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The Impact of Economic Policy Uncertainty on Food Prices: A Case Study of Pakistan

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ABSTRACT:

This study investigates the impact of economic policy uncertainty (EPU) on food prices (FP) in case of Pakistan by using monthly time series data from Jan 2011 to Dec 2023. The study utilized unit root tests such as, Augmented Dickey Fuller (ADF) and Phillips Perron (PP) tests to check the stationarity of the variables. To investigate the asymmetric relationship between EPU and FP, the study utilizes the Nonlinear Autoregressive Distributed Lag (NARDL) model along with the Bounds testing approach to determine the presence of long-run cointegration. The short-run results from the NARDL estimation indicate that an increase in EPU has a negative effect, leading to a decline in food prices. Conversely, the long-run findings reveal that EPU has a positive and significant impact on food prices. Additionally, the finding of Bound test confirmed the long-term Cointegration between EPU and food prices. This implies that to executing strategies that stabilize the macroeconomic environment and enhance market confidence can alleviate the inflationary effects of policy uncertainty on food prices. Further, improving supply chain resilience and establishing early-warning systems can help manage short-term price fluctuations caused by economic uncertainty.

Keywords: *Food Prices (FP), Economic Policy Uncertainty (EPU), and Nonlinear Autoregressive Distributive Lag (NARDL)*

1. INTRODUCTION

Uncertainty is a very crucial concept go back to previous state of J.M Keynes (1921) and Knight (1921) they had differentiated it from insurable risk. On the other hand, both stated that the uncertainty regarding the future prediction bring economic instability, like increasing income inequality and unemployment, and worldwide fluctuation in oil price because the economic player is unable to allocate their irreversible resources Certainly, Bernank of (1983) contribution, the negative link between uncertainty and economic decision, precautionary spending cutback by household example of adverse effect of uncertainty. Moreover, Uncertainty is on high level now and become more significant than ever been previous because globalization and technology have change the way of life to live, significant contributors to the recent

upswing in uncertainty include political polarization, division, and the growing importance of government spending in the economy (Baker et al., 2016).

In a more Precise way, Economic Policy Uncertainty (EPU) is the term used to indicate the inadequacy of the government's decision-making process to define the course and variations of the policy during the formulation and implementation phases (Zhou & liu, 2019). The ambiguity around the government's intended course and limit of economic policy formulates induces market entities to be unable to estimate the policy trend. Therefore; this inability to estimate the policy trend is the result of all the variations associated with the procedure of policy relocate (G.A et al., 2023). Furthermore, EPU will also have an effect on international commerce, micro-level corporate investment and sustainable development are negatively impacted by uncertainty in economic policy. The (Baker et al, 20216) introduced EPU indicator on economies in their paper work by utilizing top 10 newspaper articles. This studied shows that EPU significantly affect economic activities, both at aggregate level as well as at individual level. According to Bloom, Baker and Davis rise in EPU leads to reduce stock price volatility and employment and investment at the corporate level. At macroeconomics level they have construct a vector auto regressive estimation and find out that 90 base point rise in EPU index can lower overall industrial employment by 0.341% and 1.12% productivity level. These uncertainties have significant impact on fiscal policy which can lead to reduce government revenue due to increase in EPU. While, EPU also cause uncertainty in monetary policy, this could lead to uncertainty about future interest rate. Furthermore, research by (Xiao et al., 2019), price volatility rises obstacles for countries government and regulator to handling market. In addition to Pakistan's average inflation rate was 7.8% in 1980's after this period the economy faced many challenged by 10% of increase in inflation rate in the course of 90's. The number of components, that abrupt ascent in food prices in Pakistan. The involved component that are may be changes in economic policy and the domestic demand of the goods are suddenly increase, in international market oil price also rise which lead to sharp increase in international commodities. In some way the demand of raw seeds for agricultural increased, are the factor which cause food inflation. However, EPU have an impact on the productivity of the agriculture industry since they have the potential to disrupt food prices, by influencing the price of food and causing variations in food prices in Pakistan. It accelerates the overall cost of agricultural inputs, like fertilizer, seed and fuels etc. (William et al., 2011). Thus, due to this increased cost, farmer face high operating expenses led to increase in production expenses for consumer (Dennis et al., 2015). Therefore, the relationship between food price and economic policy uncertainty (EPU) is essential, especially for developing nations like Pakistan where a significant portion of the population depends on agricultural stability for their well-being (Albert et al., 2012). Moreover, here are some trend of the economic policy uncertainty and food prices.

