and financial sector correlation: The case of Bangladesh. *International journal of economics and financial issues*, *1*(4), 145.

Zaman, K., Ikram, W., & Ahmed, M. (2010). Impact of Financial Development on Inflation: Evidence from Pakistan (1974-2007). *Pakistan Journal of Social Sciences (PJSS)*, *30*(1).