

RESEARCH ARTICLE

Impacts of Fiscal Decentralization on Spatial Disparities across Districts of Punjab, Pakistan

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Abstract: The spatial disparities in human development level have been a vital concern in Pakistan's history. In this perspective, the literature on regional development has recently underlined how crucial it is to analyze human development phenomena through the lens of spatial models, for instance, density, locality and distance. The study investigates the impact of fiscal decentralization on the human development level at the district level in province of Punjab, Pakistan. The analysis is based on an augmented development Index, which consists of 3 sub-indices of education, health, and household welfare level; with each index further consists of 5 indicators. The Principal Component Analysis (PCA) aggregates these indicators to get sub-indices and a final development index. The results of the study showed that significant positive impacts of fiscal decentralization on the human development index at the district level are conditional on the distance of districts from the capital city — the valuable impacts of fiscal decentralization increase as the “distance from the city” decreases. Since the geography of development matters, it is recommended to reduce across districts inequalities by developing the social and economic institutions and infrastructure in the underdeveloped districts of the country.

Keywords: Fiscal decentralization, HDI, geography, spatial disparity

JEL Classification Codes: E2

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1 Introduction

Decentralization denotes the shifting of power and accountability for public service delivery from central to subnational governments (Rondinelli Nellis, 1983; Rondinelli, 1999). Basically, decentralization can be categorized depending upon the transferred level of sovereignty and assignments given to the lower tiers of government. Generally, on the basis of devolved responsibilities, decentralization can be classified into three kinds: administrative, fiscal and political decentralization (Hutchinson, 2004). The majority of countries were centralized nation-states four decades earlier. On the contrary, today more than 90% of nations across the globe have elected lower-level governments, and a large number of the countries are transferring responsibilities to this lower-level government (World Bank, 2000). Trend toward decentralization in the US can be traced back to Reagan's New Federalism in the 1980s, when states started to improve greater sovereignty (Donahue, 1997). While in Asia, devolution has emerged as a dominating paradigm since the last three decades.

Conventionally, the justification of the transfer of powers and resources to lower levels of government was based on identity, i.e., to protect a distinct language, history, culture or religion within large countries having heterogeneous attributes as discussed by many studies (Hechter, 1975; Moreno, 2001). The justification has evolved over time, moving from focus on aspects such as ethnicity, culture, language, or religion, to focus on achieving economic and social transformation (Rodríguez, 2009). The new regionalist literature justifies the recent wave of decentralization on the basis of a supposed greater capability of lower level governments to rise above the failures of the centralized state as discussed by Bardhan (2002), to achieve superior economic efficiency (Keating, 1998; Morgan, 2002), and to encourage economic distinctiveness and differentiation in world (Pike Tomaney, 2004).

Currently, decentralization is considered as a central building block of development and growth strategy of developing countries by World Bank and other international agencies (Gopal, 2008). There are various other reasons that might explain this growing attention towards decentralization (Armstrong Taylor, 2000). First and most important reason is the belief in decentralization as a tool to boost efficiency (Keating, 1998; Pike Tomaney, 2004). The second reason relates to the reaction in opposition to strong centralized institutions not only in developing states, but also in developed world such as the European Union. The third reason is changes in the control structure of private businesses over the last decades. The fourth relates the amendment in the nature of implemented regional policy in the European Union. The last reason is the public involvement in social policy and administration through closer democracy.

Fiscal decentralization talks about the transfer of power from the central to lower tiers of government for the delivery of government services and public finances (Tanzi, 1995). To accomplish economic efficiency and guarantee efficient governance through channel of subnational government, shifting of power and resources is regarded as very important policy tool. According to Bird and Smart (2002), for efficient provision of services, those getting transfers need a clear authorization, adequate resources and adequate flexibility to take decisions. So, fiscal decentralization can result in efficient provision of local services and public goods and encourage a superior match between policies and preferences of citizens. However, at the same time, there are worries about whether all regions will benefit from decentralization. Fiscal decentralization may not benefit all regions, with "poor" regions losing competitiveness relative to regions better endowed, consequently increasing

regional inequalities. It may cause threat if it is planned weakly so that lower-level governments are able to externalize their costs to others (Von Hagen et al. 2000; Rodden et al, 2002).