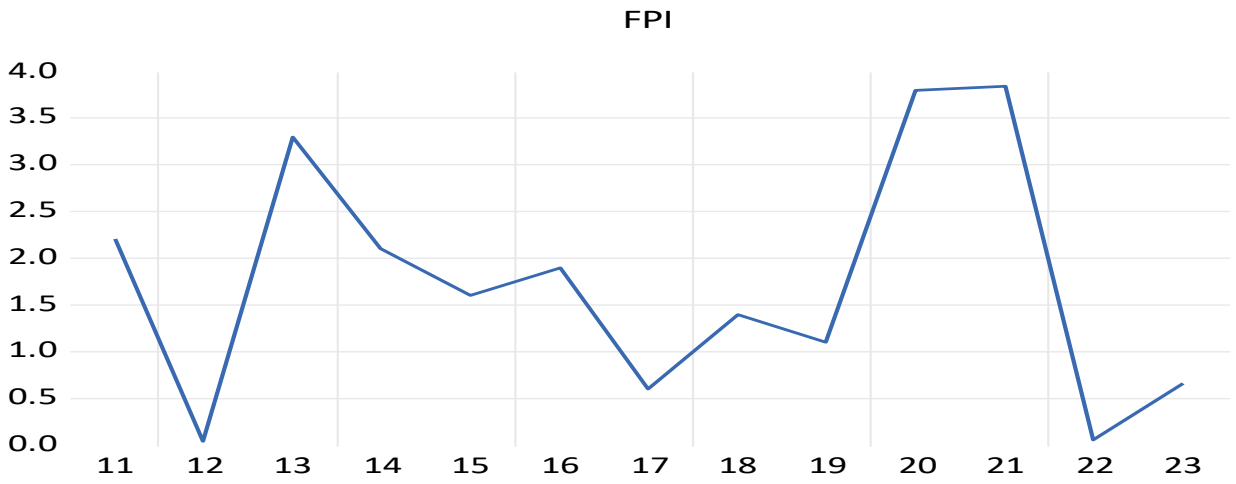

Figure1, Food price indices.

The trend of the Figure 3.1.1 show initially the food price 2.2 in 2011 and it fall to its lowest point in 2012 with a value of 0.04. After that it proportionally jumps to its peak which is observed 3.3 in 2013. Anyhow the highest trends are observed in 2013, 2020 and 2021, while this lowest trends are point out in 2012 and 2023.

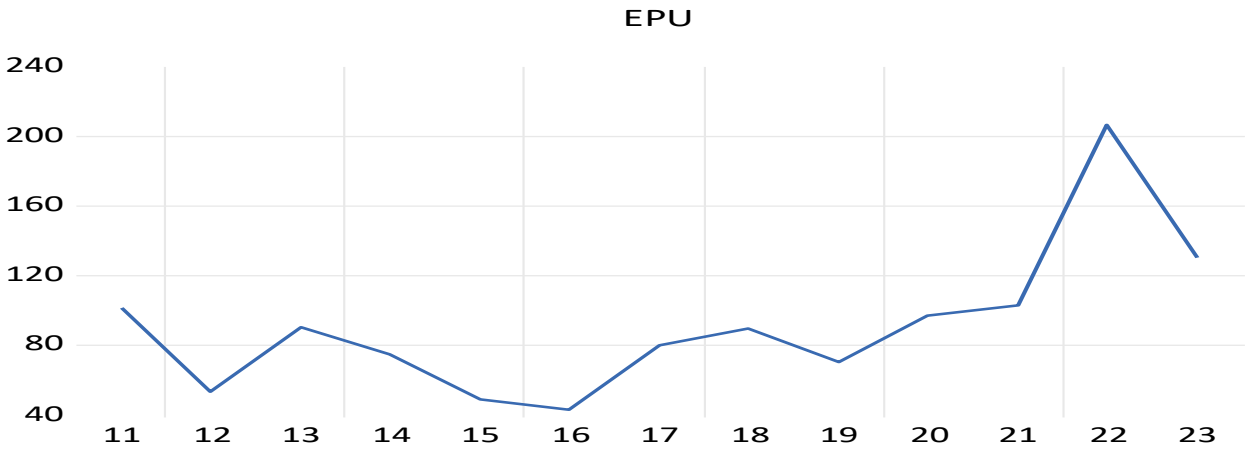

Figure 2, Economic Policy Uncertainty.

