

Public Expenditure, Governance and Human Development: A Case of Madhya Pradesh

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Abstract

This paper examines the link between quality of governance, public expenditure and human development outcomes in the state of Madhya Pradesh. The role of governance is measured in five dimensions: Political, Legal & Judicial, Administrative, Economic and Social. A total of 22 indicators have been used to measure the Governance Index (GI) of Madhya Pradesh at district level. The results in this paper suggest that, at district level, development expenditure alone is not sufficient in achieving human development outcomes. However, the effectiveness of public expenditures improves with better governance indicators. In addition, GI is found to be significant and positive in improving development outcomes. Among the governance dimensions, weak administrative index appears to be the main constraint in improving the human development outcomes in less developed districts. Disaggregated analysis suggests that the districts with lower human development achievements need to prioritize only in one or two dimensions of governance, in particular administrative governance. Prioritization of various or specific dimensions of governance should help in reducing the divergences in development outcomes across the districts. The findings of this paper are very important as they suggest that public expenditure efficiency depends on the quality of governance. Hence, there is a need to equally focus, both, on improving governance as well as on increasing development expenditures. In the context of achieving SDGs and with the lessons learnt from MDGs, the findings of the paper suggest that we should focus on policy both at the sub-national and sub-state level.

Key words: Governance, Public Expenditure, Human Development, SDGs

JEL Classification Codes: H5, H76, O15, Q01

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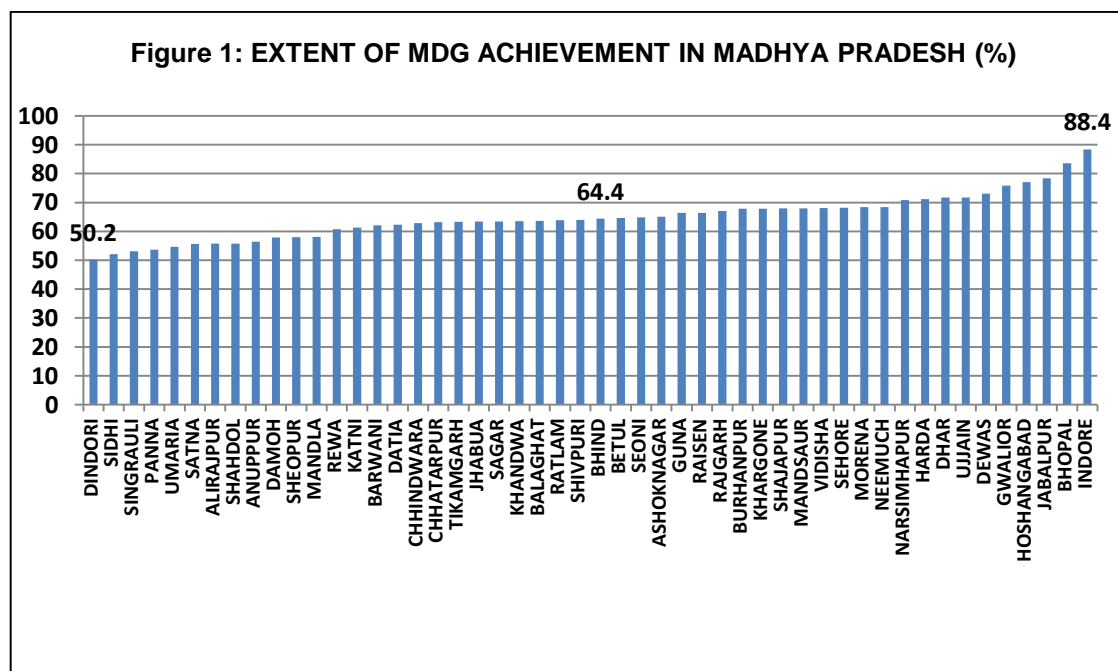
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1. Introduction

Madhya Pradesh, “the heart of India”, is the second largest state in the country (by area) with the largest number of Scheduled Tribes (STs) in the country. The state has been witnessing an average double digit growth of 10.2 per cent (at constant prices) with an average agriculture growth of 21.7 per cent (at constant prices) for the three years from 2011-12 to 2013-14. However, according to the recent study by NIPFP¹, the state has been classified as ‘off-track’ in terms of achievement of most of the MDGs². The study also found that there is a wide divergence in human development achievements across different districts within the state. Such variations across the districts need to be understood in order to achieve inclusive development in the state.

1.1 Inter-district variations in Human Development Achievement

The difference in achievements of MDG goals at the district levels may be noted in Figure 1, which shows large variation between the districts such as Indore, Bhopal, Jabalpur, Hoshangabad and Gwalior with least MDG gaps while the districts such as Dindori, Sidhi, Singrauli, and Panna, having achieved just half of the MDG targets with a huge gap. Such divergences are found among various targets of MDGs.



