

The Political Economy of Decentralisation and Access to Pro-Poor Social Services Delivery in Pakistan

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ABSTRACT

In 2001, the Devolution Plan has initiated to restructure the local governments and to decentralize substantial fiscal and administrative powers to them. This paper aims at exploring the impact of decentralisation and devolution on poverty reduction through social service provision in Pakistan. Through a political-economic based theoretical model, the paper predicts that decentralisation is an effective policy tools to increase the pro-poor social services. The model suggests that if the transfer rate from the local governments were to increase, then decentralization would also increase. While a higher transfer rate would enable to enhance the pro-poor social services provisions. We suppose that the pro-poor social services and decentralization are positively correlated. We test the Theoretical predictions using a rich panel dataset from Pakistan. The empirical results show that decentralisation to third tier to governments helped in increasing the social and economic services manifold. The paper concludes that after the decentralisation to local governments was a vital structural reform that had a positive impact on those sectors and subsectors that believed to be more pro-poor.

Keywords: decentralisation; legislative bargaining; pro-poor social services delivery; poverty reduction; Pakistan

1. Introduction

A key argument made by several economists with respect to decentralization reform is that it can reduce poverty. This assertion is based on the view that it leads to improvements in public sector services delivery. The efficient provision of public goods by the local governments may occur because of their ability to take into account local determinants while providing services, such as health and education (Oates, 1972). Alternatively, it may be due to competition, as local governments encourage the provision of efficient public services to, and lower tax burdens on, the lower strata of society (Brennan and Buchanan, 1980).

Decentralisation has gained acceptance as a reform policy in many countries (e.g., Vietnam, Argentina, Colombia, Tanzania, India, Tunisia, Brazil, Bolivian, Indonesia, Ghana, and Mexico, *inter alia*¹), following the realization that complex political–economic and social issues might not be effectively handled by central government only (Rondinelli and Cheema, 1983). It is widely believed that locally elected governments, imbued with fiscal and administrative authority, may perform far better and with more efficiency in terms of development, planning, and the provision of public services than a remote and centralized government. In supporting this argument, Manor (1999) considers decentralisation an effective policy tool that may help in addressing issues such as regional inequity and disparity, poverty, and political instability.

However, opponents of decentralization believe that it creates economic inefficiencies, increases social inequality, and adversely affects social service provisions (Slater, 1989; Samoff, 1990; Tanzi, 1995, Blair, 2000). Samoff (1990), for example, shows that decentralization, when used as a policy tool, has largely been a worldwide failure. Supporting that conclusion, Slater’s (1989) study of Tanzania illustrates that decentralization failed to enhance local capacities in implanting local programmes.

On the question of any direct effect of decentralization on social services delivery and redistributive policies, the empirical literature is divided. Throughout the body of empirical work, the relationship of these indicators is not well elucidated. Nonetheless, whatever scant research has been done needs to be carefully reviewed. For example, Von Braun and Grote’s (2000) work with respect to the cases of India, China, Egypt, and Ghana finds a negative relationship between decentralization and expenditures on social services geared toward the poor.² However, West and Wong (1995) note that decentralization, given its flawed design (i.e., more focus on federal–provincial fiscal relations, and local governments are left entirely to the mercy of the provinces), is the prime cause of regional inequality and poverty in China.

Faguet (2004) examines the consequences of decentralization on poverty at the national level; his results indicate how decentralization affects the pattern of investments on social sectors and the formation of human capital. His argument supports the common assertion³ that decentralization changes the pattern of public expenditures, to focus more on the provision of services that are related to poverty alleviation.

Martinez-Vazquez (2001) shows that decentralization may also alter poverty levels by changing the composition of public sector expenditures. As part of the various redistributive schemes, public resources could be given directly to poor individuals augment their incomes. In any case, pro-poor public expenditures affect poverty, even in the absence of direct

¹ For more in-depth discussion, see Rondinelli and Cheema (1983), Slater (1989), Manor (1999), Rao (2000), Faguet (2004), Crawford (2008), and Fausto and Barillo-Rabling (2008).

² In the case of the Philippines, the decentralization program has been relatively successful and had a certain impact on poverty. However, widespread corruption and the unequal distribution of intergovernmental transfers has restricted subnational governments’ capacity to fully realize pro-poor programs (Jütting et al., 2004).

³ For example, Crook (2003) shows that fiscal decentralization may change the composition of public expenditure if regional government choices in term of the types and amount of public-services delivery differ from those of the central government.

resource transfers to the poor. For example, with decentralization, public expenditures relating to basic services such as health and education will increase. Since these services are fundamental to human development, fiscal decentralization is expected to increase the welfare of the poor.

A review of the theoretical and empirical literature reveals that the quest for decentralisation and its potential effectiveness on various aspects of society has received considerable attention in the public finance and development economics literature. In Pakistan, in order to decentralise the administrative and financial matters to the local level, a devolution plan was launched in 2001 that brought large-scale changes to governance and public finance of Pakistan, where several important social and economic services were devolved to local governments. Such drastic changes could bring a widespread transformation in nature, extent and magnitude of essential social and economic service provision to common people. Apparently, the local governments because of their proximity and accountability to local people were more efficient and effective in increasing services that should benefit the local community particularly the poor and disadvantaged. Nonetheless, in spite of the importance of the matter the related literature has not provided a systematic and robust research on this issue using Pakistan as a case. This paper aims to fill this gap in the literature. Thus, we conduct a systematic theoretical and empirical research to evaluate the impact of decentralisation on pro-poor social services delivery while considering other political-economic aspects.

