

Power Devolution and Economic Stability: Evidence from Pakistan

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Abstract

The current study analyzed the impacts of fiscal decentralization (FD) on the economic stability of Pakistan. This study used time series data from 1981 to 2017. The collected data was first passed through the unit root analysis. ARDL estimation techniques were employed to scrutinize the data where long-run associations were tested through Wald F -statistics. The long-run estimates were extracted by applying Ordinary Least Square, and error correction mechanisms were employed to find the speed of adjustment for disequilibria between the long and the short run. Wald F -statistics confirmed the existence of long-run cointegration. Long-run elasticities suggested that fiscal decentralization because of limited institutional capabilities of provincial governments failed in bringing stability in the economy of Pakistan. Similarly, transparency issues and misspecification of projects hinder the outcome of investment to stabilize the economy. High service payments on debt cut the amount that can be used for skills improvements and destabilize the economy. High Population growth puts pressure on infrastructure and reduces production capacity, ultimately destabilizing the economy by increasing unemployment and inflation. Based on these findings, the government is suggested to improve the institutional capacity of lower governments for the desired outcome of power devolution.

Keywords: ARDL, Economic Stability, Fiscal Transfers, Misery Index, Pakistan

JEL Classification Code: H75, H76, H77

1. Introduction

Government formulates various reform agendas to stabilize the economy. Decentralization, through ensuring transparency and effectiveness in resource utilization and distribution, served that purpose. Theorist believed that decentralization not only boost growth (Martinez-Vazquez & McNab, 2003), affect the efficacy of public services (Samuelson, 1954, Oates, 1972, 1993) but also create horizontal fiscal equality and bring macroeconomic stability (Martinez-Vazquez & McNab, 2006).

Empirical support for the relationship between decentralization and economic stability is unclear (Triesman,

2000; Rodden & Wibbels, 2002; Martinez-Vazquez & McNab, 2003) and divided from positive and significant findings (King & Ma, 2001; Neyapti, 2004; Martinez-Vazquez & McNab, 2006) to negative (Feltenstein & Iwata, 2005; Shah, 2006; Thornton, 2007) and even insignificant (Triesman, 2000; Rodden & Wibbels, 2002) in some cases.

Despite the ambiguity/inconclusiveness in empirical support, various developed (USA, UK, Australia) and developing (India, Indonesia, Kenya) economies followed decentralization of powers to enhance their economies. Pakistan, being one of them (developing economies), also devolved financial powers to lower tiers. In Pakistan, these powers are delegated through a special commission, the National Financial Commission (NFC), which meets after every five years to review the formula of resources redistribution. Recently the 18th constitutional amendment was passed, which conferred substantial economic authority upon the provinces. Through the 7th NFC award (presented in 2010 under the 18th amendment), a wide range of responsibilities was transferred to the provincial government along with funds transfer. These responsibilities include health, education, water & sanitation, and infrastructure with an expectation to bring stability to the economy.

The above discussion makes it relevant to analyze the underlying hypothesis in the case of Pakistan. This study will

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contribute to the literature in various ways, e.g., Previous literature measured economic stability through a single indicator, i.e., inflation (Martin-Vazquez & McNab, 2006; Neyapti, 2004) and the budget deficit (Neyapti, 2010). However, the current study used a comprehensive proxy for economic stability called Misery Index. This proxy combines the effects of inflation and unemployment and determines how the average citizen is doing economically. Decentralization in previous literature is measured by revenue and expenditure sides of devolution of financial powers (Iqbal & Nawaz, 2010; Neyapti, 2004; King & Ma 2001), but the autonomy of lower governments over the use of expenditure and revenue powers makes the delegation of power dubious. Therefore current study utilizes the data of Vertical imbalance or the provincial government dependence on the central government for their expenditures support which is measured by intergovernmental transfers. These transfers do not distinguish between conditional and unconditional transfers. Lastly, the current study used the latest available dataset for the analysis and employed a more relevant technique, ARDL, that gives efficient results even in a small sample size.