Source: NIPFP-UNICEF (2016), Madhya Pradesh State MDG Report: 2014-15

¹ NIPFP-UNICEF (2016), Madhya Pradesh State MDG Report: 2014-15, Report prepared by NIPFP, New Delhi.

² A report by MOSPI “Millennium Development Goals India Country Report-2015” also classifies Madhya Pradesh as *off-track* in most of the MDGs

What explains such divergences? A disaggregated analysis becomes imperative to address this inter-district variation and to know why some districts have better outcomes while others have poor human development record. Although, it was found that there is substantial heterogeneity in MDG achievements, there has not been much variation in terms of public spending. Especially in health and education, the public expenditure is found to have less variation. However, in terms of achievements there seems to be huge divergences.

Table-1: Disparities in Education Expenditure at District Level

	Education Index Below State Average	Education Index Above State Average
Per Capita Expenditure on Education Below State Average (Rs. 731)	BOX 1 Burhanpur, Singrauli, Khandwa, Shahdol, Ashoknagar, Ratlam, Rajgarh, Ujjain, Katni, Badwani, Shivpuri, Sheopur, Umaria, Dewas	BOX 3 Indore, Jabalpur, Chhaterpur, Harda, Sagar, Morena, Gwalior
Per Capita Expenditure on Education Above State Average	BOX 2 Alirajpur, Jhabua, Sidhi, Khargone, Anuppur, Guna, Balaghat, Dhar, Mandla, Neemuch, Chhindwara, Dindori, Betul, Mandsour, Narsinghpur, Seoni	BOX 4 Panna, Vidisha, Shajapur, Raisen, Sehore, Satna, Damoh, Tikamgarh, Rewa, Datia, Bhind, Hoshangabad

Source: NIPFP-UNICEF (2016), Madhya Pradesh State MDG Report: 2014-15.

Table-2: Disparities in Health expenditure at District Level.

	Health Index Below State Average	Health Index Above State Average
Per Capita State Expenditure on Health Below State Average	BOX 1 Panna, Damoh, Singrauli, Sidhi, Satna, Sheopur, Dindori, Anuppur, Datia, Tikamgarh, Khandwa, Burhanpur, Balaghat, Alirajpur, Jhabua, Shivpuri, Umaria, Chhaterpur, Ashoknagar, Guna Vidisha.	BOX 3 Katni, Chhindwara, Seoni, Harda, Sehore, Ratlam, Mandsour, Khargone, Rajgarh, Morena, Dhar, Bhind, Dewas, Betul, Shajapur, Neemuch.
Per Capita State Expenditure on Health Above State Average	BOX 2 Shahdol, Sagar, Mandla, Rewa, Raisen.	BOX 4 Badwani, Narsinghpur, Ujjain, Hoshangabad, Jabalpur, Gwalior, Indore.

Source: NIPFP-UNICEF (2016), Madhya Pradesh State MDG Report: 2014-15.

In table 1 and 2, it clear that with similar level of per capita expenditure in health and education, there are some districts doing better in terms of level of achievement and some districts are lagging behind. With below state average expenditures, the districts in box 3 are having better achievements and the districts in box 1 are lagging behind. There are another set of districts where public expenditure is higher than that of state average expenditure and some are doing better (Box 4) and some (box 2) are found to be lagging behind in both the tables.

The estimates of MDG Resource Gap (MDG status Report) for Madhya Pradesh suggest that the resource gap is around 30 per cent (see NIPFP-UNICEF (2016)). It is also found that there are 12 districts where one has to double the human development expenditure. However, majority of the districts have a resource gap between 25 to 40 per cent. This suggests a large underspending on MDGs leading the state classified as *off-track* in most of the MDG indicators.

With this background, this paper tries to address following two issues.

- Can increase in public expenditure have a direct impact in improving development outcomes especially at district level?
- If not public expenditure, then what drives divergence?

2. Explaining divergences at district level

In order to understand the divergences in human development at district level, one can hypothesize that human development expenditure or sectoral public expenditure could be just a necessary but may not be sufficient condition to bring improvements. There could be various other factors that may explain the divergences in the level of achievement in addition to the public expenditure. For any successful public policy intervention, especially in the social sector, there is a need for robust planning, coordination, governance, use of information technology and information flow. In this paper, we look at the reason/s behind disparity in performance of districts despite similar planning. Given that there are multiple levels of governments involved in the planning, spending, and implementation, at first it is necessary to look at the fund flow mechanism at each tier of governments. One of the major determinants of fund flow mechanism is the quality of governance. As public expenditure may not be sufficient, there is a need to look at the extent of governance at the district level that could help in increasing public expenditure efficiency. Further, to provide specific policy inputs there is a need to look at various aspects of governance and suggest ways to improve.

