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## **Inter-Governmental Funds Flows in Pakistan: Are they Reducing Poverty?**

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### **1. INTRODUCTION**

Pakistan is a constituent of four federating units—Punjab, Sindh, Khyber Paktunkhwa and Balochistan. There is a huge difference in the extent and quality of public services provision among these provinces. The variation in public service provision, that was mainly the result of intergovernmental fiscal transfers has created vertical and horizontal imbalances among the provinces, which were further translated into the districts of each province.

In Pakistan, like other developing countries, well defined and constitutionally protected intergovernmental fiscal transfer systems are operational. The National Finance Commission is a prime arrangement for the distribution of funds among the federal and provincial governments. Whereas the Provincial Finance Commission is responsible for the distribution of funds among the provincial, districts and sub-district governments. In Pakistan the prime responsibility of tax collection lies with the federal government, whereas, the responsibilities of the provision of social, economic and community services lies with the provincial and districts government. The purpose of the transfers in Pakistan from higher to lower level governments is to bridge the gap between the revenue and expenditures and to promote the equitable growth. This will also help reducing poverty among the districts.

The new system of devolution implemented in 2001 has brought several changes in the intergovernmental fiscal relationship among the provinces and districts. After devolution 2001 the provision of social services and few economic services were transferred to the district governments. This entails and envisages a new and comprehensive fiscal relationship between the Province and the Districts. The Provincial Finance Commission (PFC), a special feature of the 2001 devolution, announces a three year horizon and formula for the distribution of resources which predicts the flow of funds to the districts from the province.

The intergovernmental transfer systems have various objectives. However, the fiscal equalisation and redistribution of funds among the different tiers of government are the prime objectives of the fiscal transfer. The PFC gives a formula based allocation of

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funds among the districts to minimise the deprivation among the districts. The PFC deals with both vertical inequity—the inequity between the provincial government and districts governments—and horizontal inequity—inequities among the districts.

Since 2001 in each province the two PFC awards have been announced so far, first in 2001 and second in 2007. Similarly, attempts were also made to construct district wise deprivation index in each province like Social Policy and Development Centre (SPDC) in 1998 and in 2005. The Deprivation Index indicates in each district of each province the number of people who do not access to basic needs of education, health, clean water and housing. Haroon (2007) constructed deprivation index for each district in Pakistan. The selection of indicators is based on the theory and district-wise data availability. These include literacy rate and out of School children, housing quality and congestion, residential housing services and employment status. The gender disparity is incorporated taking these measures separately for male and female population.

The purpose of this paper is to see whether any link can be ascertained between the PFC transfer and the deprivation index. The link between the funds transfer and deprivation index will indicate whether the funds transfer is pro-poor districts and fiscal equaliser or not.

The paper is organised as follow. Section 2 reviews the literature on the theoretical and applied issues of fiscal equalisation. Section 3 gives data collection, methodology and results and Section 4 gives the conclusion and policy implication.

## 2. REVIEW OF LITERATURE

There is a rich literature on fiscal federalism both on theoretical and applied aspects. Bhal, Boex and Vazquez (2002) discuss the issues of designing of intergovernmental fiscal transfer. This study mentions the generally accepted reasons for intergovernmental fiscal transfer are—improving vertical fiscal imbalances, improving the horizontal fiscal balances, compensating for externalities and funding for merits goods. Boex (2002) develop allocation formula for Decentralised Financing and Development Programme in Nepal. Boex (2002) included relative weight of rural population, relative weight of fiscal need and relative weight of development in the distributional formula. The paper highlight when there is suspect of measurement errors the Human Development Index should not be used as it will not be fiscal equaliser.

Qiao, *et al.* (2002) using panel data between 1985 and 1998 in China find that there is positive relationship exists between the growth and inequality, which implies higher growth will lead more inequality. Hofman and Guerra (2002) explain causes and consequences of fiscal inequities among sub-national government in East Asia. This study using the data of five countries China, Indonesia, Philippines, Thailand and Viet Nam reveals that endowment and fiscal capacities among sub-national entities are large and reason for larger inequities before equalisation efforts. The study concludes that current system of equalisation in East Asia is mildly equaliser and even after such efforts the disparity is still large. Yan (2003) concludes that fiscal reforms of 1985 and 1994 failed to bring any fiscal equalisation. Ahmad and other (2000) conclude that the fiscal reforms have increased income distribution.