One of the main objectives of fiscal decentralization is to reduce spatial disparity . Spatial disparity is often a source of political tension and dissatisfaction in a federal system (Venables Kanbur, 2003; Stewart, 2008; Lessman, 2015). Spatial disparity is one such issue which remained a vital concern for many developed regions of the world (Europe America) as explained by many studies in the literature (for instance Boldrin Canova, 2001; Neckerman Torche, 2007; Wu Gopinath, 2008; Heidenreich Wunder, 2008), its roots are deeper in developing world (Hall, 1984). Countries with high population such as China and India are also facing the consequences of territorial disparities as explained by many studies (Bhattacharya Sakhivel, 2004; Liu, 2006; Ghosh Paul, 2007; Fan et al., 2011). Spatial disparities in human development level have been a vital concern in Pakistan's history. Pakistan's growth path has resulted in uneven social and economic development, particularly in terms of public service delivery (Easterly, 2003).

In Pakistan, distribution of powers between the center and federating units is the most debatable subject over the years, as the country is facing the effects of regional disparity both at provincial and district level. The country has faced major variations in the development level of different regions and it has resulted in inequality within and between the provinces of Pakistan (Jamal Khan, 2003). Although the issue has been often charged by emotions. A number of steps were taken to resolve these issues; however, the major development took place in 2010. The eighteenth constitutional amendment, in the 1973 constitution of Pakistan, approved by the parliament in April 2010 is an attempt to enhance the provincial autonomy. After 18th constitutional amendment, the significance of decentralization and its effects on the territorial inequalities attracted attention, since the shifting of power and resources from central to provincial governments. The fiscal structure of Pakistan, history of resources distribution in Pakistan is given in the table 1.1 and 1.2 below.

Table 1: Distribution of Revenues under various NFC Awards

<i>Years</i>	<i>Award Name</i>	<i>Provinces: Federal</i>	<i>Punjab</i>	<i>KPK</i>	<i>Sindh</i>	<i>Baluchistan</i>
1974	1st NFC award	20% : 80%	60.25%	13.39%	22.50%	3.86%
1979	2nd NFC award	20%: 80%	57.97%	13.39%	23.34%	5.30%
1984	3rd NFC award			Interim award		
1991	4th NFC award	20%:80%	57.87%	13.54%	23.29	5.30%
1997	5th NFC award	37.5%: 62.5%	57.88%	13.54%	23.28	5.30%
2000	6th NFC award			Interim award		
2010	7th NFC award	42.5%:57.5%	51.74%	14.62%	24.55	9.09%

Source: Ministry of Finance, Pakistan

1.1 Objectives of the Research

The main objective of the study is to analyze impact of decentralization on the spatial disparities in development index at district level in the province of Punjab, Pakistan.

1.2 Significance of the Study

Research at district level enables for better explanation of the geographical features of socio-economic statistics and a comprehensive investigation of the effects spatially (spatial regimes and regional spillover) in comparison to analysis undertaken at provincial level. With the 18th constitutional amendment adopted in 2010, major steps are taken by Pakistan towards fiscal decentralization. Furthermore, more transfer of funds has been allowed from the center to the provinces the after 7th National Finance Commission Award. As a result, provinces are now having more influence over the provision of education, health and physical infrastructure.

The essential change in Pakistan toward the transfer of authority between the federation and the provinces demonstrates major implications for the policy planning, management and implementation in long term. Therefore, there is a need for more studies as education, health and other social and public services become the lone sphere of influence of the provinces.

In this paper, the introduction section is followed by the literature review, explanation of the variables, detail of data, methodology and econometric model used to quantify the data.

2 Literature Review

Theoretically, one of the central doctrines of the fiscal federalism is that financing local services by local taxes increase both efficiency and accountability. The assumed better economic efficiency of decentralized governments depends on the basic views of the fiscal federalism literature. The transfer of authority and resources to lower level of government makes possible a double enhancement in efficiency as put forward by Tiebout (1956) and Oates (1972). There are two most significant economic benefits connected with decentralization. Firstly, the capacity of sub national governments to match public expenditure better to the diverse choices of individuals living in different areas, therefore allocative efficiency of government is enhanced. Secondly, the capacity to mobilize under-utilized resources and create competition among sub-national governments results in delivery of better policies. Mobilization of resources to their full potential and bigger competition among jurisdiction may lead to greater policy innovation and provision of public goods and services more efficiently, therefore rising the productive efficiency of an economy as a whole (Oates, 1996).