2. Literature Review

Literature defines macroeconomic stability in various ways, i.e., stability is when all the macro indicators are equally poised (Żuchowska, 2013; Hurduzeu & Lazar, 2015; Ionita, 2015), economic management through effective policy (Kuroyanagi et al., 1996), when the monetary and financial systems improved (Guarata & Pagliacci, 2017; Vasilyeva et al., 2016; Polchanov, 2017), better performance of a banking sector (Slav'yuk, 2017; Yushko, 2016), minimization of fluctuations in macro indicators (Ahangari et al., 2014; Montiel & Serven, 2006), long-lasting development of the stock market and corporate market (Chigrin & Pimonenko, 2014; Leonov et al., 2014), a sound and legitimized tax system is an indication of stability (Kmetova et al., 2017), a well-defined fiscal system brings stability (Žigman, 2017), reduction of governance issues in the public sector (Dzomira, 2017). Some scholars consider price stability with macroeconomic stability, i.e., Martin Vazquez and McNab (2006) but the scholar himself suggested that it will be more appropriate to use a more complex index for macroeconomic stability.

The empirical studies have not reached to a consensus on a relationship between decentralization and economic stability. It ranges from positive to negative and even inconclusive in some cases. King and Ma (2001) analyzed the fiscal decentralization and economic stability for 49 countries. The study found that in the developed world, the delegation of revenue powers reduces macroeconomic instability, and in the whole 49 samples (mix of developed and developing) countries, the results were insignificant. Neyapti (2004) found that revenue decentralization and economic stability represented by inflation negatively affect a Turkish economy.

The study suggested that its effectiveness increased when there is a monetary discipline, or in other words, there has to be independence of the central bank for better results. Macroeconomic impacts of decentralization were analyzed by Neyapti (2010) in a panel of 16 countries. The study found that the macroeconomic condition of a country can be improved by the delegation of financial powers to the lower tiers. In this study, the macroeconomy is represented by the budget deficit. Budget deficit reduction is conditional on the more significant population. Iqbal and Nawaz (2010) and Ali and Batool (2017) found that fiscal decentralization brings stability to the economic condition of Pakistan. Melnyk et al. (2018) found that through decentralization, the goal of economic stability can be achieved significantly. Nguyen et al. (2020) are of the view that fiscal decentralization has a strong relationship with both corruption and income inequality.

Some studies found that decentralization has negative impacts on the economic stability of a country. e.g., Shah (2006) found that decentralization of financial powers not only has negative but statistically insignificant impacts on inflation in a panel of 40 sample countries. The same results were found by (Thornton, 2007). Treisman (2000) found a clear difference between developed and developing countries while analyzing the fiscal decentralization impacts on inflation as an indicator of economic stability for a sample of 87 countries. It was found that in OECD countries, decentralization reduces inflation, while in non-OECD countries, it increases inflation. Feltenstein and Iwata (2002) found that decentralization after the late 1970s did not help in reducing inflation in the case of China. Martinez-Vazquez & McNab (2006) provided evidence that in developed countries, decentralization helps in economic stability, while in less developed countries, the relationship is not clear.

Some studies conclude that the underlying hypothesis is not supported with clarity, e.g. (Treisman 2000; Rodden & Wibbels 2002; Zafarullah et al. 2012). This is evident from the cited literature that scholars have no agreement on the outcomes of the underlying hypothesis. Therefore, this study is a timely effort to provide some inputs in the country-specific case for decentralization and stability relationship while using a more relevant proxy of fiscal decentralization.

3. Research Methods

3.1. Data

This study used the data from 1980 to 2019 collected from world development indicators (WDI) and various issues of economic survey of Pakistan (ESP). Economic Stability, as said earlier, is measured through the Misery index (MI), which is a summation of inflation and unemployment rates. The data on inflation and unemployment rates are collected from WDI. Fiscal transfers (FT) are used as a proxy of fiscal decentralization, and data for this particular variable

is collected from ESP; Gross Fixed Capital Formation (GFCF) is a proxy for Investment and used as a percentage of GDP. WDI is consulted to collect the data on GFCF. Total Debt Services (TDS) are used as a percentage of GNI, and Population is taken in a growth (PG). The data on these two variables are collected from WDI.