### 3. DATA, METHODOLOGY AND RESULTS

In this section we will discuss the results which will show whether the transfers are reducing poverty and deprivation at districts level or not? The results also touched upon the fiscal equalisation or income inequality among the districts. The “equalisation” or “fiscal equalisation” means “the capability of sub-national government to deliver similar level of services at similar levels of taxes,” [Searle (2002) and Hofman and Guerra (2002)].

The data for the study is collected from different sources of Provincial and local budget documents. The Provincial development Statistics are used for the data on transfers, population and other provincial and districts variables. The government of Pakistan website [www.gov.pk](http://www.gov.pk) is also used. The data for 98 districts of Pakistan are collected –34 from Punjab, 16 from Sindh, 24 from Khyber Pakhtunkhwa and 24 for Balochistan. The deprivation indexes are constructed by SPDC in 1998 and 2005 based on District Census Report 1998 and Pakistan Standard of Living Measurement Survey 2004 [www.spdc-pak.com](http://www.spdc-pak.com).

The purpose of the paper is seeing whether the transfer from the provincial government to the districts government is fiscal equalisers or not. To answer this question this paper uses different statistical results, which we discuss one by one.

Table 1

*Rank Correlation between Deprivation Index and per Capita Grants*

	Rank Correlation	
	2003	2007
Punjab	0.1804	0.4133
Sindh	-0.0882	0.0382
Khyber Pakhtunkhwa	-0.0652	0.4287
Balochistan	-0.2626	-0.36261

The Table 1 (detailed relevant tables are given in the Appendix) gives the Rank Correlation between the first ranking on the basis of district deprivation index and the second ranking on the basis of per capita transfers to the districts. Table 1 gives two Rank Correlations one for 2003 and second for 2007 that indicate inter-temporal changes in the nature of transfers. The rank correlation for 2003 are based on the SPDC deprivation index 1998 and transfer on the basis of 2001 Provincial Finance Commission award. Where as the Rank Correlation of 2007 are based on the deprivation index 2005 and transfer on the basis of Provincial Finance Commission award 2007. In the deprivation index the most deprived district get rank 1 and least deprived district (most developed) gets last rank, where as the per capita transfer ranking is arranged on ascending order i.e. the district get maximum per capita transfer gets rank 1 and the district which get minimum per capita transfer gets last rank. The value of rank correlation indicates to what extent the per capita transfers from provincial government to districts government are based on the district deprivation index. If the rank correlation is one it means the transfers are completely based on deprivation index and it is most desirable distribution system and minus one means most undesirable distribution system.

Table 1 gives rank correlation for the districts of Punjab province, which is the most developed and populated province of Pakistan. The first rank correlation for 2003 was 0.1804 which increased to 0, 4132 in 2007. This shows new PFC of Punjab government 2007 is more pro poor districts. This implies the per capita transfer has increased for those districts which are more deprived in terms of social and community services. Similar trend prevail for North West Frontier Province (Table 1) where the rank correlation which was  $-0.06512$  for 2003 increased to 0.4286 for 2007. This implies even in this province the new PFC is more pro-poor districts. The province Sindh which is the second largest province in terms of population shows both rank correlations has very little values implies insignificant link between the per capita transfer and deprivation level exist. The forth province Balochistan which is the largest province in terms of area but smallest in term of population the value of the rank correlation was  $-0.2626$  in 2003 and further worsen  $-0.3626$  in 2007. This implies that in this province the transfer are not based on deprivation level of districts and rich province gets higher transfers. This analysis shows in Punjab and Khyber Pakhtunkhwa over time the fiscal transfers are pro poor districts, whereas in Balochistan the transfers over time become less pro-poor districts and in Sindh it remained neutral.

Table 2

<i>Regression Equation Analysing the Stability of Deprivation Index</i>					
	Punjab	Sindh	Khyber Pakhtunkhwa	Balochistan	Pakistan
Constant	6.3592	1.34660	6.8723	6.5587	0.0232
t-Values	2.6867	0.23243	1.4253	1.2761	0.0112
BETA	0.7905	0.86409	0.7792	0.8562	0.9057
t-Values	19.7614	9.39948	10.7573	12.2657	28.6506
R-Squire	0.9243	0.86321	0.8403	0.8724	0.8953
Observations	34	16	24	24	98

This paper also tests the significance of regression coefficient of deprivation indices of 2005 and 1998. To test this significance the dependent variable is new deprivation index of 2005 and independent variable is deprivation index of 1998 and an intercept. The results of five regressions correspond to Pakistan, Punjab, Sindh, Khyber Pakhtunkhwa Balochistan shows very high and significant regression coefficient (Table 2). These results show the coefficients between new and old deprivation indices are 0.905, 0.790 and 0.864 for Pakistan, Punjab and Sindh respectively, whereas 0.779 and 0.856 for Khyber Pakhtunkhwa and Baluchistan respectively. The variables in all these equations are significant at 95 percent level and shows at-least little changes are observed between two indices which imply that fiscal transfers have made little effects on deprivation rankings.