On the other side, devolution of resources and authority from central authority to lower level of government may also broaden spatial inequalities because the redistributive response or capacity of the federal authority is reduced, and for the reason that in the contest for fiscal resources relatively better-off regions will tend to overpass poorer ones. Another justification why fiscal decentralization may not result in convergence of regions is the quality of government in lower tiers. In the framework of the association between decentralization and territorial Inequalities, it is argued that fiscal devolution might deteriorate troubles of governmental capability and corruption which, in result, may lessen or remove the effects of fiscal decentralization on convergence across regions (Prud'homme, 1995; Rodriguez Ezcurra; Rodriguez Gill, 2004).

Empirically, the links between devolution and territorial imbalances have been analyzed by either cross-country or country specific studies (Barrios Strobl 2009; Bonet 2006;

Canaleta et al. 2004; Akai and Sakata 2002; Liu and Lin 2000; Phillips Woller 1998 and Zou 1998). So, the empirical literature can be categorized into case studies of single country, cross country researches of developed and developing economies. The cross countries empirical literature can be further categorized into studies of developed and developing economies. For developed countries, various studies focused on the impacts of fiscal decentralization on spatial disparities. The researches focusing on the developed countries such as Kyriacou et al. (2013), Pascual and Ezcura (2008), Canaleta, (2004), and Lessmann (2009) for OECD economies analyzed that regional disparities diminish with decentralization. For developed countries, with the exception of a single study, most of the empirical studies found positive link between fiscal decentralization and spatial disparities.

For developing countries, most of the empirical studies found mixed result for link between fiscal decentralization and spatial disparities. Researches focusing on the developing countries include; Shah and Shankar (2003), Gill and Rodríguez (2004), and Ezcurra and Rodríguez (2010). For single country studies, most of the studies found positive connection between decentralization and territorial disparities, Such as Qiao et al. (2008) and Zhang and Kanbor (2005) for China, Araujo (2007) for Brazil, Pike and Tomaney (2009) for the UK, Hill (2008) for Indonesia, Warner and Pratt (2005) for US, Azfar and Livingston (2002) for Uganda, Gulati and Husain (2002) and Bagchi (2003) for India, Bonnet (2006) for Colombia, and Silva (2005).

For Pakistan, most of the research is based on provincial level disparities with focus on income inequality. Limited empirical evidences can be found addressing spatial disparities at district level. Khan and Padda (2021) investigated the impact of fiscal policy on the income inequality of Pakistan. The findings revealed that direct taxes reduce income disparities, while indirect taxes increase inequality. Likewise, development expenditures significantly reduce income inequality through the creation of job opportunities. Conversely, the overall fiscal deficit increases income inequality, due to an increasing public debt financed by indirect taxes.

Wasim and Munir (2017) investigated the trends of social inequalities before and after decentralization at the provincial level. Results of the study indicate a decline in health and education inequality after decentralization. Abdur et.al (2017) analyzed the impacts of fiscal decentralization on education. The study found that delegation of fiscal responsibilities to lower governments enhance enrollment ratio. Mehmood and Sadiq (2010) studied the relationship between fiscal decentralisation and human development at provincial level. Findings of the study revealed that the fiscal decentralisation has positive impact on the HDI and results further suggested that the urbanization variable has significant and positive impact on HDI.

The above empirical literature clears that most of the studies on spatial disparities are limited to examine disparities at provincial level in Pakistan. To the best of my knowledge, no research has been conducted so far to investigate the impacts of fiscal decentralization on spatial disparities at district level for Pakistan. As a result, the present research fills a gap in the existing literature by investigating the impacts of fiscal decentralization on spatial disparities across districts of Punjab, Pakistan.

3 Methodology

3.1 Variables Description and Data Source

3.1.1 Dependent Variables

Human Development index is the dependent variable for the study. The index is composed of three sub-indices of education, health, and household welfare level; with each index further consisting of five indicators. These indicators are believed as the major objectives of development as defined by UNDP in its sustainable development goals (SDG'S). The Principal Component Analysis (PCA) is used to aggregate these indicators to get sub-indices and a final development index. The list of indicators and abbreviations of the variables used in the model are given in the appendix.

3.1.2 Explanatory Variables

Fiscal decentralization

Fiscal decentralization refers to shifting some tasks for expenditures and/or revenues to lower tiers of government.

Fiscal decentralization has two types:

a) Revenue Decentralization Devolution of revenues refers to the share of provincial government in revenue as fraction of revenue of central government.

b) Expenditure Decentralization Devolution of expenditures refers to the expenditure's Share of provincial government expenditure as fraction of expenditure of central government.