3.2. Empirical Model

The model of this study is taken from the models used by Bodman et al. (2009), Iqbal & Nawaz (2010), and Makreshanska & Petrevski (2015). The functional form of the model is;

$$ES = f(FT) \tag{1}$$

ES in the above equation stands for economic stability; FT is intergovernmental fiscal transfers from the central government to the provincial government. This model assumes that the economy’s stability can be achieved through delegation of financial powers, fiscal transfers in our case.

The specific econometric model is as following;

$$ES_t = \alpha + \beta(FT_t) + \delta(Z_t) + \varepsilon_t \tag{2}$$

Z is used for the vector of control variables that can affect the stability of the economy, e.g., Gross Fixed Capital Formation, which is believed to help the economy by increasing the productive capacity of the economy. It helps in the utilization of resources and generate more employment and thus increase aggregate demand; total Debt Services, in our case, the expected outcome of total debt services are negative because it is believed that in developing countries, the local resources (financial) are not enough and rely on foreign funding to finance their expenditures. This foreign fund (Loans) is used in unproductive projects, and ultimately it retards growth pace and destabilizes the economy. High population growth has both positive and negative effects on the economy. A high population means a high labor force, and if skilled, it will lead to an increase in productivity but on the other hand, if this high population is unskilled, it will be unproductive and will put pressure on resources and thus may affect the economy negatively. Epsilon (ε) is an error term, α , β and δ are the constant and the subscript “t” is the time factor.

3.3. Estimation Strategy

For regression analysis, this study employed the Autoregressive distributive lag model (ARDL), commonly known as the bound test. This specific test is developed by Pesaran & Shin (1999, 2001). It is preferred because, i. It is simple in use, ii. It does not need prior information for the order of integration of variables iii. Can be applied in a

small sample case, and iv. It is applied whether the selected variables have a different or similar order of integration. The only special case where one cannot apply it is when the order of integration is greater than 1.

This test is completed in three stages where at 1st stage it is attempted to find the cointegration in the model; for this specific case, the econometric form of our selected model is as follow;

$$\begin{aligned} \Delta ES_t = & \alpha_0 + \sum_{i=1}^l \varphi_1 \Delta ES_{t-i} + \sum_{j=1}^m \varphi_2 \Delta FT_{t-j} \\ & + \sum_{k=1}^n \varphi_3 \Delta GFCF_{t-k} + \sum_{m=1}^p \varphi_4 \Delta TDS_{t-m} \\ & + \sum_{n=1}^r \varphi_5 \Delta PG_{t-n} + \beta_1 ES_{t-1} + \beta_2 FT_{t-1} \\ & + \beta_3 GFCF_{t-1} + \beta_4 TDS_{t-1} + \beta_5 PG_{t-1} + \varepsilon_t \end{aligned} \tag{3}$$

ES in the above model is Miser Index, FT is fiscal transfers, GFCF is Gross Fixed Capital Formation, and TDS means Total Debt Services and PG is population growth, and Epsilon ε is error term with “t” time trend.

The decision of the existence of long-run cointegration is made based on Wald “F” statistics. Three different situations can be faced while finding long-run cointegration, i. where the calculated Wald “F” test value find greater than the higher boundaries of tabulated Wald “F” at a 5 percent level of significance; it is a case of the existence of long-run cointegration, ii, when the calculated Wald “F” test found less than lower bound of tabulated Wald “F” at 5% level of significance, a case of no long-run cointegration and iii. The calculated Wald “F” test lies in between the upper and lower bound of tabulated Wald “F” at a 5% level of significance, a case of inconclusiveness (Pesaran & Shin, 1999, 2001).