After the theoretical model, the paper provides a brief description of the local government system and its evolution in Pakistan. In addition, the paper provides an empirical evaluation of the effectiveness of the Devolution Plan in terms of improved social service delivery. The paper uses a systematic empirical method by utilizing a panel dataset from four provinces of Pakistan. Various regression techniques such as the standard ordinary least squared (OLS), fixed effect (FE) and random effect (RE) models, and the Tobit model are used to assess the impact of the Devolution Plan on social services. The empirical results show that after the Devolution when these social and economic services were devolved to local governments, their provisions were augmented and improved.

Rest of the paper is organised as follows: Second Section provides a historical discourse on the development of local governments and their evolution in Pakistan. Third Section presents the theoretical model. Fourth Section discusses the impact of Devolution Plan on social services provision. Fifth Section presents the data, methodology and hypothesis, whereas sixth section describes empirical results. Section seventh concludes.

2. Historical Background of Local Government System In Pakistan

The local government system introduced in the Sub-Continent in 19th century by the British India government aimed, primarily to privilege local elites. The local government under the British *Raj* was not empowered, as it was not democratically elected. Instead, the central bureaucracy nominated the representatives of the local governments (Venkatarangaiya and Pattabhiram, 1969). The system was run through an extreme ‘top-down’ style with circumscribed functions of local representatives. The key administrative role at the local level was performed by the agents of the central bureaucracy, the Deputy Commissioner, and other bureaucratic operatives, such as the Assistant Commissioner, *Tehsildars*, *Naibdehsildars* and *Patwaris* (Tinker, 1968; AERC, 1990).

However, after the independence, during late 1940s and in the 1950s an ever-increasing centralisation gave birth to a powerful military bureaucracy that diluted the already limited sub-national governments (Waseem, 1994; Jalal, 1995; Talbot, 1998). Similar to pre-partition style, local bodies system in the 1960s was overwhelmingly controlled by the central

bureaucracy through its appointed officials at the local level who had the discretionary power to restrict any kind of action the elected representatives might desire to pass or implement. During the 1971-1977, the local governments however were pushed to the background and hence remained dysfunctional.

The local government system revived with the arrival of the military dictatorial regime again in 1979, where the political and administrative structure similar to the 1960s of over centralisation of administrative and economic power at the provincial and federal levels. The new Local Government Ordinance was promulgated simultaneously in 1979 from Punjab, Sindh and KP, while in Balochistan the same ordinance was implemented in 1980 (Cheema and Mohmand, 2003).

It is interesting to note that with the death of Zia-ul-Haq and subsequently with the advent of democracy in 1988 after party-based general elections at both federal and provincial levels, the local governments were dispensed with. Thus, until the 1999 both Pakistan Peoples' Party and Muslim League led governments put the local governments in dormancy.

However, after the 1999 military coups d'état, the local government system was once again reinstated but this time with entirely different structure, functions and responsibilities under the auspices of the Devolution Plan of 2000-01.

The Local Government Ordinance clearly spells-out the expenditure and revenue raising powers and responsibilities of all three tiers of local governments. They were entitled to allocate and disburse resources according to their own priorities apparently without strong interference or direction from the upper tiers of governments (federal and provincial). However, Bahl and Cyan (2009) believe that in practice the provincial governments very often exercised control over certain expenditure areas, particularly on expenditures undertaken through "conditional transfers" from the provinces.

Another significant change accompanying the Devolution Plan was the introduction of a formula-based system of resource sharing between the provincial and local governments. All four provinces constituted their respective Provincial Finance Commission (PFC) in 2001 to formulate the resource transfer mechanism and distribution of finances between the provincial and the local governments. The PFC having both development and recurring transfers ensured the allocations of resources between the provincial government and local governments. Under which the provincial governments disbursed resources to local governments out of the proceeds of the Provincial Consolidated Fund (PCF) and Provincial Allocable Amount (PAA).

The PAA has distributed under the PFC ruled-based transfer mechanism in a similar head of the account, while the PCF was not defined (Cheema and Ali, 2005). The PAA fixed for local governments were determined and distributed based on the criteria elaborated in Table 1.

Table 1: Intergovernmental Resource Transfer Criteria

Total pool and distribution criteria	Punjab	Sind	NWFP	Balochistan
Local share of the Provincial Divisible Pool	39.8%	40%	40%	31%
Formula factors with weights	100%	100%	100%	100%
Population	75%	50%	50%	50%
Backwardness of district	10%	17.5%	25%	
Tax collection effort	5%	7.5%		
Fiscal austerity	5%			
Area				50%
Development incentive/ infrastructure deficiency	5%		25%	
District governments' deficit transfers		25%		

Source: Shah (2004) and Sindh (2004)

As illustrated in Table 1 population was the most important criterion used by all provinces in resource distribution. Under the Local Government Budget Rules (2002), the local governments had the power to formulate their budgets and prioritise public expenditures without the legal consent to the provincial governments. The same rules categorically elaborated the procedure for budget making and its approval from the concerned local council. The local governments made the budgets once the provincial government informed the former about their share under the PFC. It was mandatory for the local councils to budget both development and non-development expenditures. The funds allocation for development expenditures was undertaken after meeting the non-development expenses.

3. A Legislative Bargaining Model of Fiscal Federalism

Consider an economy where there are two provinces, A and B; additionally, there are two districts, $i = \{1, 2\}$, within each province. Individuals differ in their inherent labour productivity, denoted by s_i , which is distributed according to the density function $\gamma_i(s)$. An individual's wage rate, $w_i s_i$, is linear in the productivity parameter. An individual of type s_i , residing in district i of province A, receives utility from private consumption $c_i(s_i)$ and a district-specific public good, G_i ; conversely, that individual receives disutility from the labour supply $\ell_i(s_i)$. For simplicity, we assume Cobb–Douglas preferences.

$$\ln u_i(s_i) = \ln(c_i(s_i)) + \ln(1 - \ell_i(s_i)) + \ln(G_i). \quad (1)$$

We denote the B district with \sim . In other words, the utility of a type- s individual in district i of province B is

$$\ln \tilde{u}_i(\tilde{s}_i) = \ln(\tilde{c}_i(\tilde{s}_i)) + \ln(1 - \tilde{\ell}_i(\tilde{s}_i)) + \ln(\tilde{G}_i). \quad (1)$$