For Punjab, there is no data available for revenue and expenditure decentralization at district level. We use household asset as a proxy for fiscal decentralization. The rationale for using household asset as a proxy for fiscal decentralization is that literature postulated significant association between fiscal decentralization and income inequality, such as Sachi and Salotti, (2013) for OECD countries and Shahzad and Yasmin (2016) for Provinces of Pakistan revealed significant association between fiscal decentralization and income inequality. For this reason, we use household asset as a proxy for fiscal decentralization at district level for province of Punjab, Pakistan.

3.2 Data Source

For data on dependent and explanatory variables, the study utilizes different sources. For dependent variables, this research makes use of data from the Pakistan Social and Living Standards Measurement survey (hereafter PSLM) for periods 2008 and 2014 respectively. Since 2004, PSLM is produced by the Pakistan's Federal Bureau of Statistics (hereafter FBS) on annual basis. We use data from PSLM for the periods 2008 and 2014 respectively. For Household assets data (Fiscal decentralization) at district level, we use data from Multiple Indicator clustering surveys (MICS) of Punjab for the periods 2008 and 2014 respectively.

For the research the time period chosen divided further into two sub-periods as a period of prior to devolution (2008-09) and after the devolution (2014-15).

3.3 Econometric Model

The study follows a cross-section regression framework, which shows link of decentralization with development index, education index, health index and household welfare index. We estimate regression consisting of 33 districts of Punjab for the period 2008-09 and 2014-15. Our hypothesis is to test the proposition that whether move in the direction of more fiscal devolution would be related with low inequalities in development index across districts of Punjab using cross-section regressions framework.

For the cross-section analysis, the basic estimation equation is as follows:

$$Disparity = \beta_0 + \beta_1 FD_i + \beta_2 Control_i + \varepsilon_i \quad (1)$$

Disparity denotes the different measures of development Index for regional disparity for periods 2008-09 and 2014-15. i . Control $_i$ is a vector capturing some of the control variables; for control variables we employ the following variables: population density and distance to the capital cities. FD represents the Household assets (proxy for decentralization).

Given the fact that Fiscal decentralization may not have a direct association on development level; we investigate whether an increase in the levels of Fiscal decentralization combined with the distance from capital city can alter the development level across districts. We, therefore, include an interaction term of FD and Dstcp flows in Equation 1 leading to Equation 2.

$$Disparity = \beta_0 + \beta_1 FD + \beta_2 Control_i + \beta_3 FD \times Dstcp + \varepsilon_i \quad (2)$$

From Equation 2, while β_1 estimate the direct effects of FD and, β_2 examines the effect of control variables and β_3 test changes in development level conditioned on instantaneous variations in both the levels of FD or Dstcp.

To verify the marginal impact of FD on dev in the presence of Dstcp, we take the partial derivative of dev with regards to Dstcp. The partial derivative leads to equation below:

$$\frac{d(dev)}{d(FD)} = \beta_1 + \beta_4 Dstcp \quad (3)$$

In instances where both β_1 and β_4 are nonnegative values, then partial increases in both FD and Dstcp will lead to an immediate increase in development level.

4 RESULTS

In this section we discuss impacts of fiscal decentralization on development index and sub-indexes across districts of Punjab. We first estimate equation 1 to determine the direct impact of fiscal decentralization and control variables on the development level. First column of tables 2 and 3 shows direct impact of fiscal decentralization on development index for pre and post decentralization periods. Next, we estimate equation 2 test whether the association between the development level of districts and Fiscal decentralization may be conditional on the distance from capital city. We employ the multiplicative term of Fiscal decentralization and distance from capital city (FD*dstcp). The results are displayed Second column of tables 2 and 3.

Table 2: Fiscal Decentralization and Development in Districts of Punjab (2008-2009)

	Development Index (1)	Development Index (2)
Fiscal Decentralization	-2.9211*** (1.1159)	5.37918 (2.4908)
Distance to Capital City	-0.09797*** (0.02832)	2.06997*** ⁶ (5762651)
Population Density	0.00071 (0.0046)	0.0252 (0.00815)
(Fiscal Decentralization) * (Distance to Capital City)	-	-0.02287*** (0.00609)
Constant	509.5235	-287.5876
Observation	33	33
R-Squared	0.5655	0.6611
F-Stat (P-Value)	24.61	53.87

Table 3: Fiscal Decentralization and Development in Districts of Punjab (2014-2015)