Table 3 gives province wise district wise summary of per capita transfer and deprivation profile for 2003 and 2007. This Table gives value of maximum, minimum and average deprived level of districts, the ratio of maximum to minimum deprivation and its coefficient of variation. This Table also gives value of maximum, minimum and average per capita transfers to each district, the ratio of maximum to minimum per capita transfer and its coefficient of variation. Table 3 indicate inter provincial and intra provincial (inter district) deprivation and disparity profile and per capita transfers and help us to evaluate whether the fiscal transfer in last few years have reduced deprivation and disparity both at inter provincial and intra provincial level.

Table 3

*Disparities in Province-wise Deprivation and Fiscal Transfers*

Province		Deprivation	Deprivation	Per Capita	Per Capita
		Index	Index	Transfers	Transfers
		2003	2007	2003	2007
Punjab	Max	74.78	64.91	966.71	1653.29
	Min	34.34	29.22	425.87	638.85
	Ave	58.41	52.53	635.65	1098.92
	Std. dev.	9.62	7.91	130.12	189.21
	Ratio max/min	2.18	2.22	2.27	2.59
	Coeff. of Variation	0.16	0.15	0.20	0.17
Sindh	Max	75.44	65.34	1060.88	1728.83
	Min	24.59	20.94	459.90	669.43
	Ave	62.03	54.95	772.04	1390.12
	Std. dev.	11.51	10.71	146.40	260.30
	Ratio Max/Min	3.07	3.12	2.31	2.58
	Coeff. of Variation	0.19	0.19	0.19	0.19
Khyber Pakhtunkhwa	Max	82.96	71.72	1227.56	5431.50
	Min	50.78	44.24	619.94	389.44
	Ave	66.17	58.43	796.72	1493.76
	Std. dev.	7.38	6.27	151.88	1232.37
	Ratio max/min	1.63	1.62	1.98	13.95
	Coeff. of Variation	0.11	0.11	0.19	0.83
Balochistan	Max	89.06	82.76	4476.36	5694.92
	Min	46.00	45.99	444.66	634.87
	Ave	73.16	69.20	1275.21	1532.92
	Std. dev.	8.52	7.81	798.41	1012.41
	Ratio Max/Min	1.94	1.80	10.07	8.97
	Coeff. of Variation	0.12	0.11	0.63	0.66
Pakistan (Overall)	Max	89.06	82.76	4476.36	5694.92
	Min	24.59	20.94	425.87	389.44
	Ave	64.51	58.45	853.99	1349.44
	Std. Dev.	7.95	7.66	255.27	442.25
	Ratio Max/Min	3.62	3.95	10.51	14.62
	Coeff. of Variation	0.12	0.13	0.30	0.33

This Table 3 shows at overall Pakistan level for 2003 the average per capita transfer level among district was 855.9 and increased to 1349.4 in 2007 which implies the per capita transfer, on average, have increased in the districts. The level of maximum value of transfer was 4476.36 increased to 5694.92 whereas the minimum value of transfer decreased from 425.3 to 389.4. The ratio of maximum to minimum transfer has increased from 10.51 to 14.62 and coefficient of variation of transfer increased from 0.2989 to 0.3277.

This Table 3 also shows at overall Pakistan level for 2003 the average deprived level among district was 64.51 but reduced to 58.45 in 2007 which implies the per capita transfer, on average, have reduced deprivation in the districts. This Table further shows the level of maximum deprived district which had value of 89.06 reduced to 82.76 whereas the minimum value of deprivation reduced from 24.59 to 20.59. However, the Table 3 shows that these fiscal transfers fail to reduce deprivation disparity, in fact, it has worsened it. The ratio of maximum to minimum deprivation has increased from 3.62 to 3.95 and coefficient of variation of deprivation increased from 0.123 to 0.131.

The analysis of per capita transfers and deprivation index for overall Pakistan show very clear trends. The per capita transfer has increased and average deprivation has decreased. The figures also show the ratio of maximum to minimum transfer increased and consequently the ratio of maximum to minimum deprivation has also increased. The figures also indicate the movement in the coefficient of variations in the transfers and the deprivation indices are in the same direction and increasing.