After the establishment of long-run cointegration, in the 2nd stage, long-run elasticities are estimated by using Ordinary Least square. The specific model in our case is;

$$\begin{aligned} ES_t = & \alpha_0 + \beta_1 ES_{t-1} + \beta_2 FT_{t-1} + \beta_3 GFCF_{t-1} \\ & + \beta_4 TDS_{t-1} + \beta_5 PG_{t-1} + \varepsilon_t \end{aligned} \tag{4}$$

In the 3rd stage, the short-run impacts are found, and the specific model of this study is;

$$\begin{aligned} \Delta ES_t = & \alpha_0 + \sum_{i=1}^l \varphi_1 \Delta ES_{t-i} + \sum_{j=1}^m \varphi_2 \Delta FT_{t-j} \\ & + \sum_{k=1}^n \varphi_3 \Delta GFCF_{t-k} + \sum_{m=1}^p \varphi_4 \Delta TDS_{t-m} \\ & + \sum_{n=1}^r \varphi_5 \Delta PG_{t-n} + \text{vecm}_{t-1} + \varepsilon_t \end{aligned} \tag{5}$$

4. Results and Discussion

4.1. Unit Root Analysis

The selected variables are passed through unit root tests despite the fact that ARDL does not need prior testing of a unit root. A data having unit root, if estimated, will produce spurious results, and therefore to avoid spurious results, the data is checked for unit root. The analysis is made once with taking intercept only and then with trend and intercept. It is clear from Table 1 that all the variables are stationary at first difference.

4.2. Matrix Correlation

The correlation matrix suggests a correlation between variables, and the sign shows the direction of the relationship. Table 2 displayed the results of the correlation matrix. Results of the table suggest that there exist a weak

to moderate correlation among the variables selected for this study.

4.3. Lag length Selection Criteria

Literature suggests different criteria for optimum lag length of a model, i.e., Final Prediction Error (FPE), Akaike Information Criteria (AIC), Schwartz Information Criteria (SIC), and Hannan Quinn (HQ) Information Criteria. One can take a reasonable number of lags to complete the analysis as there is no hard and fast rule for lag length, but in the case of a short span of data, a maximum 2 lags length is reasonable to get robust results (Narayan, 2004). Having a short time period of 37 time-series observations, the current study took lag length 2 at Akaike Information Criteria. Akaike Information Criteria are helpful in in-sampling and out of sampling forecasting and impose a relatively harsh penalty. Table 3 displayed the results of lag length selection.

Table 1: Unit Root Analysis

Variable	Level		1 st Difference		Decision
	Intercept	Trend + Intercept	Intercept	Trend + Intercept	
ES	-2.8364 (0.6320)	-2.9709 (0.1540)	-8.1670 (0.000)	-8.1039 (0.000)	I(1)
FT	-2.1839 (0.2152)	-2.0823 (0.5378)	-6.1250 (0.000)	-6.1027 (0.000)	I(1)
GFCF	-1.6893 (0.4279)	-2.5541 (0.3022)	-6.0073 (0.000)	-5.90779 (0.000)	I(1)
PG	-2.0369 (0.2704)	-0.579 (0.9739)	-3.6809 (0.031)	-3.6035 (0.0711)	I(1)
TDS	-0.9614 (0.7560)	-2.8738 (0.1827)	-9.1648 (0.000)	-9.3665 (0.000)	I(1)

P-values are in parenthesis.

Table 2: Matrix Correlation

	ES	FT	GFCF	PG	TDS
ES	1.000000	0.567652	0.065737	-0.366570	-0.146193
FT	0.567652	1.000000	0.040682	-0.478971	-0.264683
GFCF	0.065737	0.040682	1.000000	0.545532	0.462715
PG	-0.366570	-0.478971	0.545532	1.000000	0.502958
TDS	-0.146193	-0.264683	0.462715	0.502958	1.000000

Table 3: Lag Length Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-689.54	NA	1.19	39.68	39.91	39.76
1	-533.51	258.57	67556	32.20	33.53	32.66
2	-475.41	79.67*	11185*	30.30*	32.75*	31.15*

4.4. Regression Analysis

Regression analysis is performed as; first, the long-run cointegration analysis is made. In the second phase, long-run coefficients are estimated, and in the third step, short-run dynamics are extracted.

4.4.1. Cointegration Analysis

It is clear from Table 4 that the Calculated Wald (9.12) is far higher than the upper bound of the tabulated Wald (4.58) at a 5% level of significance which is a case of the existence of long-run cointegration. Normalizing FT, GFCF, and PG one by one as a dependent variable, we found no long-run cointegration and taking TDS as a dependent variable, the calculated Wald (*F*) lies in an inconclusive region.