	Development Index (1)	Development Index (2)
Fiscal Decentralization	-3.3170*** (0.8832)	3.08040*** (1.8649)
Distance to Capital City	-0.0839*** (0.02375)	1.5648** (0.5016)
Population Density	0.00121 (0.00301)	0.01685 (0.00536)
(Fiscal Decentralization) * (Distance to Capital City)	-	-0.01760*** (0.00521)
Constant	552.005	-58.480
Observation	33	33
R-Squared	0.6240	0.6740
F-Stat (P-Value)	40.08	42.40

Note: All estimations are done by using OLS robust. *, ** and *** respectively show the significance at 10, 5 and 1 percent significance level. Values in the brackets represent robust standard error. Abbreviations of Variables are given in appendix.

5 Discussion

5.1 Findings

We first estimate the direct impact of fiscal decentralization and control variables on the development level. Findings indicate significant negative association between fiscal decentralization and human development Index at district level for both pre and post-decentralization periods. The results further show that the magnitude of this inverse relationship has increased in post decentralization period. While the coefficient values for

control variable (distance from capital city) have decreased in the post decentralization period. The control variable (Population density) has no significant effect in both periods.

Next, we test whether the relationship between the development level of districts and FD may be conditional on the distance from capital city. For this purpose, we employ the multiplicative term of Fiscal decentralization and distance from capital city (FD*dstcp). The results of the study show that association between the development level of districts and FD is conditional on the distance from capital city. The impact of fiscal decentralization in both pre and post decentralization periods is reduced slightly by the variable "distance from the capital city". The negative impact of "distance from the capital city" is more in pre-decentralization period than post decentralization period.

Overall finding of the study revealed that, the constructive impacts of fiscal decentralization on development level increases as distance from capital city decreases. So, useful impacts of fiscal decentralization are conditioned on "distance from the capital city". As the distance from capital city decreases, the positive impacts of fiscal decentralization on development level also increases.

5.2 Conclusion and Policy Implications

Overall findings revealed that although fiscal decentralization may be independently damaging or even irrelevant to development index at the district level, distance from capital city can act as an excellent moderator in overturning the insignificant or adverse impact into positive. So, the more the district is close to the capital city, the more the fiscal decentralization is effective in putting useful impacts on development level, educational level and household welfare level.

Findings of study have vital implications for current efforts to reduce spatial disparities at district level in Pakistan. Decentralization has the advantage that it involves citizens in decision-making process and makes local representative more responsible. Therefore, there is a need for transfer of authority to lower level government to take part in the public service delivery at district level as it can enhance the efficiency and service delivery at lower level.

The useful impacts of fiscal decentralizations are conditional upon the distance from capital city. So, the districts which are too distant from capitals must be provided with enhanced infrastructure and connected with capital cities. The development of connectivity could definitely speed up the pace of development pace reduce disparity. Capacity building and enhancing the reliability of the system is the need of system; otherwise, decentralization may give an undesirable outcome and high corruption. There is a need for independent academic studies to focus on region specific policies. Furthermore, given the variety it is very important that region social aspects should be taken into account while doing such research. The lack of reasonable official figures leads to wild guesses and dubious estimates as the basis of the argument. Therefore, it is important for government to produce a reliable data on socio-economic indicators at district level.

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Appendix

A1: List of Indicators of Education, Health and Household Welfare Level

Development Index			
S.No	Education Index	Health Index	Household welfare Index
1	Population that has attended school ever	Children that have been immunized (aged 12-23 months)	Households with RCC Roof.
2	Population that has completed primary level or higher	Children affected by diarrhea in last 30 days (Aged under 5)	Households by housing ownership.
3	Net enrolment rate at the middle level (age 11-13)	Treatment of diarrhea in children (Aged under 5)	Household with Gas.
4	Net enrolment rate at the Matric level (age 14-15)	Pre-natal consultations	Households with electricity
5	Adult Literacy level (Population aged 15 years and older)	Health Consultation (Number of individuals who consulted for treatment i.e. proportion of total individuals fallen sick during last two weeks)	Households with flush toilet.

A2: Abbreviations of the Variables used in the Model

S.No	Variables	Abbreviations
1	fd	Fiscal decentralization
2	dstcp	Distance from capital city
3	popdens	Population density
4	devdfd	Development index divided by Fiscal decentralization
5	edudfd	Education index divided by Fiscal decentralization
6	hhdfd	Household welfare index divided by Fiscal decentralization

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