©*The Pakistan Development Review*
52:3 (Autumn 2013) pp. 207–220

Fiscal Decentralisation, Democratic Institutions and Inflation

NASIR IQBAL

This study examines the role of democratic institutions in an attempt to explain the relationship between fiscal decentralisation and inflation. The empirical analysis is based on time series data over 1972–2010 for Pakistan using the GMM estimation procedure. Three different measures of fiscal decentralisation are used in order to capture multidimensionality. The major findings of the study suggest that expenditure decentralisation has a negative impact on inflation if accompanied by democratic institutions. Revenue decentralisation, however, has a negative impact on inflation even in the absence of institutions, though institutions accentuate this effect. The role of institutions, therefore, is important in realising the benefits of fiscal decentralisation. Composite decentralisation has a negative and significant impact on inflation. This implies that expenditure decentralisation becomes effective when it is complemented with revenue decentralisation. Intuitively, provincial governments become more responsive when their expenditure needs are met with their own revenues.

JEL Classification: E31, H11, H72
Keywords: Fiscal Decentralisation, Inflation, Institutions, Pakistan

1. INTRODUCTION

Fiscal decentralisation (FD) is considered an effective strategy to promote economic growth through controlling inflation [Martinez-Vazquez and McNab (2003)]. The empirical literature, however, on the FD and inflation nexus is scant and inconclusive. For example, King and Ma (2001), using cross section data for 49 countries during the period 1973–1994, find a negative relationship between revenue decentralisation (RD) and inflation especially for developed countries. Neyapti (2004) extends this analysis by arguing that FD leads to lower inflation provided monetary discipline exists and not necessarily otherwise. The study, using a panel dataset for developed and developing countries, concludes that RD is effective in easing inflation only if it is accompanied by central bank's independence and local accountability. Martinez-Vazquez and McNab (2006) show that expenditure decentralisation (ED) decreases inflation only in developed economies but not in developing countries. Thornton (2007) finds that if the RD measure is restricted only to revenues over which local governments have full autonomy, the impact of RD on inflation is negligible. Jalal, *et al*. (2012) find that fiscal decentralisation appears to lead to a decrease in inflation rate.

It is quite evident that further research is needed to explore links between FD and inflation. The inconclusiveness of existing studies can be attributed to the missing role of institutions. We can deduce from existing literature that FD reduces inflation in developed

Nasir Iqbal <nasir@pide.org.pk> is Staff Economist at the Pakistan Institute of Development Economics (PIDE), Islamabad.

Author's Note: This paper is heavily drawn from my PhD Thesis title "Fiscal Decentralisation, Macroeconomic Stability and Economic Growth". I am grateful for the comments received from the seminar participants at PIDE and anonymous referees.

economies even in the absence of institutions, while in developing economies, FD reduces inflation when it is supported by local government accountability. The theorem of decentralisation[1] implicitly assumes that the positive contribution of FD is linked with the inclusive institutions that ensure accountability and transparency of governments and public officials [Oates (1993)]. Recent advancement in the field of FD makes this assumption explicit and incorporates the role of institutions in the theorem of FD. We argue that FD and democratic institutions reinforce and complement each other in determining inflation. Absence of local accountability, lack of institutional and administrative capacity and coordination problems are major factors that make FD less effective in controlling inflation especially in developing countries [Martinez-Vazquez and McNab (2006)]. Local autonomy in collecting local revenues may be limited due to political considerations [Neyapti (2004)]. Jalal, *et al.* (2012) find that the impact of decentralisation on inflation is determined by the level of perceived corruption and political institutions. We, therefore, hypothesise that FD leads to lower inflation provided an appropriate institutional framework exists, not necessarily otherwise. The objective of this study is two-fold; first, to examine the impact of fiscal decentralisation on inflation in Pakistan using time series data over the period 1972–2010; second, to test the hypothesis that fiscal decentralisation leads to lower inflation provided that a supportive institutional framework exists, not necessarily otherwise.

The GMM approach is used for estimation due to possibility of reverse causality and endogeneity among fiscal measures. This study contributes to literature in multiple ways: First, to the best of the author's knowledge, no study to date has investigated the relationship between fiscal decentralisation and inflation for Pakistan. Second, this study employs GMM approach to estimation to control reverse causality and endogeneity. Third, this study quantifies the role of democratic institutions in explaining the fiscal decentralisation-inflation nexus. Fourth, this study provides policy recommendations which would help the policy-makers in formulating better economic policies for long run macroeconomic stability. It also informs the policy-makers and practitioners about the strengths and weaknesses of the process of fiscal decentralisation in Pakistan. In addition to its relevance to policy-makers and practitioners, it also adds to the academic discussion on the impact of fiscal decentralisation.

The rest of this paper is structured as follows: the conceptual framework is explained in Section 2; the data, methodology and econometric issues are explained in Section 3; Section 4 presents the results of this study and Section 5 concludes the discussion and provides some key policy implications.