An individual of type s_i in district i of province A receives an after-tax wage income, as well as a federal subsidy b ; both are used for private consumption:

$$c_i(s_i) = (1 - \tau)w_i s_i \ell_i(s_i) + b, \quad (2)$$

where τ is the federal income tax rate. Consequently, in province B:

$$\tilde{c}_i(\tilde{s}_i) = (1 - \tau)\tilde{w}_i \tilde{s}_i \tilde{\ell}_i(\tilde{s}_i) + b. \quad (2')$$

We will suppress the \sim when there is no ambiguity (i.e., when we calculate the derivations for province A, and can always obtain the corresponding quantities for province B by adding \sim). We assume the district-specific wage rate to be linear in that district's development expenditure, D_i , and that the “base wage” w is the same across districts—namely:

$$w_i = wD_i \quad (3)$$

$$\tilde{w}_i = w\tilde{D}_i \quad (3')$$

a. Economic Equilibrium

Maximizing (1) s.t. (2) derives the labour supply function and the corresponding indirect utility:

$$\ell_i(s) = \frac{1}{2} - \frac{\theta}{2wsD_i} \quad (4)$$

$$U(\tau, ws, \theta, D_i, G_i) \equiv \max_{c_i(s), \ell_i(s)} U_i(s) = ((1-\tau)ws) \left(D_i + \frac{\theta}{ws} \right)^2 \frac{G_i}{D_i} 2^{-2}, \quad (5)$$

where

$$\theta \equiv \frac{b}{1-\tau}. \quad (6)$$

b. Government Budgets

Each province is given a budget, R and \tilde{R} , by the federal government, to use on development expenditure and the public good in each of the two districts:

$$R = D_1 + D_2 + G_1 + G_2 \quad (7)$$

$$\tilde{R} = \tilde{D}_1 + \tilde{D}_2 + \tilde{G}_1 + \tilde{G}_2. \quad (7')$$

The federal government collects tax revenue from wage income and distributes it to the provinces, in addition to providing the federal subsidy.

$$R + \tilde{R} + Nb + \tilde{N}b = \tau(Y_1 + Y_2 + \tilde{Y}_1 + \tilde{Y}_2), \quad (8)$$

where

$$Y_i = \int_s wD_i s \ell_i(s) \gamma_i(s) ds, \quad (9)$$

c. The Provincial Legislative Bargaining Game

We assume a simple alternating-offer bargaining game, as in Marsiliani and Renström (2007). Take province A, with two elected representatives (types s_1^* and s_2^*). If district 1 is the larger of the two districts, we assume that district 1 makes the first offer. District 2 can accept or reject it. If district 2 rejects it, then one representative is chosen at random to make the final offer. (The game could be extended to several rounds, without altering the qualitative properties.) In the final round, if district i is chosen to make the final offer, it will maximize its own utility subject to (7), thus implying the setting $D_j = G_j = 0$. Maximizing (5) subject to (7) provides the optimal level of development expenditure and of the public good when the entire budget is used in district i , and the resulting indirect utility:

$$D_i = R \frac{1 + m_i(R)}{4} \quad (10)$$

$$G_i = R \frac{3 - m_i(R)}{4} \quad (11)$$

$$V(\tau, ws_i^*, \theta, R) \equiv \max_{D_i, G_i} U_i(s_i^*) = R^2 (3 - m_i(R))^3 (1 + m_i(R)) ((1 - \tau)ws_i^*) \mathbb{1}6^{-2}, \quad (12)$$

where

$$m_i(R) \equiv \sqrt{1 - 8 \frac{\theta}{ws_i^* R}}. \quad (13)$$

If district 2 is not chosen in the final round, then since $G_2 = 0$, it follows that $V_2 = 0$. If district 2 is chosen in the final round, the utility is given by (13). If we denote the probability that district 1 is chosen as p , then the expected utility of district 2 in entering the final round is:

$$E[V_2(R)] = (1 - p)R^2 (3 - m_2(R))^3 (1 + m_2(R)) ((1 - \tau)ws_2^*) \mathbb{1}6^{-2}. \quad (14)$$

Thus, district 2 accepts any proposal that satisfies

$$\left((1 - \tau)ws_2^* \left(D_2 + \frac{\theta}{ws} \right) \right)^2 \frac{G_2}{D_2} 2^{-2} \geq (1 - p)R^2 (3 - m_2(R))^3 (1 + m_2(R)) ((1 - \tau)ws_2^*) \mathbb{1}6^{-2}. \quad (15)$$

When district 1 makes the first offer, it maximizes its own utility, subject to both (15) and (7).

Note that this problem can be written as

$$\max_{D_1, D_2, R_2} \left((1 - \tau)ws_1^* \left(D_1 + \frac{\theta}{ws_1^*} \right) \right)^2 \frac{R - R_2 - D_1}{D_1} 2^{-2}, \quad (16)$$

subject to

$$\left((1 - \tau)ws_2^* \left(D_2 + \frac{\theta}{ws_2^*} \right) \right)^2 \frac{R_2 - D_2}{D_2} 2^{-2} \geq (1 - p)R^2 (3 - m_2(R))^3 (1 + m_2(R)) ((1 - \tau)ws_2^*) \mathbb{1}6^{-2} \quad (17)$$