2.1 How is Human Development and Governance related?

The concept of governance evokes a more pluralistic pattern of rule than what government reflects: governance is less focused on state institutions, and more focused on the processes and interactions that tie the state with other non-state actors such as civil society, public and political representatives, etc. (Rosenau 1992, Weiss, 2000). However, some have argued that governance is possible without government, although, what is more relevant is the need of government within governance (Beche, 2000). In the last decade of the twentieth century the concept of 'good governance' took a central place in the social science debates by replacing the idea of 'governance'. The concept of good governance was viewed as the best possible process by which correct decisions could be taken. Here, the question is

what is the relationship between good governance and economic growth and development? In describing the relationship between quality of governance and growth, Kaufmann et al. (2003) demonstrated that better governance promotes economic growth but growth does not tend to promote better governance (Arndt and Oman, 2006). UNDP Human Development Report (2002) explained that human development requires democratic governance in both form and substance—for the people and by the people. Alternatively, democratic governance along with political freedom and non-discriminatory framework would only be able to promote human development. Rhodes (1996) emphasized that good governance put specific focus on the efficient and effective management of the collective resources. However, there is a general belief that the development outcomes largely depends on the quality of governance though the relationship is not clear. Kaufmann et al. (2003), proposed a strong positive correlation between per capita incomes and the quality of governance across the world and separated the correlation into two components: i) a strong positive correlation from better governance to higher per capita incomes, ii) a weak negative correlation running in the opposite direction from per capita incomes to governance. In the case of India, Virmani (2005) argues that there is both positive and negative relationship between quality of governance and economic growth depending on the market complementing and substituting institutions. But, this argument needs empirical verification. It may also depend on the quality of institutions at the implementation level. In India, as implementation of most of the social sector programs are at the district level, there is a need to understand the institutions and its efficacy at the district level. However, in India, till now there is no such study at district level to understand the quality of institutions and its relationship with human development outcomes. Further, there is also no such study to understand why public expenditure, which is an important input for development outcomes, fails to explain divergences at district level.

2.2 Public Expenditure and GI

Few studies (UNDP 2014, Paternostro, et.al, 2007) have focused on the linkages between public spending and outcomes. The impact of public spending on development outcomes was found to be very low or almost negligible because of the two reasons. First, there could be substitution between public and private spending where increased public provision could be crowding out private sector provision and, therefore, has negligible net marginal effect. The second reason could be the institutional inefficiencies such as weak capacity and leakage in public spending. Poor budget management, inefficient public sector to use available funds for productive purposes severed the impact of public spending on desirable outcomes such as health and education (World Bank, 2004). The efficacy of public spending in enhancing health and educational outcomes could improve if a country has good governance. If budget institutions involving functions such as budget formulation, execution and monitoring are inefficient, then human development outcomes may not be achievable even if government allocates more

resources (World Bank, 2003). When the state has low administrative capacity and weak accountability of service providers towards citizens then government expenditure on social sector to reduce poverty could be inefficient (World Bank, 2004). Therefore, Governance has been analysed both normatively (how should government behave?) and positively (how do governments behave?) in the international public policy for a long time. Thus, one can conclude that the study on governance focuses largely on the intermediate processes rather than development outcomes.

In the Indian context, the study on governance are very few and has concentrated only at the state level. Mundle et al. (2016) has prepared a GI at state level for 2001-02 to 2011-12 and identified the worst and better performing states over these period. Further, the study also compares the change in the quality of governance over the decade. However, there is no such study at district level that could explain relationship between governance and human development outcomes. As the implementation of the social sector programs are largely at the district level, such analysis could become crucial for successful outcomes of any public policy interventions.

In this study, in the first stage, an attempt has been made to measure the quality of governance at the district level in Madhya Pradesh. For this, the study uses the manual prepared by DARPP (Department of Administrative Reforms, Public Grievances and Pensions) provided in "State of Governance-A Framework of Assessment report (2009)". Here, governance is looked from five dimensions: Political, Legal & Judicial, Administrative, Economic and Social (DARPP, 2009). This framework contains a total of 18 components and 123 indicators (of which 48 secondary and 75 primary indicators). While this framework was for the analysis at the state level, in this study, which is exploratory in nature with no such similar studies exist at the district level, estimation of GI by using all the indicators might not be possible largely due to lack of information on many of the indicators. Hence, for the purpose of estimation at districts level in Madhya Pradesh, as reliable data is not available for all the indicators, only 22 indicators that falls across 13 components are considered. The indicators identified from the five categories are described below.

From the political dimension of the governance - voting percentage (for the exercise of franchise), share of ruling party representative in total representatives (for the profile and conduct of political representatives, political parties and political executive) and share of women representatives (for women empowerment) are considered to construct political index.