As for as the province wise changes in the per capita transfer and the deprivation levels are concerned, all four provinces also gives similar trends. In Punjab which is the largest populated province, the average deprivation level declined from 58.41 to 52.53 as a result of increase in average per capita transfer from 635.65 to 1098.92. The Punjab results show the extreme inequality in deprivation increases as indicated by the increase in the ratio of maximum to minimum transfer and maximum to minimum deprivation. However, the coefficient of variation of both per capita transfer and deprivation has decreased over time. This explains the inequality at average level has decreased over time.

The least populated but area wise largest province, Balochistan, show the average level deprivation has decreased from 73.16 to 69.20 as a result of average increase in per capita transfer from 1275.21 to 1532.92. The results also show the reduction in deprivation inequality but this can partially be explained by the ratio of maximum to minimum transfers.

The average decline in deprivation in other two provinces Sindh and Khyber Pakhtunkhwa from 62.03 to 54.95 and 66.17 to 58.43 respectively can be explained by the average increase in transfers both in Sindh and Khyber Pakhtunkhwa. The extreme deprivation inequality in Sindh has increased overtime and can be explained both by the increasing ratio of maximum to minimum transfer. However, the inequality in Khyber Pakhtunkhwa did not change despite a very high increase in the ratio of maximum to minimum transfer and coefficient of variation in the transfers.

#### 4. CONCLUSIONS

There are several results of the study based on several statistical analyses. First, the analysis based on rank correlation shows in Punjab and Khyber Pakhtunkhwa over time

the fiscal transfers are pro poor districts, whereas in Balochistan the transfers over time become less pro-poor districts and in Sindh it remained neutral. Second, there is significant increase in per capita transfers in all districts of Pakistan. These increases are due to increase in economic growth more than 6 per cent GDP growth for the last few years and special recognition of the devolution phenomenon in last several years. Third, deprivation has decreased almost in all districts in last few years because of significant increase in per capita transfers.

Fourth, the results of the study shows the deprivation inequalities have not reduced as a result of increase in fiscal transfers. In fact, in most of the cases, the deprivation inequalities have been increased. One, because the per capita increase to the least deprived districts equivalently the developed districts are much more than the per capita increase to more deprived districts. Two, per unit cost of service delivery is much higher in those districts which are very large in area and in those districts where infrastructure is weak and perhaps these aspects are ignored in the designing of transfers. Three, the own revenues as percentage of transfers are much less in most deprived districts compare to least deprived districts and the capability of using available funds is also more in least deprived districts. Four, the least deprived districts which are rich districts are also politically very strong districts. They can also in position to attract parallel funding from the higher level government and borrowing from the foreign donors. Fifth, reason that can be given why the deprivation has decreased but disparity did not, is the deliberate effort and perception of the government to take steps to improve deprivation situation first and then income distribution aspect will be taken into consideration.

Table A1

*Rank Correlation Data for Punjab*

Districts	Rank Per Capita	Rank	Rank Per Capita	Rank
	Transfers 2003	Deprivation 2003	Transfers 2007	Deprivation 2007
Attock	12	26	7	25
Bahawalnagar	5	11	10	15
Bahwalpur	25	9	23	8
Bhakkar	3	6	2	14
Chakwal	1	21	3	27
D.G. Khan	14	3	9	5
Faisalabad	33	30	29	29
Gujranwala	26	31	30	33
Gujrat	20	29	28	30
Hafizabad	2	20	16	19
Jhang	18	10	20	10
Jhelum	6	28	11	26
Kasur	28	19	25	21
Khanewal	22	12	19	11
Khushab	4	16	4	13
Lahore	34	34	32	34
Layyah	9	4	6	4
Lodhran	32	5	14	1
M.B.Din	21	23	22	23
Mianwali	11	13	5	16
Multan	31	22	27	20
Muzaffargarh	30	2	24	2
Narowal	8	24	8	22
Okara	24	15	1	12
Pakpattan	29	7	17	6
R.Y. Khan	10	8	26	7
Rajanpur	13	1	13	3
Rawalpindi	23	32	33	31
Sahiwal	15	17	18	18
Sargodha	16	18	12	17
Sheikhpura	27	25	34	28
Sialkot	19	33	31	32
T. T. Singh	17	27	15	24
Vehari	7	14	21	9