The Economic Policy Uncertainty (EPU) trend indicate a distinct variation in uncertainty over time. The EPU fell sharply between 2011 and 2013, from 101.93 to 53.83, before increasing once again to 90.52 in 2013, most likely as a result of elections and political upheavals. The EPU gradually decreased from 75.15 to 43.61 between 2014 and 2016, indicating both political stability and economic recovery. However, because of political unrest and geopolitical worries, uncertainty increased once more between 2017 and 2019, reaching a high of 90.5% in 2018. The COVID-19 pandemic was the primary cause of the significant increase to 97.35 in 2020, which increased uncertainty even more. Uncertainty stayed high at 102.98 in 2021 and sharply increased to 206.71 in 2022 as a result of global disruptions, inflation, political unrest, and economic crises.

Recent studies have focused a great deal of emphasis on this problem and shown how detrimental it is to different economic sectors. The aim of this dissertation is to meet this void by implementing a comprehensive assessment of economic policy uncertainty (EPU) effect food prices (FP) in Pakistan. This research goal is to determine the particular processes by which economic policy variability affect food production, distribution, and consumption, by Comprehending this correlation is vital for a nation that regularly encounters obstacles concerning food accessibility, availability, food utilization and food prices. By examine the connection between EPU and FP, this study seeks to fill this literature gap.

2. LITERATURE REVIEW:

The importance of policy uncertainty in policies in the todays interconnected world related to economic decision making process greater than ever (Berkes 2007). Economic policy uncertainty (EPU) occur due to gap and discrepancy of the government policies of a nation, which is sluggish due to thoughtless response from policy decision makers toward policy objectives. In the recent past the debates over EPU has become more famous. Since 1970 the economic impact of this policy has changed particularly in developing countries. Additionally, economic policy uncertainty is prominent exist in developing countries like

Pakistan, because of lack of accurate information, less and weak capacity of productivity, lack of technological advancement and the policies and plans are highly depending on developed countries (Wky R.B et al., 2012). Pakistan as a developing nation is facing depressed economic condition because of abrupt changes in government. A variation in economic policies and political environment, this depressed growth has amplified the existing uncertainty in economic policy and disrupt in economic decision making process. Consequently, uncertainty is gravely affected Pakistan economy due to it weak financial and economic structure.

According to the research of Dima & Dinca (2017), when there is a change in governments, economic policy will also change and it is proceeding campaign among the central government and state of the nation. Beside, which led uncertainty in economic policy environment. Similarly, Bernanke (1993) showed that high uncertainty has a potential to make firms delay hiring and investment when it is expensive to hire and terminate employees or to reverse investment projects. At the same foot, according to the study by Huang and Luk (2020), Economic Policy Uncertainty (EPU) has a substantial influence on the real economy. As the world's second-largest economy and a key economy in world's trade, China plays a decisive part in the world economic landscape. In their research, the authors studied the link between China's EPU indices and the real economy, emphasizing the impact of policy uncertainty on economic performance.

In addition, the study of ((Frenk et al., 2010) showed that the macroeconomic uncertainty has adverse effect on private investment and growth. To investigate the impacts of these uncertainty a case study of Pakistan, in the recent dissertation found the role of monetary and fiscal policy uncertainty by for the period 1971-2020 by taking time series data. Empirical result of (Arshed et al., 2024), demonstrate that fiscal uncertainty towards government spending has significantly positive effects the economy.

Additionally, Liu and zhang (2015), stated that higher EPU has a potential to create volatility in market. The throughout there research they found that policy uncertainty in economy boosted to predict volatility in the market and EPU indices help to create predict economic recession, which is the most crucial factor to create market volatility. More, there are clear spillover among commodity market and oil prices and have significant impact of EPU on overall economy and as well as financial market since the subprime montages crisis. Economic policy uncertainty (Sharma et al., 2021) not only impact one country it has ability to disrupt the overall world. The world largest economy like US plays a vital role in modeling world economic conditions and its uncertainty in economic policy extend to other nation, particularly in developing countries like Pakistan. In addition to the recent surge in investor demand for commodities and the frequent and sharp fluctuations in commodity prices have made commodity markets a major cause of concern on a global scale. The ramifications of economic policy uncertainty (EPU) worry academics. A growing financial crisis brought on by recent events is still affecting the global economy (Zhu et. al, 2021).