The first-order conditions imply that (9), (10), and (11) hold for the respective district evaluated at R_1 and R_2 , respectively. R_2 is chosen at the level where (17) holds with equality—that is:

$$D_i = R_i \frac{1 + m_i(R_i)}{4} \quad (18)$$

$$G_i = R_i \frac{3 - m_i(R_i)}{4} \quad (19)$$

$$V(\tau, ws_i^*, \theta, R_i) = R_i^2 (3 - m_i(R_i))^3 (1 + m_2(R_i)) ((1 - \tau) ws_i^*) 16^{-2} \quad (20)$$

for $i = 1, 2$ and

$$R_2^2 (3 - m_2(R_2))^3 (1 + m_2(R_2)) = (1 - p) R^2 (3 - m_2(R))^3 (1 + m_2(R)). \quad (21)$$

Equations (18)–(21) completely characterize the bargaining equilibrium as a function of the provincial budget R , the federal tax rate τ , and the benefit rate θ . The same equations are obtained for province B, using the \sim notation.

d. Federal Decision-Making

We characterize the situation where one district within one province dominates at the federal level. That situation can occur when the finance minister comes from one of the provinces. The finance minister decides the allocation to the provinces, R and \tilde{R} , taking into account the bargaining game at the provincial level, so as to maximize its own utility. At first, it could look as if the finance minister would set R for the other province to zero. This is not the case, as production there would then stop, and no taxes could be collected from that province. Instead, it is optimal to maximize the net tax revenue from the other province. Suppose the finance minister comes from province A; then, \tilde{R} is chosen so that

$$\max_{\tilde{R}} \tau (\tilde{Y}_1 + \tilde{Y}_2) - \tilde{N}b - \tilde{R}, \quad (22)$$

subject to (4), (9), (18), and (21).

The first-order condition to (22) gives \tilde{R} as a function of τ , θ , w , etc.

$$\tilde{R} = \tilde{R}(\tau, \theta, w) \quad (23)$$

Differentiating (23), and evaluating within a symmetric equilibrium (where the two districts within a province are equal), we obtain

$$\frac{\partial \tilde{R}}{\partial \theta} = \frac{\tilde{R}}{\theta} \frac{1}{(1 - \phi_{\tilde{R}})^2 + \phi_{\tilde{R}}^2}. \quad (24)$$

Notice that by (6), $b = (1 - \tau) \theta$; then,

$$\frac{\partial}{\partial b} \left(\frac{\tilde{R}}{\tilde{R} + b} \right) = \frac{b}{(\tilde{R} + b)^2} \frac{\partial \tilde{R}}{\partial b} - \frac{\tilde{R}}{(\tilde{R} + b)^2} = \frac{\theta}{(\tilde{R} + b)^2} \left(\frac{\partial \tilde{R}}{\partial \theta} - \frac{\tilde{R}}{\theta} \right) = \frac{\tilde{R}}{(\tilde{R} + b)^2} \frac{2\phi_{\tilde{R}}(1 - \phi_{\tilde{R}})}{(1 - \phi_{\tilde{R}})^2 + \phi_{\tilde{R}}^2} > 0, \quad (25)$$

Where the second equality follows from (6)—i.e., from $b = (1 - \tau) \theta$ —and the last equality from equation (24). Then, we have:

Proposition: *In the bargaining equilibrium, the ratio of the local expenditure to the total expenditure is increasing in the subsidy/transfer rate.*

The proposition implies that if the subsidy rate, b , is larger, then decentralization is greater. Since larger allocations to the local governments increase the expenditures on sectors and subsectors that are pro-poor, we would expect poverty and expenditure decentralization to be negatively related. Thus, it is worthwhile to note that unlike a conventional approach that would consider counter-productive the role of subnational government in redistribution, we instead postulate that subnational governments is both effective and productive in making redistributive policies.

4. Social Service Provision and The Devolution Plan

Expenditure on social services particularly on education and health are recognised as an important source for the human development and poverty reduction. Countries like Pakistan with compelling fertility rate, widespread and chronic poverty and increasing rate of unemployment need to enhance efficiency of its public expenditure on social services.

Despite having relatively a decent economic growth over the last five decades human development record of Pakistan has been very dismal. Many social sector indicators, chiefly health and education, lag far behind some of the neighbouring South Asian and South East Asian countries. For instance, in 2009 indicates except Bangladesh, Pakistan records the lowest HDI (0.499) amongst all seven countries in the region included in the sample (table 2). Pakistan spent only 0.9% and 1.8% of GDP on health and education that is far below than other regional countries. For example, on health and education Iran spent 2.9% and 4.685% of her GDP, Malaysia 2% and 5.789%, and Bangladesh 2.234% of the GDP on education. Similarly, literacy rate in Pakistan (56.53%) was less than the average rate of Least Developing Counties (60%). In addition, the Infant Mortality Rate (IMR), a barometer for healthcare facility, was high compare to other countries included in table 2. Part of the reason for this abysmal social sector performance was the inadequate and ill-targeted public sector expenditures on social services.

Table 2: Selected Social Indicators (2009)

Indicators	Pakistan	Bangladesh	India	S. Lanka	Iran	Malaysia	Thailand
Life Exp.	63	65	64	71	71	74	68
IMR	78	48	55	15	35	35	55
Health Exp. (% of GDP)	0.9	0.8	1.4	1.8	2.9	2	3.1
Literacy Rate (%)	56.53	55	N/A	90.6	85.02	92.1	96.2
Pupil-Teacher Ratio	39.69	45.76	N/A	23.15	20.34	13.25	18.44
Education Exp. (% of GDP)	1.8	2.234	4.1	2.08	4.685	5.789	4.126
Human Dev. Index	0.499	0.448	0.542	0.538	0.703	0.658	0.673

Source: WDI, World Bank (accessed on 3/07/2012) & UNDP (accessed on 3/07/2012). N/A: Not available

5. Hypothesis, Data And Methodology

5.1. Hypothesis

We postulate that since the local governments are more responsive to local people needs because of being accountable them the pattern of investment may be in the favour of those sectors that can incur benefits to the poor. Given this, the paper empirically tests the following hypothesis:

Hypothesis: *Ceteris paribus*, after the decentralisation pattern of public investment changes and sectors related to social services provision receive more expenditure.