Table A2

*Rank Correlation Data for Sindh*

Districts	Rank	Rank	Rank	Rank
	Per Capita Transfers 2003	Deprivation 2003	Per Capita Transfers 2007	Deprivation 2007
Badin	9	3	12	5
Dadu	8	9	7	3
Ghotki	13	5	14	11
Hyderabad	10	15	4	14
Jacobabad	15	4	1	6
Karachi City	16	16	16	16
Khairpur	4	10	10	8
Larkana	12	13	11	4
Mirpurkhas	11	6	15	10
Nausheroferoze	6	12	3	12
Nawabshah	7	11	13	9
Sanghar	5	7	9	7
Shikarpur	2	8	6	13
Sukkur	1	14	2	15
Thar At Mithi	14	1	5	2
Thatta	3	2	8	1

Table A3

*Rank Correlation Data for Khyber Pakhtunkhwa*

Districts	Rank	Rank	Rank	Rank
	Per Capita Transfers 2003	Deprivation 2003	Per Capita Transfers 2007	Deprivation 2007
Abbottabad	6	22	22	10
Bannu	12	18	20	12
Battagram	10	3	2	13
Buner	19	5	6	15
Charsadda	23	14	11	14
Chitral	1	7	3	5
D.I.Khan	4	9	15	11
Hangu	15	6	9	3
Haripur	3	23	23	18
Karak	2	13	8	4
Kohat	5	19	16	21
Kohistan	16	1	1	8
Lakki Marwat	9	17	14	7
Lower Dir	11	10	17	22
Malakand Agency	8	15	12	9
Mansehra	13	12	10	20
Mardan	22	20	18	16
Newshehra	14	21	21	6
Peshawar	24	24	24	23
Shangla	17	2	5	2
Swabi	20	16	19	24
Swat	18	11	13	17
Tank	7	8	7	1
Upper Dir	21	4	4	19

Table A4

*Rank Correlation Data for Balochistan*

Districts	Rank	Rank	Rank	Rank
	Per Capita Transfers 2003	Deprivation 2003	Per capita Transfers 2007	Deprivation 2007
Awaran	9	3	9	2
Barkhan	5	8	5	11
Bolan	17	12	18	13
Chagai	24	14	24	10
Gwadar	16	20	16	18
Jafarabad	19	16	20	22
Jhal Magsi	6	5	6	7
Kalat	13	18	11	20
Kech(Turbat)	12	19	12	12
Kharan	7	2	22	3
Khuzdar	15	7	14	9
Killa Abdullah	23	11	23	8
Killa Saifullah	10	10	10	5
Lasbela	18	15	15	16
Loralai	8	17	8	17
Mastung	4	13	4	14
Musa Khail	20	1	17	1
Nasirabad	22	9	21	15
Panjgur	21	6	19	6
Pishin	3	22	3	23
Quetta	11	24	7	24
Sibi	2	21	2	19
Zhob	14	4	13	4
Ziarat	1	23	1	21

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## Comments

The authors have made a good attempt to examine whether there is any link between the inter-governmental fiscal transfers and the deprivation index in the districts of Pakistan. The authors have used the data for this study which was collected from 98 districts of four provinces of Pakistan for 2003 and 2007.

Although text is very well written but there are some repetitions. At some place authors merely replaced the variable and used the same sentence while presenting results of the next variable.

Secondly, I would like to comment that while presenting disparities using different measures for deprivation and fiscal transfers in Table 3, authors have got contradictory results. For example, in Punjab according to ratio of maximum/minimum, disparities in deprivation and fiscal transfers have increased while according to coefficient of variation disparity has declined. Similar is the case with Sindh and Balochistan where both of these indicators gave contradictory results.

This is mainly because of the fact that coefficient of variation do not satisfy the transfer-sensitivity property. The Pigou-Dalton principle of transfer requires that whenever a unit of income is transferred from a richer person to a poorer person and such a does not reverse the ranking of two individuals, the inequality index should decline. The Coefficient of Variation is more sensitive to upper part than other part of the distribution and therefore it may give misleading results. The well know Gini coefficient satisfy the principle of transfer sensitivity. It is, therefore, important to use Gini coefficient to resolve this issue to some extent.

Thirdly, the authors results that the transfers have reduced deprivation across the board but unable to solve disparity issue are in line with the trends in reducing deprivation in term of absolute poverty but increasing inequality. Finally, while authors have summarised the result in conclusions, some policy recommendations should be given in discussion.

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