2. CONCEPTUAL FRAMEWORK

According to Martinez-Vazquez and McNab (2003), fiscal decentralisation promotes economic growth indirectly through maintaining macroeconomic stability.[2] The

[1]Oates's "Theorem of Decentralisation" postulates that: "For a public good—the consumption of which is defined over geographical subsets of the total population, and for which the costs of providing each level of output of the good in each jurisdiction are the same for the central or the respective local government—it will always be more efficient (or at least as efficient) for local governments to provide the Pareto-efficient levels of output for their respective jurisdictions than for the central government to provide any specified and uniform level of output across all jurisdictions" [Oates (1993)].

[2]Martinez-Vazquez and McNab (2003) mention five different channels through which fiscal decentralisation may have influence on economic growth including (i) consumer efficiency, (ii) producer efficiency, (iii) the geographical distribution of resources, (iv) macroeconomic stability, (v) corruption and captures by elites. However, our focus in this dissertation is only to analyse macroeconomic stability channel.

literature on fiscal decentralisation mostly uses price stability as a proxy for macroeconomic stability.[3] There are controversies in literature as to whether fiscal decentralisation promotes or impedes macroeconomic stability.

A number of authors have suggested that devolution of some macroeconomic management policy measures to sub-national governments can promote macroeconomic stability, not hinder it [Shah (1999); Rodden and Wibbels (2002)]. Shah (2006) argues that fiscal decentralisation is linked with enhanced fiscal and economic performance because a decentralised fiscal setup provides a greater potential for the development of macroeconomic governance than a centralised fiscal setup. Public spending under a decentralised setup increases the economic efficiency because sub-national governments have more precise information about the preferences of the local communities that permits non-uniform provisions of public goods and services in accordance with the preferences of local citizens [Oates (1993)]. The process of decentralisation is also associated with more accountability and transparency in public service delivery [De Mello (2000)]. Existence of local accountability leads to more responsible behaviour of tax-payers that ultimately improves the effectiveness of local government [Wasylenko (1987)]. This implies that decentralisation may lead to macroeconomic stability via increased public sector efficiency [Neyapti (2010)].

The fiscal decentralisation can exert positive impact on price stability through the independence of the central bank. The existing studies show that the credibility of the commitment to price stability can be established if the monetary authority adheres to a set of formal rules or if there is a guarantee that it is independent from pressures from all levels of government [Shah (1994); Barro (1996)]. Shah (2005) argues that the central bank under a decentralised system performs better. Neyapti (2004) also argues that decentralisation and central bank independence reinforce each other in controlling inflation. Revenue decentralisation leads to lower inflation if it is accompanied by both central bank independence and local accountability.

Another theory of decentralisation suggests that the process of fiscal decentralisation does not affect the inflation directly, but it keeps inflation rates constant, whether low or high, through making it difficult to change fiscal or monetary policies [Tsebelis (1995)]. The number of agents whose agreement is required for changing a policy is increased in a federal structure. The sub-national governments are sometimes provided with the right to veto the decisions made by the central government. This in turn reduces the probability of changing policy hence ensures continuity in the existing monetary and fiscal policies which ultimately makes inflation rates constant. The final macroeconomic outcomes, therefore, depend on policies which are initially in place.

In countries where inflation rates are high, a decentralisation process tends to perpetuate the underlying factors that cause high inflation and hence make it difficult to achieve durable stabilisation. On the other hand, in countries where inflation rates are low due to low fiscal pressure and depoliticised monetary policy, a decentralisation process further promotes stability via maintaining the inflation rate at a low level.[4]

[3]See for example Treisman (2000), King and Ma (2001), Neyapti (2004), Martinez-Vazquez and McNab (2006), Shah (2006) and Thornton (2007).

[4]The empirical support for this continuity hypothesis is found by Treisman (2000).

Various studies argue that fiscal decentralisation per se increases macroeconomic instability or works as an obstacle to solving the persistent fiscal imbalance due to potential disregard of budget constraints by local governments under a decentralised framework [Rodden (2002)]. However, when macroeconomic instability predates decentralisation, it is much more difficult to achieve macroeconomic stability although not entirely impossible [Dillinger, *et al*. (2000)]. The possibility of soft budget constraint[5] at the sub-national levels of governments also makes it difficult to achieve macroeconomic stability through decentralisation [Stein (1999); Bahl (1999)].

Fiscal decentralisation may also have adverse consequences for macroeconomic stability because decentralisation may be associated with an increase in the degree of autonomy of the local governments. Ahmad, *et al*. (2005) argue that macroeconomic stability or price stability for an economy depends on the overall exposure to the risk. In this situation, the critical element is the borrowing of all jurisdictions in the country. Local governments have more authority to determine level of expenses as well as to collect revenues in their jurisdictions under decentralised set up. Hence, the central government has less control to manage the fiscal activities of local governments which ultimately leads to more macroeconomic instability.