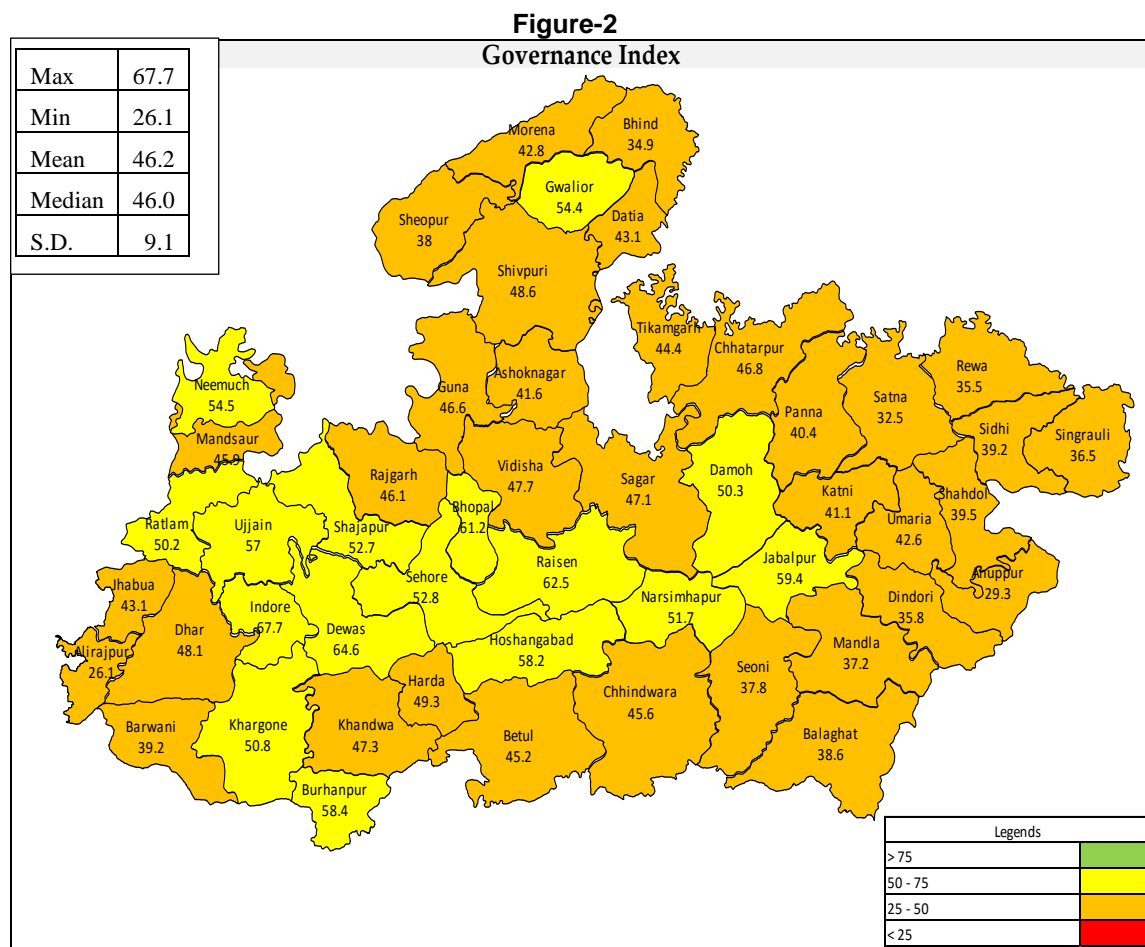
Proportion of serious crimes in law and order category, proportion of crimes against women and SCs and STs in the category of safeguarding basic rights, charge sheets filed and conviction rate in the category of police administration are considered for constructing legal and judicial index.

Administrative index is constructed by using proportion of class I and class II officers and proportion of women employees in the category of human resources, access to piped water supply and sanitation, education development index and rural road length in the category of basic service delivery.

Development expenditure to measure the fiscal governance, credit deposit ratio to measure the financial access, mobile phone connectivity to signify the physical infrastructure and availability of ground water for irrigation to signify the support to primary sector are the variables considered in constructing Economic Index.

Social index is constructed by using malnutrition status among children below 3 years and poverty head count ratio for measuring welfare of poor and vulnerable and forest area for environmental management.

All the above variables are normalised either by the population of the district or the geographical area of the district. (See Appendix A1 for a detailed list of variables including their data sources and A2 for computation of variables into index).



Aggregate GI is estimated by taking the weighted average of Political, Legal & Judicial, Economic, Administrative and Social index. The overall GI for Madhya Pradesh is estimated

to be 46.2, which is close to 49 estimated by Mundle et al (2016) at state level for 2011-12. Among the districts, it may be noted from Figure 2 that Indore, Raisen, Bhopal, Dewas and Jabalpur are the relatively better performing districts but none of the district index value are higher (here, the index above 75 is considered as good governance), which shows the overall poor governance in Madhya Pradesh. Districts such as Alirajpur, Anuppur, Satna and Rewa are found to have an overall poor governance. Although, there are variations across districts, overall the GI in Madhya Pradesh appears to be lagging³.

How does the quality of governance affect the relationship between public spending and human development? In the next section, a simple empirical analysis is carried out to establish the nexus between public spending, governance and human development outcomes at district level.