4.4.2. Estimated Long Run Coefficients

Results of long-run coefficients are displayed in Table 5. The estimated results suggest that the devolution of financial powers to the local level destabilize the economy by 20%

with every one unit increase in it. These results align with (Davoodi & Zou, 1998; Zhang & Zou, 1998, 2001). These results can be justified on theoretical grounds, i.e., the lower governments have Inadequate local institutional capabilities, which weaken the ability to coordinate and embrace best practices (Oates, 1993; Otero, 2004; Rodríguez-Pose & Gill, 2004; Andre et al., 2004; Prud’homme, 1995). Few people had greater influence at local level and likely increased corruption and favoritism (Inman & Rubinfeld, 2000; Storper, 2005). It has been observed that the devolution of power did not remain the main focus of the debate in Pakistan. The presumption of center weakness remains deep in the psyche of political leaders and decision-makers in Pakistan. On the other hand, the provincial structure is not very suited for the outcomes that one can expect from the devolution of power as these are large in structure and difficult to say that the government is very close to the people. Furthermore, the case becomes more worse by the fact that the political parties are based on ethnicity, and their vote bank is, in most of the cases, tend towards this fact. Minorities feel insecure and undermine their interest. Provincial governments hesitate in devolving the resources

Table 4: Cointegration Analysis

Specification	Lower Bound	Upper Bound	Calculated <i>F</i>	Decision
F_{ES} [ES/FT, GFCF, TDS, PG]	3.51	4.58	9.12	Cointegration
F_{FT} [FT/ES,GFCF, TDS, PG]	3.51	4.58	1.35	No Cointegration
F_{GFCF} [GFCF/FT,ES,TDS,PG]	3.51	4.58	0.98	No Cointegration
F_{TDS} [TDS/FT, GFCF, ES, PG]	3.51	4.58	4.24	Indecisive
F_{PG} [PG/FT, GFCF, TDS, ES]	3.51	4.58	1.88	No Cointegration

Table 5: Long Run Estimates

Regressors	Coefficient	Standard Error	T-Ratio	Probability
FT	0.2024	0.4364	4.6372	0.000
GFCF	1.4952	0.4851	3.0820	0.005
TDS	1.4882	0.6319	2.3552	0.026
PG	5.5405	2.1560	2.5698	0.094
A	-4.5002	1.9724	-2.2815	0.008
T	0.54527	0.2442	2.2327	0.034
$R^2 = 0.61$	<i>F</i> -Stat. 6.25 (0.000)			
Adj. $R^2 = 0.51$	DW = 1.84			
Test Statistic (LM Version)		Chi-Square		Value
Serial Correlation (LM Test)		Chi-Square		0.141 (0.706)
Functional Form (Ramsey RESET)		Chi-Square		1.869 (0.127)
Normality (JB Test)		Chi-Square		3.275 (0.194)
Heteroscedasticity (White Test)		Chi-Square		0.030 (0.861)

into the lower tier. Therefore, for improving economic efficiency, the government is needed to channelize the resources and make possible usage (Tariq et al., 2020).

Gross Fixed Capital Formation also destabilizes the economy in our case. The possible reason behind the destabilizing effects of gross fixed capital formation is the investment in unproductive projects or over-investing in unproductive projects, which leads to the build-up of debt, increase the money supply, bring instability in financial markets and thus create economic instability. For the better outcome of the gross fixed capital formation, the government has to focus on the usage of gross fixed capital formation from non-productive to productive usage, and through this, the government will enable to export of the country through facilitation of tariff barriers to a bigger market and in this way the jobs will be created and economic activity will be going on (Nguyen & Do, 2020).

Total Debt Services destabilize the economy of Pakistan. The results suggest that the debt taken by Pakistan is used for consumption expenditure which did not help in an increase of the productive capacity of the economy. Furthermore, the results are understandable as high service payments reduce the amount of resources that can be used for enhancing human capital and infrastructure, which bring instability in the economy. If the government minimizes the debt services or uses the debt for productive purposes, it can stabilize the economy.

Population growth in our model has adverse effects on the economic stability of Pakistan. A possible justification can be that high population growth causes an increase in demand, leading to an increase in the burden on infrastructure, which causes a reduction in production, and thus both prices and unemployment increase.