Moreover, the study of (Su et al., 2021) used Granger causality tests to investigate how trade policy uncertainty (TPU) affects agricultural commodity prices (ACP). Additionally, (Chen et al., 2023) identified that increasing EPU leads to rise in food prices by obstructing international trade and supply change. For instant, Cantore (2012) found that the agricultural role in uncertainty condition and rising agricultural price volatility and suggesting that uncertainty concerning trade policies subsidies of agricultural and quota and tariff effect global food prices significantly. In case of policy regulation Pakistan's political and economic have been highlight a very quick shift (Usman et al., 2018). Uncertainty in political stability and influence on international financial organizations. The study of (Saqib et al., 2011), showed that volatility in policy environment is just because of Pakistan's political uncertainty that lead to inflationary pressure, particularly on food prices.

The existing literature investigated the effect of economic policy uncertainty and focused on its impact on various micro economic and macroeconomic indicators. In this regard, no study had focused on the impact of Economic policy uncertainty (EPU) on food prices. So the motive of this study is to analyze the impact of EPU on food prices in case of Pakistan.

3. METHODOLOGY:

The main objective of this paper is to examine the impact of Pakistan's economic policy uncertainty (EPU) on food prices a case study of Pakistan from Jan 2011 to Dec 2023.

3.1 Model Specification:

The baseline model is given as:

$$FP_t = \beta_\circ + \beta_1\ INRU_t + \beta_2\ EXRU_t + \beta_3 GEAU_t + \mu_t \quad (3.1)$$

Where t represents time period, FP indicates food prices, EXRU represent exchange rate uncertainty, INRU show interest rate uncertainty, and GEAU implies government expenditure uncertainty.

While accounting for control variable such as currency in circulation (CIC) and foreign direct investment (FDI). The b model is given as:

$$FP_t = \beta_\circ + \beta_1\ INRU_t + \beta_2\ EXRU_t + \beta_3 GEAU_t + \beta_4\ CIC_t + \beta_5\ FDI_t + \mu_t \quad (3.2)$$

3.2 Data and its sources:

To analyze the impact of (EPU) on FP a case study of Pakistan, this research utilize a diverse set monthly time series data from Jan 2011 to Dec 2023 from multiple sources.

The term Economic Policy Uncertainty (EPU) is used to indicate the inadequacy of the government's decision-making process to define the course and variations of the policy during the formulation and implementation phases. In the four major English newspaper, it is based on the article regarding the economic policy uncertainty. The newspapers named, BUSINESS RECORDER, EXPRESS TRIBUN, DAWN and NEWS. The monthly updated indices are helpful for the policy makers and researchers to well know about economic uncertainty in Pakistan. Ali and pasha (2020) developed an economic policy uncertainty index for Pakistan, based on Baker et al., (2016). They categorized it into two indices. The main index, which is according to Four English language newspapers and to cover the historical background they developed the second index which use 2 of 4 newspapers. The data for EPU index gathered from global databases such as the Economic Policy Uncertainty Index developed by (Baker et al.,). Moreover, Food prices (FP) are the average price of food in various nations, areas, and on a worldwide basis. The data on food prices obtained from State Bank of Pakistan. These sources provide detailed monthly and annual price data for various food commodities. Further, FDI stands for foreign direct investment and is used as control variable in this study. The data on FDI is gathered from WDI. Moreover, data for Currency in circulation (CIC) is gathered from State Bank of Pakistan (SBP) data bank.

3.3 Analytical Techniques:

3.3.1 Unit Root Test:

By following (Wu et al.,2016), this study will find the stationarity of all variables included in the model, by using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) test. The Phillips-Perron (PP) test

will also be included in the study to address any serial correlation that may have arisen throughout the unit root testing procedure. With varying lag order based on the previous literature

3.3.2 Non Autoregressive Distributed Lags (NARDL) Method:

In addition, the Non-Linear Autoregressive Distributed Lag **(NARDL)** method is employed to analyze the dynamics between the variables in the short- and long-term. The ARDL technique consists of two main steps that handle potential endogeneity issues: estimating the short-run correlations between EPU, food prices, and control variables is the first step.