5.2. Data

Data are reported in Table 3. Data for most of variables are drawn from the FBS (various issue); provincial governments budget documents (various years); SPDC (2000; 2007; 2012); State Bank of Pakistan (2010); Pakistan (various Issues). At the provincial level, population estimates are obtained by dividing the total population on all four provinces based on their share in 1998 census. Provinces in Pakistan are largely demarcated on ethnic/linguistic bases and inter-provincial migration is negligible. Therefore, it is plausible to expect that the population share of the provinces is virtually time-invariant. In addition, the population is incorporated as an independent variable. The same variable is used to obtain per capita expenditures of the provinces.

In order to get public expenditures, per capita income and other variables in real terms, their nominal values are deflated with the Consumer Price Index (CPI). An annual time series dataset from 1975 to 2008 is constructed. Using 2008 because the local governments completed their four years tenure in 2008 and next elections were suspended until the time of writing. The reported data are annual because budgetary allocations to both provincial and local governments were undertaken annually therefore concerned data were made available on annual basis. The cross section comprises all four provinces of Pakistan. The data are summarised in Table 3.

Table 3: Descriptive Statistics

Variables	Obs.	Mean	Std. Dev.	Min	Max
Devolution reform (dummy)	136	0.235294	0.425751	0	1
Population (in millions)	136	28.08185	23.86578	3.59	90.07
Per Capita GDP	136	4008.559	1264.578	2239	7686
Agri. Value Add.*	136	1136.948	288.9449	696.9466	1948.867
Civil Work *	136	20.8603	85.585	0.3527	842.806
Pop. Per Bed	136	1508.684	171.6524	1269	1963
Welfare Expenditure*	136	0.731106	1.011983	0.00322	6.941837
Public Health Expenditure*	136	2.116858	3.431105	0	19.11971
Social Sector Expenditure*	136	43.49989	50.24139	1.191492	249.2615
Education Expenditure*	136	44.64446	47.66713	0.126267	223.6559
Health Expenditure*	136	9.672765	10.01052	0.231037	40.75399
Irrigation Expenditure*	136	5.469899	4.801413	0.177114	24.1072
Rural Development Expenditure*	136	1.794452	5.016514	0	39.68176

* Value Expressed in Per Capita term

The data limitation at district level and beyond restricted our analysis to provincial level. But the local governments' expenditures are aggregated at provincial level, so the latter reflects former's expenditure. Further, the financial and expenditure at provincial level provided similar information for both pre and post Devolution thus enabling us in detecting the impact of the Devolution Reform.

5.3. Methodology

Following Faguet (2004); Faguet and Sanchez (2008); Aslam and Yilmaz (2011) we identified nine sub-sectors of public sector which could impact the living standard of local communities in general and the poor and marginalised social groups in particular. (These sectoral variables are described in appendix B). Normally the social service/public good provision is ‘measured in quality adjusted units of output, separated by the type’ (Faguet, 2004: 876). Given the data constraint, we measured the real investment quantity in terms of public expenditures on these sectors. This approach although restricted us from analyzing the effectiveness of the Devolution on the quality of delivery of the public goods. It enabled us in comparing the pre and the post Devolution in terms of the inter-sectoral resource allocations and the pattern of public sector investments.

The dependent variable is the inflation-adjusted annual per capita amount of investments undertaken in each sector. ‘Population per bed’ variable is not expressed in per capita term. The primary independent variable is the Devolution reform, which is captured by a dummy variable that takes 1 on 2001 and afterward (2001 to 2008) and zero otherwise (i.e. from 1975 to 2000). Following Neyapti (2010), per capita GNP is used to proxy for the overall level of development. Arguably population - which is an important time-variant factor - can affect the extent and magnitude of the social services (Aslam and Yilmaz, 2010), and regions/provinces with larger population receive better treatment than less populated ones.

The following model is constructed and statistically estimated using a panel dataset (34*4):

$$Sec_{it} = \alpha + \beta_1(PDum_{it}) + \beta_2(YDum_{it}) + \beta_3(Dev_{it}) + \beta_4(Pop_{it}) + \beta_5(GDP_{it}) + e_i + \mu_{it} \quad (26)$$

The subscripts (*it*) stand for province *i* at time *t*. (*Sec_{it}*) alternatively represents all sectors included in our analysis. (*PDum_{it}*) is the provincial dummy and (*YDum_{it}*) is the year dummy. The provincial and time dummies are supposed to capture all of the characteristics associated with the provinces at a given time. (*Dev_{it}*) is the dummy variable for the Devolution. The Devolution dummy (*Dev_{it}*) represents the role of local governments and other institutions that came into effect after the Devolution. (*Pop_{it}*) is the population of the provinces expressed in million and (*GDP_{it}*) is real per capita GDP described in 1980 constant price terms. The per capita GDP of provinces is expected to control for the overall economic condition of the provincial economy among other things. The relationship of province level per capita GDP and expenditure on social and economic services is expected to be positive: higher average per capita income of one province may lead to increase the expenditures on above services because of the additional resource availability to that province from own revenue sources.

In above equation the positive coefficient of *Dev_{it}* (β_3) suggests that the expenditure on that service have increased at a faster rate compare to the pre Devolution period, *ceteris paribus*. This leads us to conclude that the Devolution has been effective in terms of increasing the expenditures on social and economic services. Conversely, the negative coefficient suggests an adverse impact and the zero or very close to zero shows no impact. In other words, the expenditures on these services which thus far were undertaken by provincial governments remain persistent and increasing with the same rate irrespective of being devolved to local governments.

