

Fiscal Decentralization and Social Service Delivery: An empirical Analysis of Balochistan



Introduction

Fiscal Decentralization

Revenue Decentralization
Expenditure Decentralization (Apkin, 2011)

>Why Fiscal Decentralization

 To provide quality services (Mehmood and Sadiq ,2010)
 To reduce vertical fiscal imbalance (Rondinelli and Cheema ,1983)

To improve Economic Efficiency (Faraidi et al 2012)
To reduce the disparity (Mehmood and Sadiq ,2010)
To manage the resources properly (Khemani, 2004 and Demello ,2010)

Service Delivery

Education
Health
Water and Sanitation
Shelter

Literature Review

≻<mark>Over all</mark>

FD improves social services delivery (Mehmood and Sadiq ,2010)
 FD reduces vertical fiscal imbalance (Rondinelli and Cheema ,1983)
 FD improve Economic Efficiency (Faraidi et al 2012)
 FD reduce the disparity (Mehmood and Sadiq ,2010)
 FD leads to proper management of resources (Khemani, 2004 and Demello ,2010)

Health and Education

FD imroves health and education facilities. Hector (2006) Mehmood & Sadiq (2010), Akpan (2011) and Zia (2014)

FD negatively effects health and education facilities. Khemani (2001, 2004), Demello (2004) and Asfaw et al. (2007), Zhang and Zoh (1998)
 FD do not have any effect on health and education Facilities Prittchete (1996), Inchaestion (2000)

Poverty and Unemployment

FD reduces unemployment and poverty. Malik s. et al. (2006) Faraidi, Chaudary and Ansari (2012) and Faridi & Nazar (2013)

* FD increases unemployment and poverty. Bengali et al. (2001)

Literature Review

Across Countries

Health and Education

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FD imroves health and education facilities. Hector (2006) Mehmood & Sadiq (2010), Pakkistan, Akpan (2011) and Zia (2014)

*FD negatively effects health and education facilities. Khemani (2001, 2004) Nigeria , Demello (2004) and Asfaw et al. (2007), India, Zhang and Zoh (1998) China, Carnoy and Moora (2000) Brazil

***FD** do not have any effect on health and education Facilities Prittchete (1996) Mexico, Inchaestion (2000) Jordan

Poverty and Unemployment

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Literature Gap



The Impact of FD varies across the services and across the countries.

Studies uses one measure of FD in their analysis



In case of Balochistan limited studies exist.

Objectives

Ι.

To find out the impact of the fiscal decentralization on the social services delivery, particularly with reference to education and health facilities in Balochistan province.

Moreover, we check the impact of fiscal decentralization on employment and poverty in Balochistan province.



Following Robalino et al (2002)

Health

 $\log IMR_{t} = \beta_{0} + B_{1}\log DE_{t} + B_{2}\log DR_{t} + B_{3}\log MCWC_{t} + B_{4}\log EDE + B_{5}\log PSDP_{t} + B_{6}\log PCI_{t} + \varepsilon_{t}\dots 1$

Education

 $\log LR_t = \beta_0 + B_1 \log DE_t + B_2 \log DR_t + B_3 \log PGR_t + B_4 \log EDE + B_5 \log PSDP_t + B_6 \log PCI_t + \varepsilon_t \dots 2$

Unemployment

 $\log \overline{UER_t} = \beta_0 + B_1 \log DE_t + B_2 \log DR_t + B_3 \log PGR_t + B_4 \log EDE + B_5 \log PSDP_t + \varepsilon_t \dots 3$

Poverty

 $\log POV_t = \beta_0 + B_1 \log DE_t + B_2 \log DR_t + B_3 \log MI_t + B_4 \log PSDP + B_5 \log PGR_t + E_t \dots 4$

Data Sources and Variables

We have used annual data from 1975 to 2015 which has been taken from various sources

Variables	Symbol	Description	Source
Infant Mortality Rate Proxy variable for health	IMRt	Log of Infant Mortality Rate	United Nation Development program annual reports and Statistical bureau of Pakistan
Literacy rate Proxy variable for education	LRt	Log of Literacy rate	Statistical bureau of Pakistan and education department of Balochistan
unemployment rate	UERt	Log of unemployment rate	Statistical bureau of Pakistan and Pakistan economic survey
poverty rate	POVt	Log of head count poverty	Statistical bureau of Pakistan and Pakistan economic survey
Fiscal decentralization	FDt	Log of expenditure and revenue decentralization ratio	Provincial and Federal Ministry of Finance and Pakistan economic survey
Maternity and child welfare center	MCWCt	Log of maternity and child welfare center	United Nation Development program and provincial health department
Misery index	MIt	Log of inflation and unemployment	State bank of Pakistan and Pakistan economic survey
Per capita income	PCIt	Log of per capita income	Provincial ministry of Planning and development, Quetta and Statistical bureau of Pakistan
Expenditure on	EDEt	Log of expenditure on	Provincial Ministry of Finance, Quetta
education		education	
population growth rate	PGRt	Log of population growth rate	Provincial ministry of Planning and development, Quetta Statistical bureau of Pakistan and
Public sector development program	PSDPt	Log of Public sector development program	Provincial Ministry of Finance, Quetta

Estimation • To test the stationarity of the data we have applied Augmented Dickey Fuller test and Phillips Perron test. • Autoregressive Distributed Lag (ARDL) is used for long run co-integration. To check the validity of our model we have applied following diagnostic test. Lagrange multipliers (LM) test is used to check the serial correlation.