3. Impact of Public Expenditure and Governance in Achieving Human Development outcomes: An empirical analysis

There are various studies that suggest the significant role of governance in improving the efficiency of public policy intervention and effective delivery of public services. A World Bank study by Rajkumar & Swaroop (2008) found a strong relationship between the effectiveness of public spending in health and education outcomes with the quality of governance cross-country level. There are other studies which have shown negative relationship between public spending and outcomes in both health and education due to differences in efficacy of spending, one of them being high level of corruption (De La Croix & Delavallade, 2006; Gupta et al. 1989; Pritchett 1996). Kaufmann et al. (2004) suggests that there is a negative relationship between governance indicators and Infant Mortality Rate (IMR). However, there is hardly any study on India that has empirically looked at this issue. In this section, with the estimation of GI, a simple empirical analysis has been undertaken to establish the relationship between efficacies of public spending in achieving human development outcomes with the quality of governance at the district level. In other words, here the purpose is to measure the impact of expenditure and governance on achieving human development goals. A simple OLS regression has been carried out to measure the impact of public expenditure and governance on development outcomes.

3.1. Model specification

As described in Rajkumar & Swaroop (2008), human development could be dependent on the overall growth as well as on the specific public policy intervention through increasing public expenditure, and the extent of efficient institutions present in the economy.

³ (To know about the values of various composition of governance at district level, please see Bhanumurthy, et al. (2016)).

Towards this, the following model is specified that helps in establishing the linkages between human development achievements in the form of overall MDG index and level of district income, Governance and public expenditure.

The regression equation for the estimation is:

$$(MDG)_i = \beta_0 + \beta_1 \ln(DDP)_i + \beta_2 \ln(PHDEXP)_i + \beta_3 G_i + \beta_4 G_i * \ln(PHDEXP)_i + \mu_i \dots\dots\dots (1)$$

where,

MDG is the overall Millennium Development Goal outcomes,

DDP is per capita district domestic product,

PHDEXP is per capita human development expenditure,

G is overall governance index.

G* ln (PHDEXP) is the interaction term of governance index and per capita human development expenditure.

Here 'i' is the number of districts.

A total 49 districts of Madhya Pradesh has been taken excluding Bhopal. The interaction term has been taken to analyse the direct and indirect linkages of development expenditure on human development outcomes.

3.2. Empirical Results

The first column in Table 3 contains only two independent variables i.e. per capita DDP and per capita human development expenditure. The coefficient of district domestic product is positive and statistically significant at one per cent level. This indicates that a one percent increase in per capita district domestic product is associated with 0.18 points increase in MDG outcomes.

However, coefficient of per capita human development expenditure remains insignificant (see Appendix A3 for a comparison of per capita district domestic product and human development expenditure (2012-13) across districts).

Table 3. Factors affecting MDG outcomes: OLS regressions

Model →	(1)	(2)	(3)
Log of per capita district domestic product	18.25*** (5.32)	7.445* (2.44)	7.289* (2.39)
Log of Per capita Human Development Expenditure	-5.067 (-0.96)	-3.569 (-0.92)	-6.451 (-1.66)
Governance Index		0.534*** (6.33)	
G*ln (PHDEXP)			0.0676*** (6.36)
constant	-88.68 (-1.65)	-10.58 (-0.26)	13.85 (0.33)

R-Bar Square	0.384	0.674	0.676
F -statistics	14.35	31.05	31.28
N	49	49	49

Note: Figures in parenthesis are T statistics and * $p < 0.05$, ** $p < 0.01$

Further in column 2 we include GI to capture the direct impact of governance on MDG outcomes. The result depicts that the coefficient of governance is statistically significant. This implies that for a one point increase in the quality of governance; MDG outcomes will increase by 0.53 points. The impact of human development expenditure still remains insignificant. However, by including governance we find that there has been an increase in R-Bar Square, which implies that governance is an important indicator in explaining human development outcomes.

To analyse the indirect effect of per capita human development expenditure on MDG; we use the interaction term of governance with per capita human development expenditure in column 3. The key result is that the coefficient of interaction term is statistically significant and positive. This explains that per capita human development expenditure is effective in explaining MDG outcomes only at the quality of governance. The results clearly suggest that with the presence of better governing institutions, the efficacy of public expenditure improves. For the districts that have poor governance indicators, just by increasing public expenditure alone may not lead in achieving the desired outcomes.

Since the GI has been prepared by using its five dimensions -political, legal & judicial, administrative, economic and social- it is necessary for the public policy makers to understand which component of the governance is most significant in achieving development outcomes. Such analysis could also help public policy in prioritising the components of governance instead of the overall governance index. As in the previous table where the impact of overall GI on human development outcomes is analysed, now the different dimensions of governance is introduced to get a clearer picture.

The same set of models are used to estimate the interrelationships but using different dimension of governance to understand which dimensions (economic or social) of governance is helpful in effective public spending at district level in Madhya Pradesh. The results are presented in the next page.