We may have unobservable province specific time-invariant characteristics with independent effect on the level and magnitude of the social and economic services delivery. Then the use of the standard OLS would cause unobserved heterogeneity and produce biased

results. Thus, a first and remedy comes to mind is the FE and RE estimations method that allows us accounting for unobservable province-specific effects. For the sake of comparison we report the OLS results alongside FE and RE models in Table 4, 5 and 6. As the majority of the right side variables are in dummy form (including year dummies), Tobit estimation method is also used to strengthen our regression analysis and check for robustness. The last column of result outputs are Tobit estimation result. Another major threat to validity of our outcomes could come from the time-variant factors that simultaneously correlate services and the Devolution indicators, which may create the problem of endogeneity. This would occur if the federal and provincial governments' choices of Devolution were purposely based on quality and quantity of social and economic indicators of localities. As the Devolution Plan was a nation-wide policy, applied to all local governments in Pakistan, endogeneity should not be a major issue.

6. Empirical Results and Discussion

For each service four models (standard OLS, Random and Fixed effects and Tobit) are estimated separately and their results are reported in Tables 4 though 6. We find that the Devolution indicator is significant and positive (negative sign for population per bed as expected) sign across all social and economic indicators in all models. It therefore suggests that the Devolution on average has been effective in provision of social and economic services provided to local communities. Thus, it is plausible to conclude that following the Devolution, the magnitude of all nine vital socio-economic services has increased.

As the major objective of the Devolution was to make the local public services accessible to the local people and the improvement of social infrastructure, it is reasonable to group the included services into two broad categories: 1. economic services and 2. social services. The economic services include development expenditures on sectors such as agriculture, civil work, water management and rural development, whereas the social services include health, education, water supply and sanitation facility, and social welfare and recreational services.

The public expenditure on education is strongly correlated with the Devolution indicator with positive coefficient significant at less than 1%. It is important to highlight that the level of significance and sign of coefficient remains persistent regardless of model is used, though the magnitudes of differ with differ model. Healthcare variables (annual expenditures on healthcare and population per bed) maintain positive (negative) and strongly significant coefficient vis-à-vis the Devolution reform variable, suggesting that health services have increased in both quantity-proxy by expenditures-and quality- proxy by population per bed after the Devolution reforms.

The impact of Devolution is not limited to social services. Rather the economic services such as agriculture, infrastructure development (proxy by civil work) and water management have registered a mark improvement after the Devolution. Similar to the social indicators, the Devolution coefficient has a strong and positive association with the agriculture value addition, expenditure on civil work and others. Again, the nature of the relationship and the level of significance are not changing while applying different models.

Interestingly, these outcomes are in accordance with our theoretical prediction; that is, socio-economic services may be better provided by the sub-national government compare to their central counterpart. In the same vein it is also in the line of the empirical literature (for instance, Faguet, 2004) that shows local governments because of the better local knowledge are more effective in providing these social services.

As for the other exPlanatory variables in the regressions analysis are concerned, the per capita GDP is positively correlated to education expenditures, although with the coefficient close to zero. However, the association of the per capita GDP and the health indicator is

mixed. For instance, for the OLS and GLS (RF) the relationship between the population per bed and the GDP per capita is negative which is of course what was predicted. Nevertheless, when it comes to the GLS (FE) and Tobit estimations – that basically are the actual models for final analysis based on the explanation given above – the coefficient of per capita GDP maintains a positive and statistically significant slope vis-à-vis health indicator.

Similar to the education and health indicators, the GDP per capita's association with other included outcomes variables – economic and social alike – is mixed. The variable either appears irrelevant in explaining any change in the services or if relevant in some of the cases, the agriculture for instance, is not consistent across different models or if both significant and consistent then retains a coefficient that is close to zero. But the relationship between the per capita GDP and the services is somewhat not unexpected.

That is because considering the geographical conditions and the demographic composition of the provinces in Pakistan the per capita GDP is unlikely to capture the overall development level of provinces. Hence, the expenditures on these services may not follow an identical trend. For example, Balochistan and Sindh due to the numerous political and economic reasons witnessed a sharp decline relative to the per capita GDP compare to Punjab (Bangali and Sadaqat, 2000). However, the rate of change in public expenditures on socio-economic services has been increasing more or less with the similar rate as in other two provinces.

Of the other control variables, the population has either showed unexpected (negative) sign or appeared insignificant vis-à-vis all socio-economic services except health indicators. The negative coefficients of the population in relation to services like education, water & sanitation and civil work suggest that the per capita investment on such services were higher in Balochistan. This may explain that in Balochistan with very vast land and disperse population the per capita cost of providing a certain social or economic service remains much higher compare to other provinces.

Similarly, the Punjab-Sindh dummy variable was positive and statistically significant association with most of the outcomes variables. For those services where it maintains a negative relationship, its coefficients are not reported. This finding perhaps reflected the differential effects of the Devolution reform between bigger (more populous), socio-economically better developed and more influential in national polity province(s) compared to the other two provinces, particularly Balochistan where the Devolution has not been as affective as in its counterparts.

In general, the overall fit of the regression models is consistent with the decentralisation literature because it explains up to 70% or more of the variation in social service delivery (reflected by the R-squares of each model).