Most of the criticism against decentralisation does not dismiss the idea of decentralisation per se, but is rather meant to highlight the need for augmenting the decentralisation process with sound institutions. According to the critics, only when these institutions are present does decentralisation bear the fruits that are promised by its proponents. The benefits of decentralisation largely depend on institutional arrangements that govern the design and implementation of decentralisation [Iqbal, *et al*. (2012)]. A well-defined institutional mechanism increases the accountability and transparency in the political system and hence helps to reduce corruption. Leading to efficient allocation of public resources [Iqbal, *et al*. (2012)]. Enikolopov and Zhuravskaya (2007) argue that the success of fiscal decentralisation depends on the quality of the political institutions in the country. This study shows that fiscal decentralisation is more successful in politically decentralised transition economies. They argue that the positive contribution of fiscal decentralisation will be attenuated if the country is plagued with a serious problem of corruption. On the other hand, a country which is free from corruption will be able to reap the benefits of fiscal decentralisation through macroeconomic stability. More stable political system may accentuate the impact of fiscal decentralisation on macroeconomic stability and vice versa [Enikolopov and Zhuravskaya (2007)].

3. DATA, METHODOLOGY, AND ECONOMETRIC ISSUES

The empirical analysis is based on time series data from 1972 to 2010 for Pakistan. FD, the subject matter of this study, refers to the devolution of policy responsibilities for

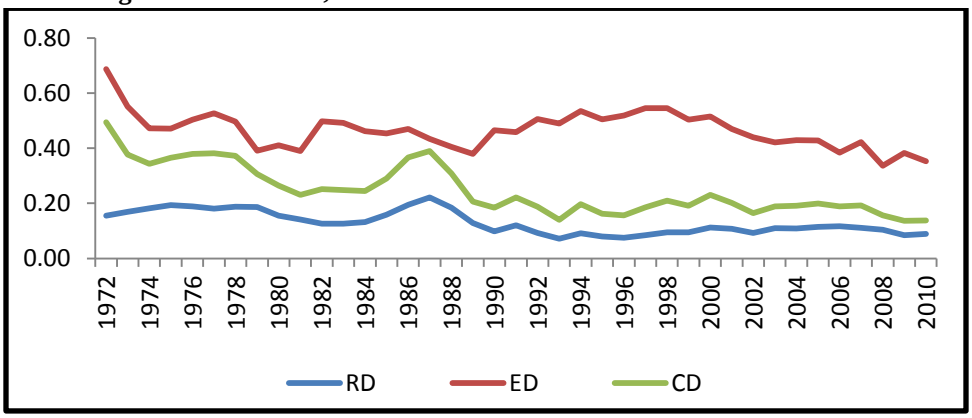
[5]The idea of soft budget constraint (SBC) is introduced by Kornai (1979) to analyse the behaviour of state owned firms. The SBC is used in decentralisation system to refer to lower level governments that look to a higher level government to recover or bailout their excessive deficits. The term bailout implies to the additional funding that the higher level government provides to the lower level governments when it would otherwise be unable to service its obligations. On the other hand, hard budget constraint (HBC) implies that lower level governments have to face the full costs of their expenditure decisions. The soft-budget constraint problem refers to the fact that federal transfers to subnational governments are based on *ex post* financial needs and not, as it should be, on ex-ante characteristics of the recipient states [Rodden (2002)].

public spending and revenue collection from the central to the provincial governments. Data on fiscal decentralisation variables is sourced from the Fifty Year Economy of Pakistan and various annual reports published by the State Bank of Pakistan. Three different indicators are constructed to measure the level of FD.

- Revenue Decentralisation (RD): RD is measured as the ratio of the provincial government's revenues (PR) to the total government revenues (TR) (federal plus provincial) i.e. $RD = \frac{PR}{TR}$.
- Expenditure Decentralisation (ED): ED is defined as the ratio of provincial government expenditures (PE) to the total government expenditures (TE) (federal plus provincials) excluding the defence expenditures (DE) and interest payments on debt (IE) since these expenditures are mainly considered as part of the non-decentralised government expenditures. $ED = \frac{PE}{TR-(DE+IE)}$.
- Composite decentralisation (CD): Following Martinez-Vazquez and Timofeev (2010), CD is measured by using both RD and ED. CD captures the information in expenditure and revenue ratios. $CD = \frac{RD}{1-ED}$.

Figure 1 shows the trends in RD, ED and CD in Pakistan. Figure 1 shows that the share of provincial government revenue in total government revenue ranges from 7 to 25 percent. The share of provincial governments' revenue is 15 percent in total government revenue in 1980, thereafter showing an increasing trend to reach 23 percent in 1987. After this period, there is a decreasing trend in revenue decentralisation and provincial revenue share in total government revenue reaches 10 percent in 2010. Figure 1 shows that the share of provincial government expenditure in total government expenditure ranges from 34 to 69 percent during the last three decades. After reaching 50 percent in 1982, the share of provincial government expenditure shows a decreasing trend reaching 39 percent in 1989. For most part of the 1990s, expenditure decentralisation shows an increasing trend. However, after 1998 once again, provincial shares in total expenditures trend downwards, declining from 55 percent in 1998 to 35 percent in 2010. The trend shows that the 'Composite Decentralisation' measure ranges from 14 to 49 percent.