Table 4. MDG Outcomes at Economic Dimensions of Governance

Model →	(1)	(2)	(3)
Log of per capita district domestic product	18.25** (5.32)	12.67** (4.54)	12.59** (4.49)
Log of Per capita Human Development Expenditure	-5.067 (-0.96)	1.675 (0.40)	0.263 (0.06)
Economic Index		0.279** (5.82)	
<i>Eci*ln (PHDEXP)</i>			0.0349** (5.79)
Constant	-88.68 (-1.65)	-96.29* (-2.34)	-84.06 (-2.04)
R-Bar Square	0.384	0.649	0.647
F-Statistics	14.35	27.69	27.50
N	49	49	49

Note: Figures in parenthesis are T statistics and * p<0.05, ** p<0.01

Table 5: MDG Outcomes and Social Dimensions of Governance

Model →	(1)	(2)	(3)
Log of per capita district domestic product	18.25** (5.32)	15.05** (4.72)	15.00** (4.71)
Log of Per capita Human Development Expenditure	-5.067 (-0.96)	-2.387 (-0.50)	-3.654 (-0.77)
Social Index		0.212** (3.57)	
<i>Sci*ln (PHDEXP)</i>			0.0269** (3.60)
Constant	-88.68 (-1.65)	-87.06 (-1.81)	-76.58 (-1.60)
R-Bar Square	0.384	0.520	0.522
F-Statistics	14.35	16.26	16.36
N	49	49	49

Note: Figures in parenthesis are T statistics and * p<0.05, ** p<0.01

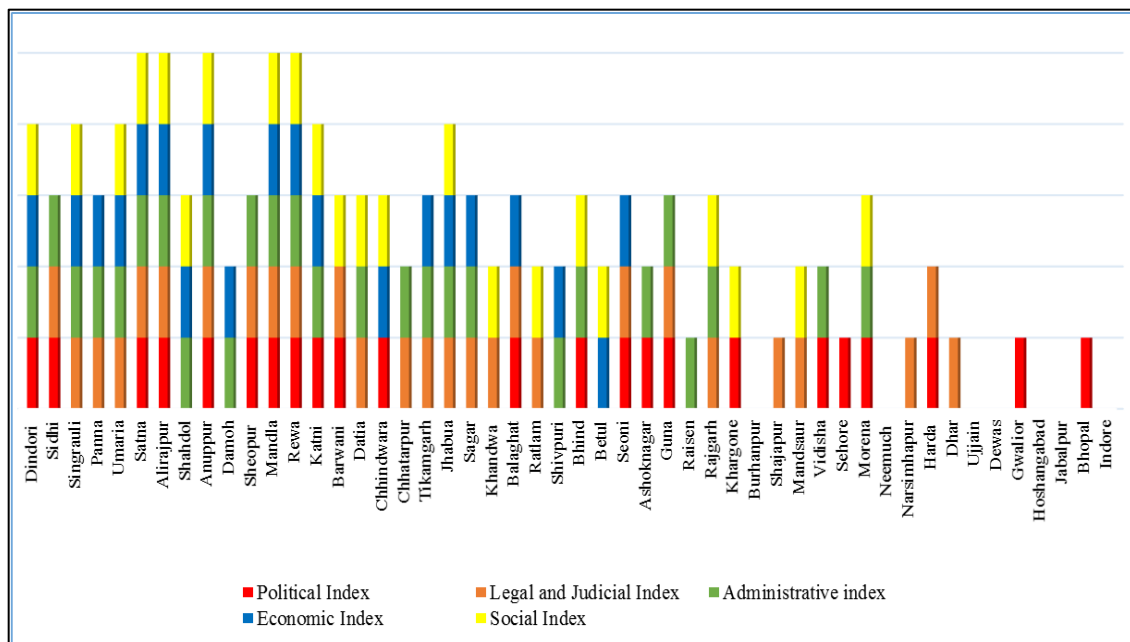
Table 4 and 5 depict the results similar to that of in table 3. Both the economic GI and social governance index have significant impact in explaining MDG outcomes. Their indirect effect, which is captured through the interaction term, is also positive and significant. These results suggest that human development expenditure becomes more effective with the level of economic and social dimension of governance, with economic governance index appear to have high larger impact on MDG outcomes.

The next section deals with prioritizing different dimensions of governance at district level, in order to understand which dimension in each of the districts needs to be prioritized.

4. Prioritizing governance dimension at district level of Madhya Pradesh

The above results show that along with effective public expenditure, governance plays an important role in achieving MDG outcomes. An inter district variations in their achievement of outcomes could possibly be explained through variation in governance. Therefore, it is necessary to lay emphasis on five different dimensions of governance.

Figure 3: Prioritizing Governance dimension at District Level for Madhya Pradesh



Note: Districts are arranged in ascending order based on MDG achievement index taken from NIPFP-UNICEF report, 2016

Figure 3, the districts are plotted as per the MDG achievements from low to high, shows the governance dimensions that each district needs to prioritise. It may be noted that the five districts namely Satna, Alirajpur, Anuppur, Mandla and Rewa need to focus on all the five dimensions of governance and this is also correlated with poor MDG progress in these districts. Districts such as Dindori, Singrauli, Umaria, Katni and Jhabua are performing poorly in four of the five governance dimensions with social and economic index being common among the four districts. Among the low development districts one dimension that is common is the weak administrative index. Thus, by improving the administrative governance, these districts could see substantial improvement in the development outcomes. It may also be noted that the districts that are having better MDG progress need to prioritise only in one or two dimensions of governance. The prioritization of specific dimensions of governance should help in reducing the divergences in development outcomes across the districts.

Summary & Conclusion

In terms of achieving human development targets, the state of Madhya Pradesh has been identified as off-track in most of the indicators. Further, it was also found that there are huge divergences across districts in terms of human development achievement. While some districts have done better, most of the districts are underperforming in most of the indicators. This is despite not much divergence in the public expenditures at the district level. This study tries to understand what determines such divergences across the districts.

While the literature suggest that higher public expenditures could help in reducing the disparities and help in achieving targets, from the trends in public expenditures in Madhya Pradesh, it appears that there could be other determinants that helps in reducing divergences. Here an attempt has been made to understand whether divergences in the quality of governance could explain such divergences in human development across the districts of Madhya Pradesh.

As an exploratory exercise, this study tries to understand overall governance at each district in five dimensions: political, economic, social, administrative, and legal & judiciary. The trends in overall GI suggest that governance is better in better performing districts (in terms of both growth as well as human development) such as Indore, Jabalpur, Dewas, Ujjain and Hoshangabad while in poor districts such as Alirajpur, Satna, Anuppur, Mandla and Rewa, the estimated index suggest a poor governance structure.

Further analysis on the role of governance suggests that public expenditure efficiency in improving human development increases when the districts have better overall governance structures. Similar results were found when only economic and social dimensions of governance is used. The paper also suggests the prioritisation of governance dimensions at various districts in order to improve overall governance as well as improve public expenditure efficiency.

The analytical framework and findings of this paper is very crucial for all states in order to achieve both development as well as fiscal targets through increasing public expenditure efficiency. This is more so when the states are transitioning from achieving MDGs to SDGs.

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Appendix

A1 .Indicators used for Constructing Various Components of Governance Index

Dimension	Component	Indicators	Description	Source
Political	1.1. Exercise of Franchise	Voting percentage in assembly elections across district	Voting percentage in assembly elections across district (2013)	www.ceomadhya-pradesh.nic.in
	1.2. Profile and conduct of political representatives, Political parties and political executive	Political parties	% of elected representatives (MLAs) in ruling party	http://www.elections.in/madhya-pradesh/assembly-constituencies/2013-election-results.html
		Women empowerment	% of women elected representatives in the state legislature (2013)	www.myneta.info.com
Legal and judicial	2.1. Law and order and internal security	Serious crimes committed in the State	Proportion of serious crimes (per lac population) (2014)	www.mppolice.gov.in
	2.2. Safeguarding of basic rights	Atrocities (crimes) against women	Proportion of crimes against women (per lac population) (2014)	www.mppolice.gov.in
		Atrocities (crimes) against SCs/STs	Proportion of crimes against SCs/STs (per lac population) (2014)	www.mppolice.gov.in
	2.3. Police administration and citizen friendliness	Timely filling of charge sheet	Filling of charge sheet during the year (2014)	www.mppolice.gov.in
		Conviction rate	Conviction rate (2014)	www.mppolice.gov.in
Administrative	3.1. Managing Human, Financial and other resources	Managerial profile of government	Proportion of class 1 and class 2 employees out of total government employees	Employment in Administrative region report, MP (2014)
		Women in Government Service	Proportion of women in government service	Employment in Administrative region report, MP (2014)
	3.2. Basic Service Delivery	Overall performance in education	Education development index (Input and Outcome Index)	DISE raw data 2013-14, Census 2011 on education (district wise)
		Access to piped drinking water	% of households having treated piped drinking water facilities	Census 2011
		Access to basic sanitation facilities	% of households with improved sanitation facilities	Census 2011
		Access to Electricity	% of households having electricity facilities	Census 2011
		Availability of roads	Road length per 100 sq km under PMGSY (2000-2014)	PMGSY website (http://omms.nic.in/StateProfile/StateProfile/ExtStateProfile) accessed on

Dimension	Component	Indicators	Description	Source
				08/02/16
Economic	4.1. Fiscal Governance	Development Expenditure	Development Expenditure as a % of GDP at current prices(2012-13)	Treasury data
	4.2. Banking facilities	Access to credit	Credit deposit ratio across districts	State level Banker's Committee , MP
	4.3. Physical Infrastructure	Tele density	Percentage of households having mobile phones only	Census 2011
	4.4. Support to the Primary sector	Quality of irrigation facilities / water availability for farming	Proportion of Ground Water For Irrigation (ha m)	www.cgwb.gov.in Year 2010-2011
Social	5.1. Welfare of the Poor & Vulnerable sections	Nutrition Status	Underweight rates among 0-3 years children	NIPFP-MDG 2016 report
		Population below poverty line	Poverty HCR	NIPFP-MDG 2016 report
	5.2. Environmental Management	Environmental Governance	Total forest cover (sq km)	Forest Survey Report 2013, page 182(district wise MP)

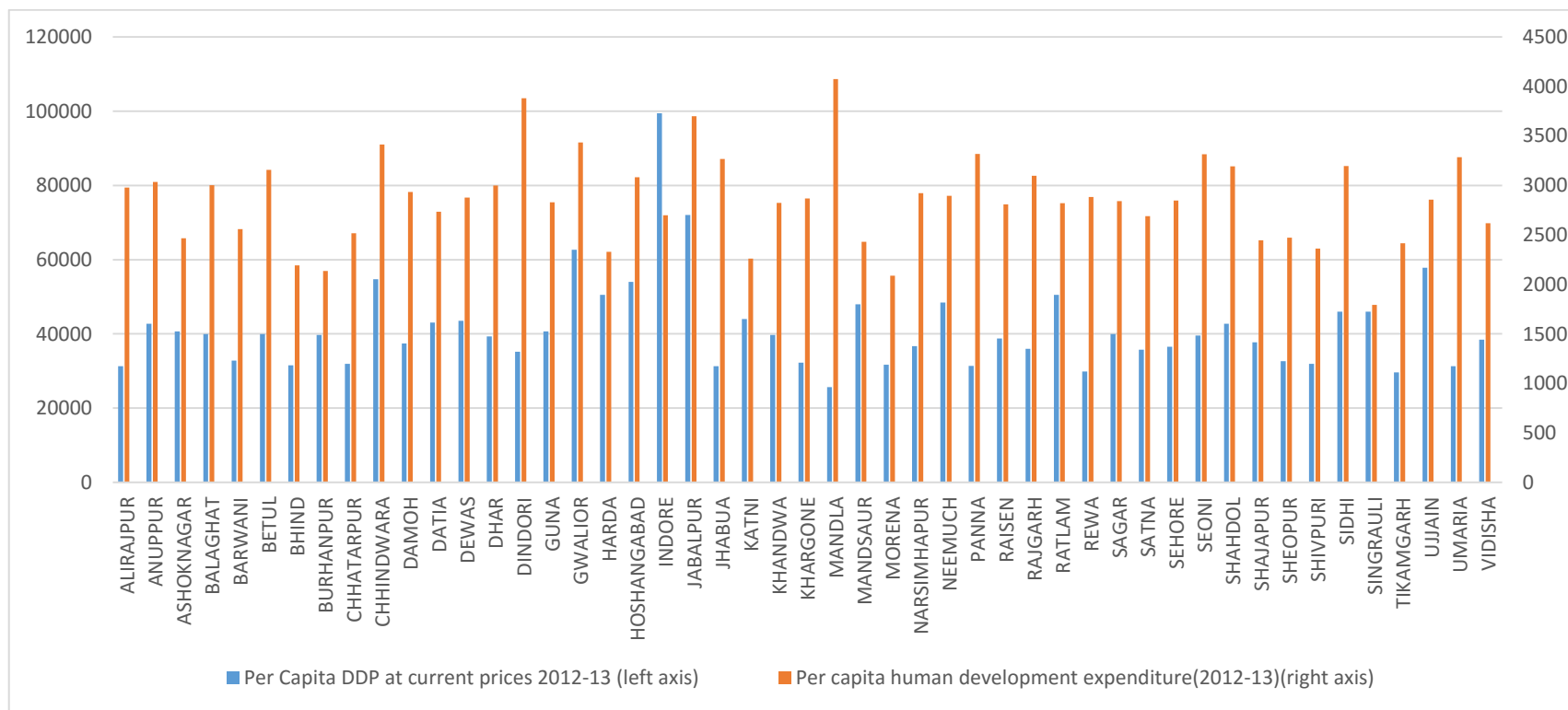
A2. Transformation of Indicators into index

A total of 22 indicators have been used to measure governance of Madhya Pradesh at district level. All the values are normalized by the area of the district or population. The value of index is prepared largely following the UNDP's HDI methodology. According to this methodology, for a given indicator:

$$\text{Index} = \left(\frac{\text{Actual Value} - \text{Minimum Value}}{\text{Maximum Value} - \text{Minimum Value}} \right) \times 100$$

All indices are expressed here in positive terms with higher index values denotes higher levels of governance with equal weightage to each of the indicators following HDI methodology

A3. Comparison of Per capita District Domestic Product (at current prices) and human development expenditure(2012-13)(In Rupees) across districts for Madhya Pradesh



MORE FROM THE AUTHORS

- Bhanumurthy, N. R., H.K. Amar Nath, S. Bose, P. D. Adhikari and A. Jana, 2016. [Madhya Pradesh State MDG Report 2014-15](#), New Delhi: National Institute of Public Finance and Policy.

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