Table 4: Determinants of Public Expenditures on Rural Development, Agriculture and Civil Work

Variables	Public Exp. on Rural Development @ Δ				Agriculture Valued Addition Δ				Annual Public Exp. on Civil Work@ Δ			
	OLS	RE	FE	Tobit	OLS	RE	FE	Tobit	OLS	RF	FE	Tobit
Devolution Reform (Dummy)	9.951*	8.918**	10.69**	26.10**	0.288***	0.288***	0.303***	9.934**	3.770***	3.770***	5.434***	4.236***
	(5.323)	(4.353)	(5.068)	(12.917)	(0.090)	(0.078)	(0.093)	(4.929)	(1.095)	(0.758)	(1.036)	(0.897)
Punjab-Sindh (Dummy)					0.748***	0.748***		4.625	2.060**	2.060**		0.780
					(0.090)	(0.092)		(18.290)	(0.838)	(0.902)		(1.131)
Population	-0.126**	-0.128*	0.0474	-0.0917	-0.0138***	-0.0138***	-0.00694***	-0.159	-0.0510***	-0.0510***	-0.00701	-0.0247
	(0.056)	(0.074)	(0.379)	(0.073)	(0.002)	(0.002)	(0.002)	(0.365)	(0.018)	(0.018)	(0.021)	(0.022)
Per Capita GDP	0.00524***	0.00507***	0.00148	0.00330*	0.000195***	0.000195***	0.000134***	0.00357	0.000131	0.000131	-0.000803**	-0.000244
	(0.002)	(0.002)	(0.004)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	9.418	7.480	2.213	22.64*	6.342***	6.342***	6.588***	-1.897	2.878***	2.878***	5.346***	3.835***
	(5.803)	(6.675)	(12.901)	(12.642)	(0.066)	(0.068)	(0.087)	(10.137)	(0.468)	(0.663)	(0.963)	(1.067)
Year Dummy	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
N	136	136	136	136	136	136	136	136	136	136	136	136
R² (Within)		0.1633	0.1678			0.8656	0.8807			0.5538	0.5832	
R² (Between)		0.9968	0.1693			0.8848	0.0121			0.7878	0.2980	
R² (Overall)	0.213	0.2202	0.1693		0.866	0.8658	0.4461		0.575	0.5752	0.4475	
F/WaldChai2	2.544	33.88	1.57	79.23	39.14	638.70	20.45	37.61		134.04	3.88	176.12
	(0.0000)	(0.005)	(0.09)	(0.000)	(0.000)	(0.000)	(0.0000)	(0.0044)		(0.0000)	(0.000)	(0.000)

@ Value expressed in log form; Δ values are in million Rs.; Panel regressions robust standard error in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Determinants of Expenditures on Education, Basic Healthcare Indicators

Variables	Annual Public Exp. Education@ Δ				Annual Public Exp. on Basic Health@ Δ				Population Per Bed			
	(OLS)	(RE)	(FE)	(Tobit)	(OLS)	(RE)	(FE)	(Tobit)	(OLS)	(RE)	(FE)	(Tobit)
Devolution Reform (Dummy)	1.926*** (0.490)	1.926*** (0.233)	3.733*** (0.192)	0.886*** (0.186)	3.484*** (0.217)	3.454*** (0.172)	3.094*** (0.159)	3.124*** (0.138)	-282.0*** (28.142)	-125.5*** (29.124)	-297.3*** (12.401)	-353.4*** (11.922)
Punjab-Sindh (Dummy)					0.0624 (0.121)	0.000629 (0.123)		-0.679*** (0.247)				
Population	-0.00439* (0.003)	-0.00439 (0.003)	-0.0176*** (0.006)	-0.00558 (0.007)	-0.00805*** (0.002)	-0.006*** (0.002)	0.0086*** (0.003)	0.00740** (0.003)	4.211*** (0.171)	3.721*** (0.458)	-2.569*** (0.326)	-3.208*** (0.337)
Per Capita GDP	0.000128** (0.000)	0.000128** (0.0433)	0.000183** (0.0334)	0.000501*** (0.0000)					-0.0269*** (0.002)	-0.0453*** (0.010)	0.0206*** (0.005)	0.0410*** (0.005)
Constant	4.078*** (0.510)	4.078*** (0.278)	2.538*** (0.217)	3.286*** (0.456)	1.720*** (0.088)	1.714*** (0.117)	1.452*** (0.113)	1.644*** (0.133)	1767.2*** (23.967)	1642.9*** (39.431)	1750.1*** (12.910)	1719.2*** (25.089)
Year Dummy		Included	Included	Included	Included	Included	Included	Included		Included	Included	Included
N	136	136	136	136	136	136	136	136	136	136	136	136
R² (Within)		0.7452	0.9563			0.9696	0.9753			0.7330	0.9875	
R² (Between)		0.0282	0.492			0.8594	0.8590			0.9132	0.9007	
R² (Overall)	0.73	0.729	0.9027		0.966	0.9659	0.8628		0.970	0.7843	0.2553	
F/WaldChai2	185.04 (0.000)	296.77 (0.000)	81.34 (0.000)	822.3 (0.000)	165.3 (0.000)	2893.90 (0.000)	114.02 (0.000)	5212.60 (0.000)	84.82 (0.000)	357 (0.000)	293.. (0.000)	10430 (0.000)

@ Value expressed in log form; Δ values are in million Rs; Panel regressions robust standard error in parentheses
 * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Determinants of Expenditures on Water and Sanitation, Social Welfare and Water Management