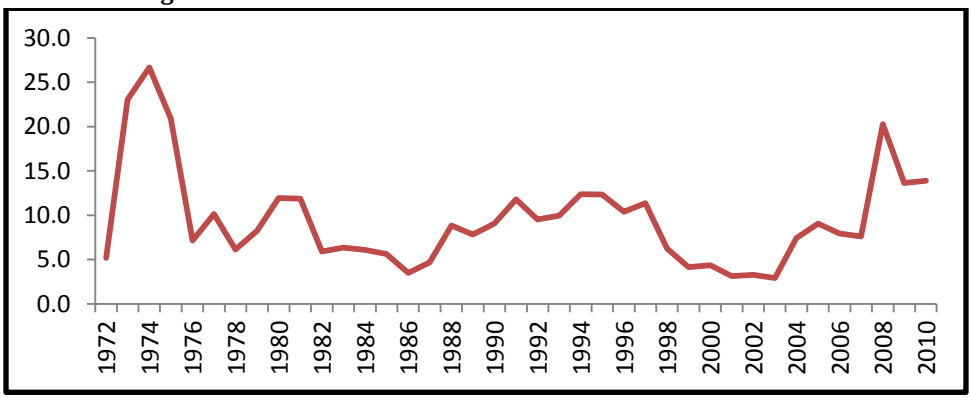
Fig. 1. Trend in RD, ED and CD Over Period 1972–2010 in Pakistan



Source: Authors' own calculation.

Inflation is measured as the growth rate of consumer price index (CPI). The average inflation rate is 9.6 varying from 3.1 percent to 30 percent. Figure 2 shows the trend of inflation rate over the period 1992–2010. Figure shows that inflation rate touches the peak of 26.7 percent in 1974. After that inflation rate has declined from 26.7 in 1974 to 11.9 in 1980. During the decade of 1980s, the average inflation rate was around 7 percent. While during the decade of 1990s, the average inflation rate was around 10 percent. Inflation rate shows increasing trend after 2004 and once again touches the peak of 20 percent in 2008.

Fig. 2. Trend in Inflation Over Period 1972–2010 in Pakistan



Source: WDI (2014).

The data on democracy is sourced from the Polity IV dataset. The democracy index ranges from +10 (full democracy) to –10 (full autocracy). The democracy index in the below Table indicates that the average quality of the institutional framework is 0.85 ranging between –7 to +8 in Pakistan. The control variables consist of physical capital measured as capital stock per work, money supply measured as M2 to GDP ratio, openness measured as trade as percent of GDP and tax to GDP ratio. Data on these variables is taken from the *Economic Survey of Pakistan* (various editions). The descriptive statistics are presented in Table 1.

Table 1

Descriptive Statistics

Variables	Obs.	Mean	Std. Dev	Min	Max
Revenue Decentralisation (RD)	39	0.130	0.041	0.071	0.221
Expenditure Decentralisation (ED)	39	0.465	0.067	0.336	0.686
Composite Decentralisation (CD)	39	0.247	0.089	0.129	0.494
Inflation (INF)	39	9.587	5.748	03.10	30.00
Capital Stock per Worker (CS/W)	39	75273	16727	42950	95884
Openness (OPN)	39	0.338	0.037	0.273	0.432
Tax to GDP Ratio (T/GDP)	39	0.123	0.015	0.095	0.145
M2 to GDP Ratio (M2/GDP)	39	0.403	0.039	0.297	0.469
Democratic Institution (INS)	39	0.846	6.745	–7.000	8.000

Source: Authors' own calculation.

Following Neyapti (2004, 2010) the following model is proposed which captures the links among FD, democratic institutions and inflation:

$$INF_t = \delta_0 + \delta_1 FD_t + \delta_2 INS_t + +\delta_3 FD_t * INS_t + \delta X_t' + \varepsilon_t$$

Where INF is inflation rate, FD measures fiscal decentralisation, *INS* represents democratic institutions, X is the vector of control variables and ε is the disturbance term. In this model, the interaction term, $FD * INS$ allows us to test the hypothesis of complementarity between *FD* and democratic institutions. Based on this model, we aim to empirically examine the following hypotheses:

(i) Fiscal decentralisation influences the inflation rate.
(ii) Fiscal decentralisation and democratic institutions are complementary.

There are several studies that have used the Ordinary Least Squares (OLS) estimation technique to empirically investigate the impact of FD. However, a number of studies identify the possibility of reverse causality and endogeneity among FD and other variables [see e.g. Zhang and Zou (1998); Xie, *et al.* (1999); Lin and Liu (2000); Thiessen (2003); Jin, *et al.* (2005); Iqbal, *et al.* (2012)]. OLS estimates become biased and inconsistent in the presence of reverse causality and endogeneity. Weuse instrumental variables approach based on the generalised method of moments (GMM) to check endogeneity. The application of the generalised method of moments (GMM) can be considered as an extension of the instrumental variables (IV) estimation method. The main advantage of the GMM estimation method is that the model need not be serially independent and homoscedastic. Another benefit of the GMM estimation technique is that it generates parameters through maximising the objective function, which includes the moment restrictions in which correlation between the lagged regressor and the error term is zero.