Moreover, a thorough understanding of the interactions between EPU and the many economic elements in Pakistan will be provided by the analysis of the long-term relationships in the second stage as suggested by (Sari et al., 2008).

The equation of NARDL is given as:

$$\Delta \boldsymbol{FP_t} = \boldsymbol{\gamma} + \sum_{i=1}^{\boldsymbol{P_o}} \boldsymbol{\alpha_o^i}.\Delta \boldsymbol{FP_{t-i}}) + \sum_{j=0}^{\boldsymbol{P_1^+}} (\boldsymbol{\gamma_1^{+j}}.\Delta \boldsymbol{INRU_{t-j}^+}) + \sum_{j=0}^{\boldsymbol{P_1^-}} (\boldsymbol{\gamma_1^{-j}}.\Delta \boldsymbol{INRU_{t-j}^-} + \sum_{k=0}^{\boldsymbol{P_2^+}} (\boldsymbol{\gamma_2^{+k}}.\Delta \boldsymbol{EXRU_{t-k}^+}) + \sum_{k=0}^{\boldsymbol{P_2^-}} (\boldsymbol{\gamma_2^{-k}}.\Delta \boldsymbol{EXRU_{t-k}^-}) + \sum_{m=0}^{\boldsymbol{P_3^+}} (\boldsymbol{\gamma_3^{+m}}.\Delta \boldsymbol{GEAU_{t-m}^+}) + \sum_{m=0}^{\boldsymbol{P_3^-}} (\boldsymbol{\gamma_3^{-m}}.\Delta \boldsymbol{GEAU_{t-m}^-}) + \boldsymbol{\lambda_o}.\boldsymbol{FP_{t-i}} + \boldsymbol{\lambda_1^+}.\boldsymbol{INRU_{t-1}^+} + .\boldsymbol{INRU_{t-1}^-} + \boldsymbol{\lambda_2^+}.\boldsymbol{EXRU_{t-1}^+} + \boldsymbol{\lambda_2^-}.\boldsymbol{EXRU_{t-1}^-} + \boldsymbol{\lambda_3^+}.\boldsymbol{GEAU_{t-1}^+} + \boldsymbol{\lambda_3^-}.\boldsymbol{GEAU_{t-1}^-} + \boldsymbol{\mu_t} \quad (3.3)$$

Where in the equation 3.3, FP represents food prices, in the same way, EXRU for exchange rate uncertainty, INRU stands for interest rate uncertainty, and GEAU for government expenditure uncertainty. Furthermore, the negative and positive sins signify the positive and negative cumulative sums of the relevant variables, respectively. γs stand for coefficients in the short run and λs stand for long-term coefficients.

4 RESULT AND DISCUSSION

4.1 Summary Statistic:

Following the research work of (Ongsakul et al., 2021) this study will employ descriptive statistics initially to provide an overview of the variables by summarizing the data gathered between Jan 2011 and Dec 2023.

Table1: Descriptive Statistic

	FPI	C	EPU_INDEX	CIC	FDI
Mean	1.122903	1	89.9404	4488943	239.1123
Median	0.95	1	80.41432	3966269	207.726
Jarque-Bera	35.11533	NA	124.5082	14.04437	1570.013
Probability	0	NA	0	0.000892	0
Sum	174.05	155	13940.76	6.960	37062.41
Sum Sq. Dev.	750.5704	0	331199.4	8.860	2035040

Table 1 show descriptive statistic of variable analyzed from January 2011 to December 2023 in Pakistan. The food price index (FPI) average 1.122903 .it means that the average food price indexed to 1. 122903. If the value is greater than one means the data are normalized. But in the above case, the value is greater than 1 which suggest that on average, the food price have increased relatively. While the value of EPU index is

89.9404 as shown in the above table 1, this value indicates high uncertainty in economic policy during the selected time period from January 2011 to December 2023 in Pakistan. Furthermore, the mean value of currency in circulation (CIC) is 4488943. The average value of CIC suggest that currency in circulation is higher and have potential inflationary pressure on economy. In addition, the mean value of FDI is 239.1123. This value reveal that the average inflow of FDI which show moderate inflow of foreign direct investment.