- F test is used to check joint restriction.
- CUSUM test is applied to test the stability of the parameters.



Unit Root Results

List of	Augmented D	ucky Fuller	Phillips Perron		
Variables	I (0)	I (1)	I (0)	I (1)	
DR		-5.787*		-5.784*	
DE		-5.594*		-6.045*	
IMR		-4.948*		-4.936*	
LR		-5.535*		-3.005*	
UER	-1.636***		-1.839**		
POV		-3.487*		-3.573*	
PSDP		-5.281*		-5.344*	
PCI	-3.369***		-3.255***		
MI	-4.035*		-3.943*		
EDE		-7.224*		-7.245*	
PGR		-1.905**		-1.732***	
* indicates significance level at 1%, ** at 5% significance level, *** at					
10% significance level					





Lag Selection Criteria

Equation	Lag	AIC	SIC	HQ
FD and Health (Eq. 1)	1	-23.450*	-21.061*	-22.593*
	2	-22.779	-18.300	-21.172
FD and Education	1	-28.924	-26.510*	-28.065*
(Eq. 2)	2	-28.931	-24.406	-27.321
	3	-28.970*	-22.333	-26.608
FD and	1	-24.763	-22.953*	-24.119*
Unemployment	2	-24.985	-21.623	-23.789
(Eq. 3)	3	-25.450*	-20.538	-23.702
FD and Poverty	1	-23.646	-21.836*	-23.002
(Eq. 4)	2	-24.371*	-21.010	-23.789*
*Indicates lag order selected by criterion				



Bound Test

Equation	F statistic value	K	Lag length	Significance level	Bound c	eritical value	Decision
					I (O)	I (1)	
	4.42	6	1	1%	2.88	3.99	Co-integrated
(Eq. 1)				5%	2.27	3.28	Co-integrated
				10%	1.99	2.94	Co-integrated
FD and	8.822	6	3	1%	2.88	3.99	Co-integrated
(Eq. 2)				5%	2.27	3.28	Co-integrated
				10%	1.99	2.94	Co-integrated
FD and Unemployment	5.109	5	3	1%	3.06	4.15	Co-integrated
(Eq. 3)				5%	2.39	3.38	Co-integrated
				10%	2.08	3.00	Co-integrated
FD and Poverty (Eq. 4)	6.107	5	2	1%	3.06	4.15	Co-integrated
				5%	2.39	3.38	Co-integrated
				10%	2.08	3.00	Co-integrated

Fiscal Decentralization and Health

ARDL (1 1 1 0 0 1 0) long run				
Variables	Coefficient			
Constant	0.95			
	(3.85)			
DR (-1)	-0.941*			
	(0.291)			
DE (-1)	-14.089*			
	(4.606)			
MCWC	0.886			
	(1.21)			
BCDD	-0.371**			
rspr	(0.195)			
BCI (1)	-0.589			
PCI (-1)	(1.282)			
EDE	0.509**			
EDE	(0.1669)			
Diagnostic test	Coefficient in long run			
R square	0.936			
Adjusted R square	0.914			
F statistic	42.746*			
LM test				
F statistic	0.184			
* indicates significance level at 1%, ** at 5%	significance level, *** at 10% significance level			
Standard Er	ror are shown in brackets			

Fiscal Decentralization and Health

ARDL (1 1 1 0 0 1 0)				
Variables	Coefficient			
Constant	0.005			
	(0.017)			
DDR (-1)	-0.542**			
	(0.130)			
DDE (-1)	-4.694*			
	(1.898)			
DMCWC	-0.25			
	(0.674)			
DPSDP	-0.088			
	(0.149)			
DPCI (-1)	-0.056			
	(0.724)			
DEDE	1.30			
	(0.1)			
ECT (-1)	-0.823*			
	(0.279)			
Diagnostic test	Coefficient in short run			
R square	0.66			
Adjusted R square	0.52			
F statistic	4.765*			
* indicates significance level at 1%, ** at 5% significance level, *** at 10% significance level				
Standard Error are shown in brackets				

Fiscal Decentralization and Education

ARDL (2 0 2 0 0 0 1) long run				
Variables	Coefficient			
Constant	-0.904*			
	(2.677)			
DR	-0.276**			
	(0.091)			
DE (-2)	4.994**			
	(2.34)			
PGR	-0.519			
	(0.443)			
PCI	2.685*			
	(0.808)			
PSDP	0.083			
	(0.091)			
EDE (-1)	0.23*			
	(0.088)			
Diagnostic test	Coefficient in long run			
R square	0.998			
Adjusted R square	0.997			
F statistic	1567*			
LM test				
F statistic	0.424			