The standard approach to determine the stationarity of the time series data is to check the existence of unit roots in the given series. The most commonly employed test for unit root analysis is called Augmented Dickey Fuller (ADF) test. We have used ADF tests to determine the stationarity of series. The results of the ADF test are reported in Table 2. The test statistics indicate that inflation, openness and M2 to GDP ratio

Table 2

Unit Root Test (ADF Test)

	Level			First Difference		
Variables	No Trend	With Trend	Result	No Trend	With Trend	Result
Revenue Decentralisation (RD)	–2.13	–3.24	NS	–4.63	–4.56	S
Expenditure Decentralisation (ED)	–1.72	–2.48	NS	–7.19	–7.02	S
Composite Decentralisation (CD)	–1.69	–3.41	NS	–5.49	–5.43	S
Inflation (INF)	–4.02	–3.62	S			
Capital Stock Per Worker (CS/W)	–2.81	–1.62	NS	–1.44	–3.83	S
Openness (OPN)	–2.93	–3.56	S			
Tax to GDP Ratio (T/GDP)	–1.32	–2.02	NS	–5.12	–5.71	S
M2 to GDP Ratio (M2/GDP)	–2.95	–4.58	S			
Democratic Institution (INS)	–1.97	–1.91	NS	–5.71	–5.76	S
INS*RD	–1.75	–1.73	NS	–5.47	–5.51	S
INS*ED	–1.91	–1.86	NS	–5.58	–5.62	S
INS*CD	–1.71	–1.69	NS	–5.40	–5.44	S

Note: 5 percent critical value is –2.87 for the case of no-trend, and –3.42 when a trend is included. AIC is used for lag selection. S stand for stationary series and NS stand for non-stationary series.

are stationary at level. While revenue decentralisation, expenditure decentralisation, composite decentralisation, capital stock per worker, tax to GDP ratio, democratic institutions and interaction terms are non-stationary at level and become stationary at first difference.

4. RESULTS AND DISCUSSION

This study has estimated the impact of various forms of FD on inflation. The Table 3 below shows the results. We observe a negative and significant impact of RD on inflation implying that an increase in RD leads to a lower level of inflation. RD helps to promote stability in many ways. First, the higher the level of provincially owned revenues, the less will be the dependence of provincial government on federal revenue. Subsequently, the federal government can enhance its own capacity by allocating more resources to public sector projects such as power and infrastructure. Secondly, it provides more policy space to central bank in controlling inflation. Shah (2005) argues that with fiscal decentralisation the central bank will be more independent since a decentralised system requires more clarified rules and regulations under which a central bank

Table 3

The GMM Estimates, Dependent Variable is INF

Variables	(1)	(2)	(3)
RD	–1.175***		
	(0.409)		
ED		–2.337	
		(4.467)	
ED			–1.227***
			(0.427)
Tax/GDP	–1.395**	–0.973	–1.514**
	(0.670)	(1.104)	(0.677)
Openness	–1.070***	–1.082**	–1.023***
	(0.212)	(0.540)	(0.222)
M2/GDP	–1.423	–1.403	–1.255
	(1.092)	(2.054)	(1.121)
Physical Capital	–1.202***	–0.803	–1.269***
	(0.356)	(0.512)	(0.367)
Constant	29.24***	17.76*	31.39***
	(9.699)	(10.22)	(10.10)
Observations	37	37	37
R-squared	0.628	0.382	0.616
Wald Chi2 Test	98.89	41.37	94.72
Normality Test	1.16 (0.56)	2.19 (0.33)	1.63 (0.44)
End. Test P.V.	0.0509	0.0303	0.0380
OI Test P.V.	0.6376	0.8147	0.5857
D. W. Test Value	1.96	2.06	1.95

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; The STATA v12 has been used for estimation by using 'ivregress-GMM' command.

operates. Also the central bank has more flexibility to interact with different levels of government. The combined effects of all these factors result in low inflation through RD. The results show that ED has a negative but insignificant impact on inflation. Martinez-Vazquez and McNab (2006) find similar results for developing countries. The insignificant association between ED and inflation may be due to weak institutional framework of the country. Lack of economies of scale, absence of local accountability, lack of institutional and administrative capacity and coordination problems are the major factors that make expenditure decentralisation less effective in controlling the inflation rate [Martinez-Vazquez and McNab (2006)]. Results also show that CD has a negative and significant impact on inflation. This implies that ED becomes effective when it is complemented with RD. Intuitively, provincial governments become more responsive when their expenditure needs are met with their own revenues.