Insights into central tendencies provide by median values, most variables are closely aligning with means. The lowest observed values for FPI -3.85, while their highest values for CIC is 9664290, subsequently. The standard deviations (S: D), is low for FPI, EPU and FDI (ranging from 2.207676 to 114.9545) but high for CIC (2398469). Conversely, FPI (.887653), EPU (1.569691), CIC (0.503213), and FDI (3.210372) all variable indicates skewness of positive, with a longer tail on the right side, is demonstrating a distribution of right-skewed. Positive skewness with higher value in FDI (3.210372) indicates highly right-skewness implying an asymmetrical concentration of data on the left side of the distribution. In addition, having a kurtosis of 3. CIC (1.92217) with a normal distribution indicates kurtosis is less concentrated in the tails as compared to normal distribution, revealing a normal presence of extreme values. FPI (4.511786) and EPU (6.069684) indicating more extreme values with higher concentration in the tails. FDI (17.2082) indicates more extreme values of distribution with heavier tail. (See Appendix A1).

Moreover, The Jarque–Bera test statistics for FDI (1570.1), EPU (124.6), and FPI (35.20), with all same P-values of 0.000, and CIC (14.1) with a P-value of 0.000892. Overall, the dynamic nature of concentration of the data and variability in normality of the analyzed variables are indication in above results.

4.2 Results of ADF and PP unit root tests

Table 2 presents the results of Augmented Ducky Fuller (ADF) unit root test. The results indicate that the T-test of FP and FDI is (-8.562453) and (-11.86692) with a P-value of (0.0000). On the other hand the PP test show that the T-test for FPI and FDI is (-9.024002) and (-11.85483) with a probability-value of (0.0000). So the null hypothesis of unit root can be rejected at the level, because the P- values are less than the level of significance.

The ADF and PP test statistics for CIC is non-stationary at the level but stationary after fist differencing. Furthermore, the ADF and PP test statistic for EPU is (-4.113894) and (-3.859877) with a p- value of (0.0012) and (0.003).The results show that some variables are stationary at level and some variables are stationary at first difference.

Table 2 Results of Unit Root Test

Variable	ADF		PP		Decision
	T-stat	P-value	T-stat	P-value	
FPI	-8.562453	0.0000	-9.024002	0.0000	I(0)
EPU	-4.113894	0.0012	-3.859877	0.003	I(0)
CIC	2.445674	1	1.836969	0.9998	I(1)
FDI	-11.86692	0.0000	-11.85483	0.0000	I(0)

4.2 Diagnostic Test

The Table 3 presents the results diagnostic test to check the model's reliability. The result of serial correlation test indicates weak evidence of serial correlation with a P-value of (0.9737). While the Lagrange Multiplier (n*R^2 = 0.001147) statistic is less than prob. Chi- square, which suggested that there is no evidence of serial correlation. Therefore we confirmed that our NARDL estimates is free from Serial correlation. The Figure 1 and 2 CUSUM of Square, CUSUM plots and Ramsey Reset test indicate that the recursive residual did not exceed the critical lines. Therefore, the results indicate structural stability in the relationship over a long period (see Appendix A6). Hence, the overall these diagnostic tests contribute to the credibility of the NARDL model results.

Table 3 Diagnostics

Test	F – statistics	P. value
Breusch-Godfrey test for Serial Correlation	0.001087	0.9730
Ramsey Reset test	1.861	0.174

4.3 Co-integration Relationship between Economic Policy Uncertainty and Food Price

Table 4 Bound Test Value

Value		**Significant**					
		10%		5%		1%	
F test	20.88172						
K	3						
Sample	153	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
Asymptotic		2.370	3.200	2.790	3.670	3.650	4.660

The result of Bound Test presents in the Table 3. The results suggest that the relationship between variables are significant and have long-run equilibrium relationship among the variables, because its upper bound value at all the level of significant is less than calculated value of the F-test. Furthermore, the F-statistic at all significance level for the sample size of 153 are 2.370, 32.790 and 3.650 at I (0) 3.670, 3.200 and 4.660 at I (1).20.881723 (see Appendix A2). Critical values for these sample sizes suggested that reject null hypothesis and conclude that there is co-integration relationship among the EPU variables and food prices (FP).