4.4.3. Short-Run Dynamics

The results displayed in Table 6 suggest that at lag one in the short span of time, fiscal transfers bring stability to the

Table 6: Short Run Dynamics

Regressor	Coefficient	Standard Error	T-Ratio	Probability
dFT	0.657	0.504	0.130	0.897
dFT1	-0.945	0.460	-2.050	0.050
dGFCF	1.495	0.485	3.082	0.005
dTDS	1.488	0.631	2.355	0.026
dPG	5.540	4.156	1.333	0.194
dA	-4.500	1.972	-2.2815	0.008
dT	0.54527	0.244	2.2327	0.034
ECM(-1)	-0.99	0.246	4.024	0.000
$R^2 = 0.61$	$F\text{-Stat. } 6.25 (0.000)$			
Adj. $R^2 = 0.51$	DW = 1.84			

economy. Gross fixed capital formation, and TDS are not very much different from their long run. These results are significant and destabilize the economy in the short run too. At the same time, population growth remains insignificant in the short run. Error Correction Mechanism (ECM) suggests the speed with which the disequilibria from short to long run can be adjusted. Higher the value faster will be the speed of adjustment (Banerjee et al., 1998). In the case of our model, the disequilibria are adjusted with a faster speed.

4.5. Diagnostic Tests

The diagnostic test results are displayed in Table 7, where the results for serial correlation, heteroscedasticity, misspecification of the model, and Normality are displayed. It is evident from Table 7 that our model has no such problems.

4.6. Stability Test

CUSUM and CUSUMQ tests are used to test the stability of coefficients. Figure 1 suggests that coefficients were stable in our model as it does not go beyond the critical regions.

Table 7: Diagnostic Tests

Test Statistic (LM version)	Chi-Square	Value
Serial Correlation (LM Test)	Chi-Square	0.489 (0.963)
Functional Form (Ramsey RESET)	Chi-Square	0.353 (0.337)
Normality (JB Test)	Chi-Square	1.067 (0.586)
Heteroscedasticity (White Test)	Chi-Square	1.859 (0.173)

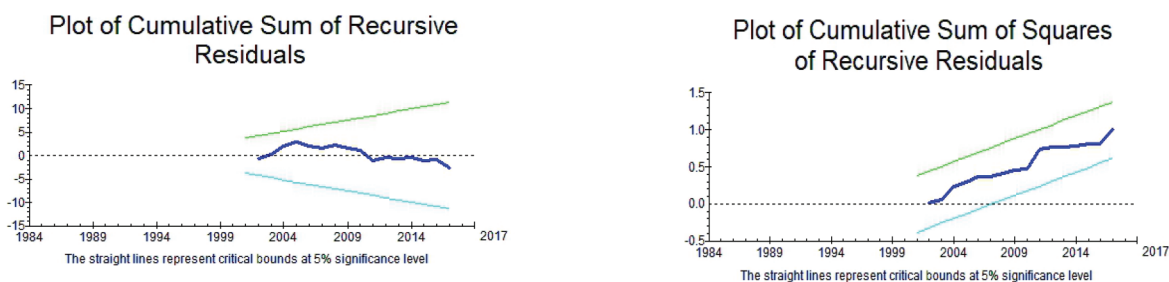


Figure 1: CUSUM and CUSUMQ

5. Conclusion

Theories discuss that fiscal decentralization enhances growth, delivers public services efficiently, and stabilizes economies. The current study focuses on the assumption of the role of fiscal decentralization in the economic stability of a country, i.e., Pakistan. The data from 1981 to 2019 were estimated by the Autoregressive Distributive Lag model. The estimated results suggested that the limited institutional capabilities of lower governments, a half-hearted attitude of politicians, and lack of transparency, fiscal decentralization brings instability to Pakistan's economy. Because of transparency issues and the misspecification of a project, investment destabilizes the economy of Pakistan. High service payments on debt cut the amount that can be used for skills improvements and destabilize the economy. The government is suggested to improve the institutional capacity of lower governments which will help budget allocation and transparency in using the allocated budget.

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