Various control variables are used in the analysis. Physical capital has a negative and significant impact on inflation. This implies increased investment in capital stock is associated with a decrease in inflation rate. Investment in public infrastructure helps in many ways to promote macroeconomic stability. For example, investment in roads, electricity and other public amenities reduces the structural bottlenecks hence reduces the macroeconomic instability. It is evident that Pakistan has been facing supply-side constraints for the last few years. These constraints impede the growth process and reduce macroeconomic stability of the country. In this situation, public investment for capacity building especially in the power sector is required to maintain stability and growth. Private sector investment typically reduces production costs hence relieving inflationary pressure.

The money supply has a negative but insignificant relationship with the rate of inflation. This indicates inflation is not primarily because of money supply but it may be structural in nature and mainly attributed to supply-side factors. Nasir and Malik (2011) also argue that inflation in Pakistan is mainly supply side driven. Trade openness has a negative and statistically significant impact on inflation. This result is in line with Romer' view (1993), that inflation is lower in small open economies. A number of other studies also show that trade openness is negatively associated with inflation rate in Pakistan [Ashra (2002); Gruben and McLeod (2004); Kim and Beladi (2005); Hanif and Batool (2006); Mukhtar (2010)]. Openness enhances the efficiency and reduces costs through change in composition of inputs procured internationally and domestically, thus leading to lower inflation. Openness also affects inflation through better allocation of resources and increased capacity utilisation. Openness may also boost foreign investment which can stimulate output and reduce the price level [Ashra (2002)]. Tax to GDP ratio has a negative and statistically significant impact on inflation, implying that higher the tax to GDP ratio; lower the level of inflation in the country. Taxation generally reduces the level of income and with lower level of income; demand for goods and services will decline that will eventually lead to lower inflation.

To examine the role of democratic institutions, interactive terms of democratic institutions and FD are added as additional explanatory variables i.e. $RD * INS$, $ED * INS$ and $CD * INS$. The results show that FD becomes effective when interacted with democratic institutions (Table 4). All interactive terms have negative and significant impact on inflation. This implies that FD and democratic institutions reinforce each other.

Table 4

The GMM Estimates, Dependent Variable is INF with INS Included in the Model

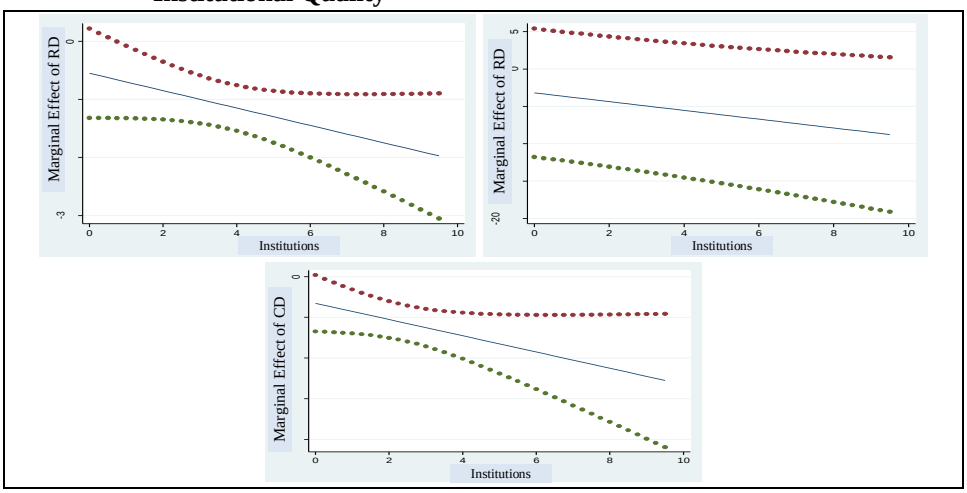
Variables	(1)	(2)	(3)
RD	–0.551		
	(0.391)		
ED		–3.184	
		(4.383)	
ED			–0.655*
			(0.353)
RD*INS	–0.150*		
	(0.0894)		
ED*INS		–0.588**	
		(0.292)	
CD*INS			–0.200*
			(0.113)
INS	0.0155	0.0160	0.0170*
	(0.0101)	(0.0167)	(0.00973)
Tax/GDP	–1.789***	–1.894*	–1.932***
	(0.486)	(1.011)	(0.464)
Openness	–0.710***	–0.323	–0.647***
	(0.161)	(0.561)	(0.155)
M2/GDP	–0.206	1.417	0.00270
	(0.729)	(1.901)	(0.730)
Physical Capital	–1.058***	–1.112**	–1.160***
	(0.259)	(0.467)	(0.236)
Constant	26.91***	26.95***	29.82***
	(6.875)	(8.718)	(6.406)
Observations	37	37	37
R-squared	0.772	0.556	0.770
Wald Chi2 Test	201.7	151.6	211.1
Normality Test	2.10 (0.35)	2.51 (0.23)	1.65 (0.44)
End. Test P.V.	0.0808	0.0374	0.0496
OI Test P.V.	0.5620	0.4219	0.5443
D. W. Test Value	2.16	1.81	2.20

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; The STATA v12 has been used for estimation by using 'ivregress-GMM' command.