Variables	Annual Public Exp. On Water and Sanitation@ Δ				Annual Public Exp. On Social Welfare@ Δ				Annual Public Exp on Water Management@ Δ			
	(OLS)	(RE)	(FE)	(Tobit)	(OLS)	(RE)	(FE)	(Tobit)	(OLS)	(RE)	(FE)	(Tobit)
Devolution Reform Dummy	39.55*** (10.151)	39.55*** (7.309)	55.79*** (10.083)	87.19 (944.591)	4.499*** (0.505)	4.499*** (0.443)	5.272*** (0.527)	0.606*** (0.217)	2.513*** (0.217)	2.513*** (0.167)	3.079*** (0.225)	3.039*** (0.151)
Punjab-Sindh Dummy	44.67*** (7.705)	44.67*** (8.692)		30.05* (17.874)	0.760 (0.583)	0.760 (0.527)		2.664** (1.057)	0.953*** (0.192)	0.953*** (0.199)		1.077*** (0.159)
Population	-1.231*** (0.175)	-1.231*** (0.175)	-0.846*** (0.209)	-0.976*** (0.344)	-0.0204* (0.011)	-0.0204* (0.011)	0.0236** (0.011)	-0.0510*** (0.017)	-0.016*** (0.004)	-0.0161*** (0.004)	-0.0164*** (0.005)	-0.0176*** (0.003)
Per Capita GDP	0.0012 (0.001)	0.0012 (0.002)	-0.007** (0.004)	-0.001 (0.003)	0.0001 (0.000)	0.0001 (0.000)	-0.0005*** (0.000)	0.0007*** (0.000)	0.0002*** (0.000)	0.00020*** (0.000)	0.000015* (0.000)	0.000036* (0.000)
Constant	6.589 (4.897)	6.589 (6.390)	36.54*** (9.369)	-34.03 (944.605)	-1.956*** (0.481)	-1.956*** (0.388)	-0.707 (0.489)	-0.882 (0.649)	1.057*** (0.193)	1.057*** (0.146)	1.861*** (0.209)	1.590*** (0.159)
Year Dummy	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	included
N	136	136	136	136	136	136	136	136	136	136	136	136
R² (Within)		0.6918	0.7105			0.8829	0.9003			0.9427	0.9490	
R² (Between)		0.9761	0.8347			0.5224	0.120			0.9096	0.6256	
R² (Overall)	0.788	0.7885	0.6430		0.85	0.8586	0.6458		0.9419	0.9419	0.6668	
F/WaldChai2	14.09 (0.000)	369.00 (0.000)	6.80 (0.000)	320.79 (0.000)	31.91 (0.000)	601.30 (0.0000)	25.03 (0.000)	104.46 (0.000)	94.02 (0.000)	1604.82 (0.000)	51.62 (0.000)	2558.94 (0.0000)

@ Value expressed in log form; Δ values are in million Rs; Panel regressions robust standard error in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

7. Conclusion

To garner a better theoretical understanding, we developed a legislative bargaining model of fiscal federalism; that model explicitly contains welfare and poverty dimensions. The model shows that federal transfers have empowered sub-national governments in Pakistan to spend more on poverty reduction-related schemes. The model proposes that when the federal transfer rate is larger, then the measure of fiscal decentralization will also be larger. Since a larger federal transfer rate alleviates poverty, we often tend to expect poverty and expenditure decentralization to be negatively correlated. We empirically tested this proposition, which suggests an overall negative and statistically significant relationship between fiscal decentralization and poverty-reduction outcomes. The empirical evidence shows that the Devolution significantly changed the size and magnitude of social and economic investment. The relationship between the Devolution indicator and the majority of socio-economic variables is robust and insensitive to the use of different specification techniques implying that the public investment in human and social services that largely improved the living conditions of poor have increased significantly following the introduction of the reforms since 2000-01.

The regression results show that the Devolution has increased the overall delivery of services. The efficacy of the Devolution is evident much more in services like rural development and water management facilities than the education. This to indicates the presence of the local elite capture on which a whole range on fiscal federalism literature (permanent among them is Bardhan and Mookherjee, 2005) suggests. Because establishments in the shape of irrigation projects and small size physical infrastructure investments in rural areas may be given to local elites from the local representatives as political patronage.

Constraint experienced with data made it difficult to draw a definite conclusion on the skewness of the social service provision. The data issue also limited this research from measuring and analysing the quality of these services in terms of units of output rather than sticking only to the supply of such services measured through public expenditures. More research is required to investigate the effectiveness of the Devolution Plan in enhancing the quality of ‘untargeted services’ that potentially affect the local communities without any differentiation. Theoretically, not skewed and untargeted pattern of service distribution is likely to impact positively the poor and disadvantaged communities more compare to their rich counterparts.

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Appendix A: Other determinants of poverty, their measurements, definitions, data sources, and expected sign vis-à-vis poverty

Variables	Measurement/Definitions	Expected Sign
GDP per Capita (overall, as well as provincial level)	Per-capita income is gross domestic product divided by mid-year population, at constant factor cost of 1980–81. <i>Data sources: Bangali and Sadaqat (2000); Hand Book of Pakistan Economy, SBP (2010); federal and provincial budget documents (various issues).</i>	–
Literacy Rate	Literacy rate is the ratio of those aged 10 years and older who can read newspaper and write a letter in any language to total population. <i>Data sources: World Development Indicators (WDI), World Bank (2011); Economic Survey of Pakistan (various issues).</i>	–
Pro-poor Expenditure	An index of public expenditures on social services (health, education, sanitation, and welfare schemes) likely to affect the poor more. <i>Data source: Federal Bureau of Statistics (various issues).</i>	–
Life Expectancy at Birth	The number of years a newborn baby will live before its death. <i>Data source: WDI, World Bank (2011).</i>	+
Crude Death Rate	Total number of people of society who die, per 1,000 people, per year. <i>Data source: WDI, World Bank (2011).</i>	+
Infant Mortality Rate	Total infants who die before reaching the age of five years, per 1,000 people, per year. <i>Data source: WDI, World Bank (2011).</i>	+
Subsidies	The ratio of total subsidies from the public sector, to GDP. <i>Data source: Federal Bureau of Statistics (various issues).</i>	–
Population per Bed	Hospitals beds available per 100 people in public hospitals and dispensaries. <i>Data source: Hand Book of Pakistan Economy, SBP (2010).</i>	–
Own Revenue	Percentage-share of provincial government to total revenue collected. <i>Data sources: Federal Bureau of Statistics (various issues); federal budget documents (various issues); provincial governments' budget documents (various issues).</i>	–

APPENDIX B: Variables Used to Determine Sectoral Allocation Public Resources

1	Police	7	Agriculture
2	Public health	8	Irrigation
3	Social Services	9	Rural Development
4	Education	10	Transport and Communication
5	Health	11	Civil Work
6	Social Security and Welfare		