4.4 Nonlinear Auto Regressive Distributed Lag (NARDL)

4.4.1 Short-Run Effects

The result of short term effect of economic policy uncertainty (EPU) on food prices (FP) is present in Table 4 by employing ARDL conditional error correlation. The value of R- square is 0.463 which means that the variables include in the model explain 46.3% of the variation in food prices. The Adjusted R-square is 45.7%. Therefore, the value of R-square show the model is good fit. The value of F-stat exhibits all variables are jointly significant (see Appendix A3).

Table 4 Short Run Effects:

Variable	Coefficient	S: D	T-test	Prob-value
COINTEQ	-0.81151	0.078353	-10.36	0.0000
FPI(-1)*	-0.811506	0.082	-9.948	0.0000
EPU(-1)	0.012916	0.005116	2.52	0.0126
CIC(-1)	1.31	9.161	1.422	0.1572
FDI**	-0.00289	0.001344	-2.091	0.0383
C	-0.245589	0.500199	-0.49099	0.6242
D(EPU)	-0.005956	0.006046	-0.9851	0.3262
D(CIC)	1.61	8.85	1.80789	0.0727

The ECM coefficient (COINTEQ) is (-0.811) with a T-test of (-10.36), show the speed of adjustment toward the long term equilibrium level. The COINTEQ exhibit 81% of deviation from the long term equilibrium are being corrected.

Moreover, the value 0.005956 for negative cumulative changes on EPU suggest that, if it is negative then it leads to a percentage decline in food prices. The coefficient is statistically insignificant at 1%, 5%, or 10% with a P- value of 0.3262. While at the first lag, the coefficient of EPU (EPU (-1)) show positive change with prob - value of 0.0126. These result matches with the result of (Wen et al, 2021) if the shock in EPU is fluctuated then it has adverse effect on food prices.

The currency in circulation (CIC) has positive coefficient of 1.61 with a Prob-value of 0.0727 which show statistically significant at 1%, 5%, or 10%. It exhibit that a one percent change in CIC leads to 1.61 unit increase in food prices. This result suggest that increasing CIC have potential to increase food prices. However the first lag of the (CIC (-1)) increase by 1.31 unit. Generally we can say that the EPU has adverse short run effect on food prices.

4.4.2 Long-Run Effects:

The results of NARDL model show long run impact of economic policy uncertainty (EPU) on food prices. The EPU is statistically significant at 1%, 5%, or 10% with a Prob-value of 0.0094 and exhibit that an one percent increase in EPU leads to 0.015916 unit increase in food prices. It suggest that for every unit increase in EPU, increases food prices by 0.015916 unit in long run. This effect leads to decline in food production which automatically effect food security and cause high food price. This finding is align with the results of (Umar and Umar (2022)).

The Coefficient of CIC in long run is 1.61 with a probability value of 1.54 indicate that an unit increase in CIC leads to 1.61 unit on average, increases food prices in long run. This result suggest that for every unit of increase in currency in circulation leads to increase in money supply which cause inflationary pressure, particularly on food items. Additionally increased money supply lead to constant quantity of good and services and food leading to higher demand resulting high food in the economy (Edeh et al., 2020). The results of Table 5 (see Appendix A4) exhibit that there is a negative relation between foreign direct investments (FDI) and food prices. A one unit increase in FDI leads to -0.0034 percent decrease in food prices in the long term effect.

Table 5: Long Run Effects

Variable	Coefficient	Std. Error	t-Statistic	Prob.

EPU_INDEX	0.015916	0.00605	2.630547	0.0094
CIC	1.61	1.12	1.435653	0.1532
FDI	-0.003461	0.001695	-2.04154	0.043
C	-0.302634	0.61134	-0.495034	0.6213

5. CONCLUSION AND POLICY RECOMMENDATIONS

The aim of this study is to estimate the impact of economic policy uncertainty on food prices a case study of Pakistan from Jan 2011 to Dec 2023, with a focusing on the influence of control variables like currency in circulation and foreign direct investment. This study utilized various econometric techniques, likewise the Augmented Dickey-Fuller test, the NARDL bound test, and the NARDL model to estimate and interpret the data.
The results of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests exhibited that the variables FPI and FDI are stationary at the level, with a p-values of (0.0000). Which is below the significance levels (1%, 5%, 10%). it allows to reject the null hypothesis of a unit root. Additionally CIC is not significant at the level. However, the currency in circulation (CIC) turn in significant at the first difference, with a p-value of 0.0000. The ADF and PP test statistics are (-4.113894) and (-3.859877) of EPU, with a p-values of 0.0012 and 0.003 which indicate that EPU is stationary at the level. Overall, the FPI, EPU and FDI indicating stable and long-term behavior at the level, meanwhile CIC is stable after the first difference.