Brambor, *et al*. (2006) and Iqbal, *et al*. (2012) show that it is incorrect to include the interactive term simply due to the significance of the coefficient of the interactive variable. The marginal effect of FD on inflation should be observed by constructing confidence intervals for the estimates of coefficients of FD and interactive term of FD and INS. Figure 3 below is drawn on the basis of the coefficient estimates of FD and also its interactive term with democratic institutions and their variance-covariance terms. Figure 3 shows as the quality of institutions improves, RD and CD exert increasingly negative and significant impact on inflation. The impact of fiscal decentralisation on

inflation is very low when the quality of institutions is poor. However, as the quality of institutions improves, the fiscal decentralisation exerts a significant negative impact on inflation. The institutional school of thought argues that the quality of institutions increases the efficiency of the economic factors of production [North (1981)]. It reduces the level of corruption and enhances the accountability of the governments which lead to more stable macroeconomic environment, including lower inflation.

Fig. 3. 95 percent Confidence Intervals for the Marginal Effect of FD, by Institutional Quality



5. CONCLUSION

In this study, the role of democratic institutions in modulating the fiscal decentralisation-inflation nexus has been analysed using time series data over the period 1972–2010. We have used the GMM estimation procedure to estimate the model. The empirical analysis has shown that revenue decentralisation has a significant and negative impact on inflation rate while expenditure decentralisation has an insignificant association with inflation. The expenditure decentralisation fails to check inflation rate due to weak institutional framework of Pakistan that leads to more corruption and less accountability when resources through fiscal transfer are easily available to the provincial governments. Composite decentralisation also has a negative association with inflation. This implies that if Pakistan focuses simultaneously on both types of fiscal decentralisation, then it helps in promoting macroeconomic-stability in Pakistan. Further analysis has shown that fiscal decentralisation becomes effective in controlling inflation when complemented with democratic institutions. It is observed that improvement in the quality of democratic institutions enhances the ability of fiscal decentralisation to exert a moderating effect on inflation.

The crux of the analysis is that institutions are indeed important in realising the benefits of fiscal decentralisation. Strengthening democratic institutions is a pre-requisite for achieving the goals of fiscal decentralisation. Well defined and sound democratic institutions make provincial as well as central governments accountable and transparent in performance of their functions while remaining within their jurisdictions.

REFERENCES

Ahmad, J., S. Devarajan, S. Khemani, and S. Shah (2005) Decentralisation and Service Delivery. Washington, D. C. World Bank. (World Bank Policy Research Working Paper Series No. 3603).

Arellano, M. and O. Bover (1995) Another Look at the Instrumental Variables Estimation of Error-components Models. *The Journal of Econometrics* 68, 29–51.

Arellano, M. and S. Bond (1991) Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies* 58, 277–297.

Ashra, S. (2002) Inflation and Openness: A Case Study of Selected Developing Economies. Indian Council of Research on International Economic Relations (ICRIER). (Working Paper No. 84).

Bahl, R. (1999) *Fiscal Policy in China: Taxation and Intergovernmental Fiscal Relations*. The 1990 Institute.

Barro, R. J. (1996) *Getting it Right: Markets and Choices in Free Society*. Cambridge, Massachusetts: MIT Press.

Brambor, T., W. R. Clark, and M. Golder (2006) Understanding Interaction Models: Improving Empirical Analysis. *Political Analysis* 14, 63–82.

De Mello, L. R. (2000) Fiscal Decentralisation and Intergovernmental Fiscal Relations: A Cross-Country Analysis. *World Development* 28:2, 365–380.

Dillinger, W., G. Perry, and S. B. Webb (2000) Macroeconomic Management in Decentralisation Democracies: The Quest for Hard Budget Constraints in Latin America. In S. J. Burki and G. E. Perry (eds.) *Annual World Bank Conference on Development in Latin America and the Caribbean, 1999: Decentralisation and Accountability of Public Sector*: Proceedings of a Conference held in Valdivia, Chile, 1999, Washington, D. C. World Bank. 85–105.

Enikolopov and Zhuravskaya (2007) Decentralisation and Political Institutions. *Journal of Public Economics* 91:11-12, 2261–2290.

Gruben, W. C. and D. McLeod (2004) The Openness-Inflation Puzzle Revisited. *Applied Economics Letters* 11:8, 465–468.

Hanif, M. N. and I. Batool (2006) Openness and Inflation: A Case Study of Pakistan. *Pakistan Business Review* 7:4.

Iqbal, N., M. Din, and E. Ghani (2012) Fiscal Decentralisation and Economic Growth: Role of Democratic Institutions. *The Pakistan Development Review* 52:3, 176–196.

Jalal, A., M. Harun, and S. Mat (2012) Macroeconomic Instability and Fiscal Decentralisation: An Empirical Analysis. *Prague Economic Papers* 2, 150–165.

Jin, H., Y. Quian, and B. Weingast (2005) Regional Decentralisation and Fiscal Incentives: Federalism, Chinese Style. *Journal of Public Economics* 89:9-10, 1719–1742.

Kim, M. and M. Beladi (2005) Is Free Trade Deflationary? *Economics Letters* 89:3, 343–349.

King, D. and Y. Ma (2001) Fiscal Decentralisation, Central Bank Independence and Inflation. *Economics Letters* 72, 95–98.

Kornai, J. (1979) Resource-constrained versus Demand-constrained System. *Econometrica* 47:4, 801–819.

Lin, J. Y. and Z. Liu (2000) Fiscal Decentralisation and Economic Growth in China. *Economic Development and Cultural Change* 49:1, 1–21.

Martinez-Vazquez, J. and R. M. McNab (2003) Fiscal Decentralisation and Economic Growth. *World Development* 39, 1597–1661.

Martinez-Vazquez, J. and R. M. McNab (2006) Fiscal Decentralisation, Macrostability and Growth. *Hacienda Publica Espanola/Revista de Economia Publica* 179:4, 25–49.

Martinez-Vazquez, J. and A. Timofeev (2010) Decentralisation Measures Revisited. International Studies Programme, Andrew Yong School of Policy Studies. (Working Paper 09-13).

Mukhtar, T. (2010) Does Trade Openness Reduce Inflation? Empirical Evidence from Pakistan. *The Lahore Journal of Economics* 15:2, 35–50.

Nasir, M. and W. S. Malik (2011) The Contemporaneous Correlation of Structural Shocks and Inflation—Output Variability in Pakistan. *The Pakistan Development Review* 50, 145–162.

Neyapti, B. (2004) Fiscal Decentralisation, Central Bank Independence and Inflation: A Panel Investigation. *Economics Letters* 82, 227–230.

Neyapti, B. (2010) Fiscal Decentralisation and Deficit: International Evidence. *European Journal of Political Economy* 26, 155–166.

North, D. C. (1981) *Structure and Change in Economic History*. New York: Norton and Co.

Oates, W. E. (1993) Fiscal Decentralisation and Economic Development. *National Tax Journal* 46:2, 237–243.

Riker, W. (1987) *The Development of American Federalism*, Boston, M.A.: Kluwer.

Rodden, J. (2002) The Dilemma of Fiscal Federalism: Grants and Fiscal Performance around the World. *American Journal of Political Science* 46:3, 670–687.

Rodden, J. and E. Wibbels (2002) Beyond the Fiction of Federalism: Macroeconomic Management in Multitiered Systems. *World Politics* 54, 494–531.

Romer, D. (1993) Openness and Inflation: Theory and Evidence. *Quarterly Journal of Economics* 108, 869–903.

Shah, A. (1994) The Reform of Intergovernmental Fiscal Relations. Washington, D. C. (World Bank Policy Research Working Paper Series No. 726).

Shah, A. (1999) Fiscal Federalism and Macroeconomic Governance: For Bette for Worse. In K. Fukasaku and R. Jr, De Mello Luiz (eds.) *Fiscal Decentralisation in Emerging Economies: Governance Issues*. Washington, D. C. Organisation for Economic Co-operation and Development. 37–54.

Shah, A. (2005) Fiscal Federalism and Fiscal Performance. Washington, D. C. (World Bank Policy Research Working Paper Series No. 3786).

Shah, A. (2006) Fiscal Decentralisation and Macroeconomic Management. *International Tax and Public Finance* 13:4, 437–462.

Stein, E. (1999) Fiscal Decentralisation and Government Size in Latin America. *Journal of Applied Economics* 2:2, 357–391.

Thiessen, U. (2003) Fiscal Decentralisation and Economic Growth in High Income OECD Countries. *Fiscal Studies* 24, 237–274.

Thornton, J. (2007) Further Evidence on Revenue Decentralisation and Inflation. *Economic Letter* 95, 140–145.

Treisman, D. (2000) Decentralisation and Inflation: Commitment, Collective Action, or Continuity. *American Political Science Review* 94:4, 837–857.

Tsebelis, G. (1995) Decision Making in Political Systems: Veto Players in Presedentialism, Multicameralism and Multipartyism. *British Journal of Political Science* 25:3, 289–325.

Wasylenko, M. (1987) Fiscal Decentralisation and Economic Development. *Public Budgeting and Finance* 7:4, 57–71.

Wibbels, E. (2000) Federalism and the Politics of Macroeconomic Policy and Performance. *American Journal of Political Science* 44:4, 687–702.

Xie, D., H. Zou, and H. Davoodi (1999) Fiscal Decentralisation and Economic Growth in the United States. *Journal of Urban Economics* 45, 228–239.

Zhang, T. and H. Zou (1998) Fiscal Decentralisation, Public Spending and Economic Growth in China. *Journal of Public Economics* 67:2, 221–240.