*indicates significance level at 1%, ** at 5% significance level, *** at 10% significance level

•Standard Error are shown in brackets

Fiscal Decentralization and Education

ARDL (2	0 2 0 0 0 1)
Variables	Coefficient
Constant	-0.015
	(0.028)
DDR	-0.385
	(0.222)
DDE (-2)	0.828***
	(3.123)
DPGR	-0.46*
	(0.265)
DPCI	0.018
	(0.02)
DPSDP	0.04
	(0.03)
DEDE (-1)	-0.002
	(0.01)
ECT (-1)	-0.836***
	(0.321)
Diagnostic test	Coefficient in short run
R square	0.514
Adjusted R square	0.281
F statistic	2.20**
* indicates significance level at 1% ** at 5%	significance level *** at 10% significance level

Fiscal Decentralization and Unemployment

1	ARDL (1 3 2 1 3 3) long run				
/	Variables	Coefficient			
	Constant	-1 947*			
		(0.56)			
1	DR (-3)	-0.445**			
		(0.224)			
	DE (-2)	-3.221**			
		(1.703)			
	PGR (-1)	3.714*			
		(0.664)			
	EDE (-3)	0.081			
		(0.09)			
	PSDP (-3)	-0.506*			
		(0.124)			
ſ	Diagnostic test	Coefficient in long run			
-	Diagnostic test				
	Adjusted R square	0.948			
	Augusten Roquite	0.90			
	F statistic	19.512*			
	LM test				
	F statistic	0.2189			
	*indicates significance level at 1%, ** at 5	% significance level, *** at 10% significance level			
	•Standard Error are shown in brackets				

Fiscal Decentralization and Unemployment

ARDL (1 3 2 1 3 3)				
Variables	Coefficient			
Constant	0.000 (0.026)			
DDR (-3)	-0.237* (0.118)			
DDE (-2)	-3.51** (1.65)			
DPGR (-1)	4.971* (1.706)			
DEDE (-3)	-2.87* (1.356)			
DPSDP (-3)	-0.225* (0.107)			
ECT (-1)	-0.706** (0.308)			
Diagnostic test	Coefficient in short run			
R square Adjusted R square	0.801 0.579			
F statistic	3.613***			
* indicates significance level at 1%, ** at 5% significance level, *** at 10% significance level Standard Error are shown in brackets				

Fiscal Decentralization and Poverty

ARDL	(1 2 2	021)	long run
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Variables	Coefficient		
Constant	0.822		
	(0.195)		
DR (-2)	-0.185		
	(0.195)		
DE (-2)	-7.383**		
	(3.633)		
PSDP	-0.099		
	(0.105)		
MI (-2)	0.634*		
	(0.233)		
PGR (-1)	2.33		
	(0.577)		
Diagnostic test	Coefficient in long run		
R square	0.949		
Adjusted R square	0.923		
F statistic	36.240*		
LM test			
F statistic	0.289		
* indicates significance level at 1%, **	at 5% significance level, *** at 10% significance level		
Standard Error are shown in brackets			

Fiscal Decentralization and Poverty

ARDL (1 2 2 0 1 0)				
Variables	Coefficient			
Constant	0.0001			
	(0.004)			
DDR (-2)	-0.075***			
	(0.026)			
DDE (-2)	-1.189*			
	(0.305)			
DPSDP	-0.023			
	(0.023)			
DMI (-1)	0.025			
	(0.023)			
DPGR	0.467			
	(0.297)			
ECT (-1)	-0.927***			
	(0.257)			
Diagnostic test	Coefficient in short run			
R square	0.785			
Adjusted R square	0.683			
F statistic	7.649*			
* indicates significance level at 1%, ** at 5% significance level, *** at 10% significance level				
Standard Error are shown in brackets				

Stability Test





Provincial share in NFC awards from 1974 to 2009

• Awards	Punjab	Sindh	КРК	Balochistan
1974 NFC Award	60.25	22.50	13.39	3.86
2nd NFC Award 1979	57.97	23.34	13.39	5.30
3rd NFC Award 1985	57.97	23.34	13.39	5.30
4th NFC Award 1990	57.88	23.28	13.54	5.30
5th NFC Award 1996	57.88	23.28	13.54	5.30
6th NFC Award 2000	57.88	23.28	13.54	5.30
7th NFC Award 2009	51.74	24.55	14.62	9.09

Conclusion

Fiscal decentralization enhances the social services provisions. Particularly, Health and education facilities improve as a result of fiscal decentralization.

Fiscal decentralization leads to reduction in unemployment and the poverty.

Expenditure decentralization is more effective in provision of social services delivery as compared revenue decentralization

Recommendations

Transfer the power from central government to local government to improve to social services provisions such as health and education.

To reduce unemployment and poverty transfer the power from center to provincial government.

Particularly go for expenditure decentralization as expenditure decentralization is more effective in provision of social services delivery as compared revenue decentralization Thanks

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