The ARDL bound test exhibited the existence of a co-integration relationship between the variables, which indicates a long-run equilibrium relationship between food prices and economic policy uncertainty. According to short run result, we identified that EPU has negative effect on food prices which lead to a decline in food prices and the effect is statistically insignificant. However, the first lag of EPU showed a positive effects. In this study we analyzed that the CIC has a positive and significant effect on food prices in the short run. While in case of long run NARDL estimation this dissertation identified that EPU has a positive and significant effect on food prices and showed that a unit increase in EPU lead to increases food prices. The research also found that CIC has a significant and positive effect on food prices in case of the long run. Moreover, this study detected negative relationship between food prices and FDI in the long run and indicated that an increase in FDI leads to a decrease in food prices.

On the base of above analysis, the significant impact of EPU on food prices in Pakistan. It is important to mark the crucial factor of this uncertainty to stabilize food prices in Pakistan. However, to address our finding results, this dissertation recommend that the government should minimize uncertainty about economic policy and reduce the possibility of risk in agricultural industry.

- Furthermore, government should provide uniform and obvious communication about regulatory changes and policies for economies. This will help the government to mitigate uncertainty in the market.
- It also necessary to government that take regularly updates from policy and decision makers.
- In addition, to alleviate the direct impact of EPU on food prices.
- The government should provide investment in agricultural development like, storage facilities, network for transportation and irrigation. Also provide subsidies for farmers and farming techniques, that can enhanced production and reduce volatility in food prices.

- Further, through sound fiscal and monetary policies government should ensure macroeconomic stability that help the government to mitigate uncertainty in the policy and reduction in volatility of food prices.

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Appendices

Ramsey Reset Test:

Specification: FPI FPI(-1) EPU_INDEX EPU_INDEX(-1) CC CC(-1) FDI C

Squares of fitted values: Omitted Variables

	Value	Df	Probability
t-statistic	1.364417	145	0.1746
F-statistic	1.861634	(1, 145)	0.1746

F-test summary:

	Sum of Sq.	Df	Mean Squares
Test SSR	6.704910	1	6.704910
RSSR	528.9408	146	3.622882
USSR	522.2359	145	3.601627

Figure 1 CUSUM of Square

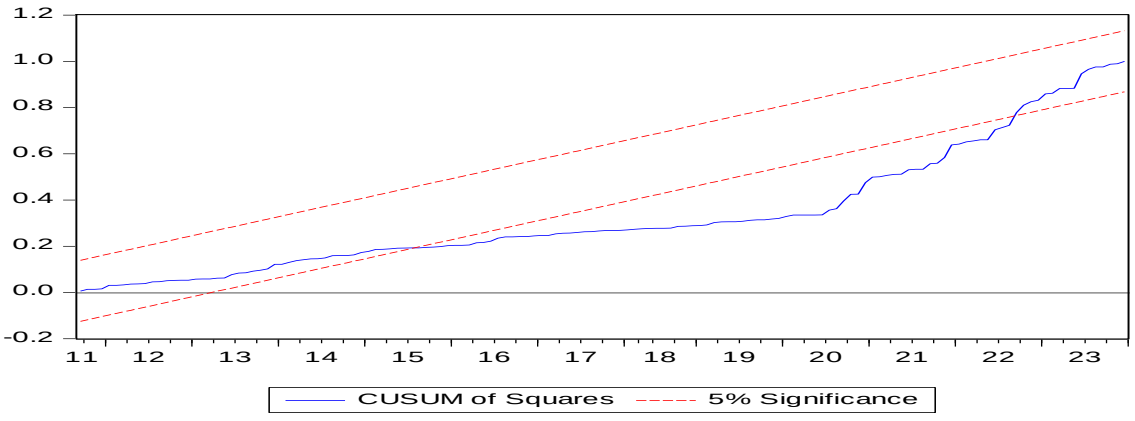

Figure 2 CUSUM: