Social diversity, Fiscal policy, and Economic growth
An empirical study with state wise data in India

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Abstract

It is well-known that, in India there exist huge differences of income level across states. Explaining such interstate differences requires not only an understanding of the link between growth and public policies, but also an understanding of why growth-retarding public policies are chosen. In this study we examine the effect of social diversity on the pattern of state government expenditure, as well as the effect of state government expenditure on growth. From the regression results, we find that the development expenditure by state government has positive impact on growth, while social diversity, measured by the share of scheduled caste population and religious fractionalization index that we construct from Census India, is negatively related to the development expenditure. These results imply that social diversity retards economic performance through the channel of the expenditure policy of the Indian state government.

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1 Introduction

The purpose of this paper is to examine the effect of social diversity on growth through the channel of the expenditure policy of the Indian state governments. As is well known, Indian society encompasses a large number of religions, language, races, and classes. By focusing on such social diversity, this paper seeks a better understanding of interstate growth differences.

Subsequent to the growth regression approach by Barro (1991) that enables us to examine the impact of various factors on growth, a number of empirical studies have assessed the impact of economic, political, and social factors on growth. It has been shown that low human capital, political instability, corruption, excessive intervention, etc., hamper the long-run growth.[2]

Of late, social factors have also been shown to be important with regard to explaining economic growth. For example, Easterly and Levine (1997) demonstrated that the ethnic diversity in sub-Sahara African countries led to a variety of growth-retarding policies, which in turn resulted in a low growth rate in the area. In the context of cities in the U.S., Alesina et al. (1999) emphasize ethnicity as the determinant of the public expenditure policy. Annett (2000) presented a model that links social diversity and fiscal policy, based on the endogenous growth model. By and large, those studies imply that social diversity distorts the expenditure policy in the form of a disincentive for the provision of public goods.

By applying the framework of these previous studies to this paper, we examine the effect of social diversity on growth through the channel of the expenditure policy of the Indian state governments. We begin our analysis by assessing the impact of the state expenditure policy on growth. With this analysis as the background, we then analyze the impact of social diversity on the expenditure policy and growth. In our analysis, "the religious fractionalization indicator," which we construct from the Census of India (1981 and 1991), and "the ratio of scheduled castes to the total population" acts as a proxy for social diversity. At the same time, we examine the hypothesis of conditional convergence by controlling additional factors. However, we have uncovered no evidence of such convergence in our analysis. This is consistent with earlier studies such as Sachs et al. (2002), and Rao et al. (1999). The main finding of this paper is that social diversity distorts the state government expenditure by decreasing development expenditure and increasing non-development expenditure. This in turn, decreases the growth.

The outline of the paper is as follows. Section 2 presents a sketch of issues

[2] See compact survey by Alesina and Perotti (1994), and Alesina (1997).

regarding convergence across Indian states. In section 3, we investigate the impact of the expenditure policy on growth as a setup for the next stage. Section 4 examines the effect of social diversity on growth, and section 5 concludes the paper.

2 Divergence of income level across Indian states

2.1 Concept of growth regression

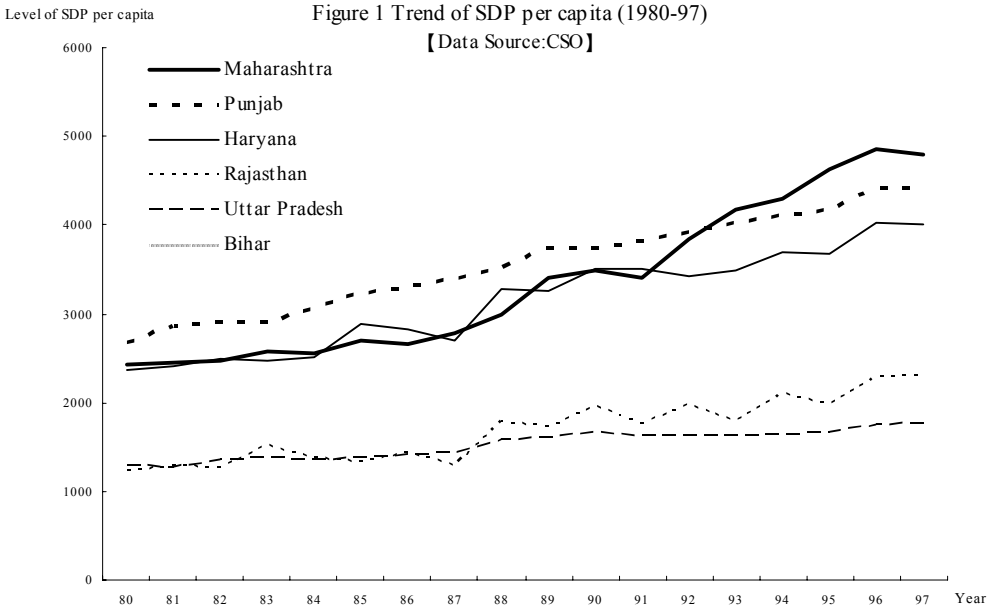
Convergence hypothesis states that poor countries can achieve faster growth than rich countries. This hypothesis is derived from neoclassical growth models with no differences in technology and preferences. However, after Heston and Summers (1991) provided the comparable cross-country data, it has been proposed that a convergence can be found among a group of similar countries such as the Organization for Economic Cooperation and Development (OECD), while it does not exist among all countries in the world.

Regarding this issue, Barro (1991) proposed the conditional convergence hypothesis that is derived from the new interpretations of the neoclassical growth models. The former convergence hypothesis depends on the assumption that there are no differences other than the capital per unit of labor among economies, and that all economies have a common steady-state value. On the other hand, Barro derived the hypothesis of "conditional convergence" by assuming other differences among economies besides the capital per unit of labor. With this assumption, each country can have their unique steady-state value, which means that the larger the difference between the current value and the steady-state value, the higher the growth rate. This implies that in Barro's new hypothesis, the growth rate is not determined by the present value of capital per unit of labor, but is determined by the difference of the current value from its steady-state value.[3] In other words, after controlling the factors that cause differences in the steady-state value of the group, the coefficient of the income per capita will become negative and significant in growth regression even among all countries in the world.

This proposition has been supported by several empirical studies using cross-country data. Growth regression has supported Barro's hypothesis. These implications can be summarized as follows: 1) there is absolute convergence among the

[3] For further details, see Barro and Sala-i-Martin (1995).

Figure 1 Trend of SDP per capita (1980-97)
【Data Source:CSO】



countries and regions, which can be expected to have a similar steady-state value,[4] 2) conditional convergence across all countries in the world has been found by controlling other variables, such as human capital index, political instability, government consumption, black market premium, etc.

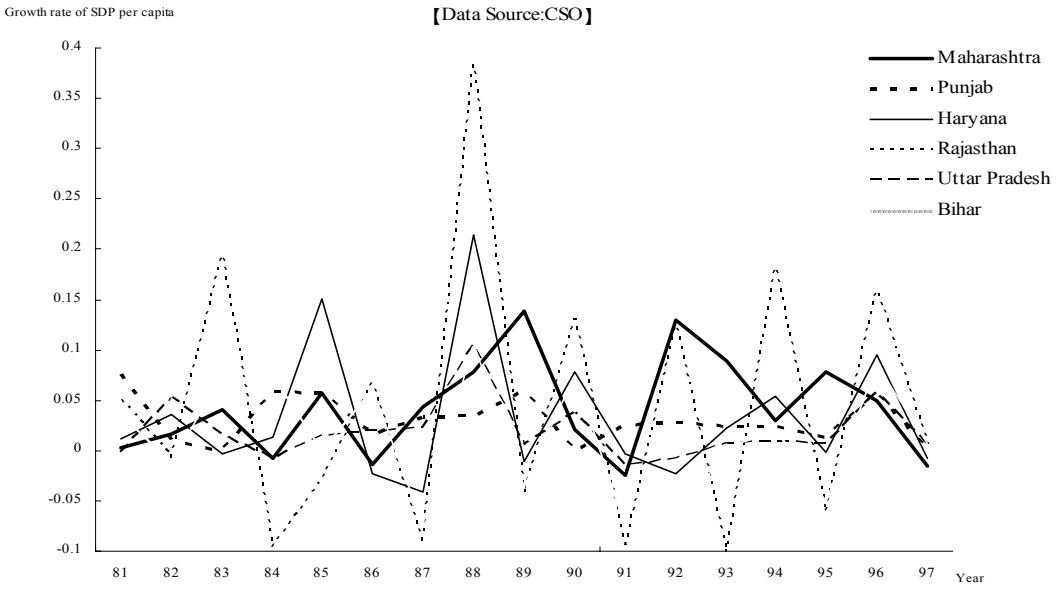
2.2 Divergence among Indian states

In a similar manner, growth regression has been applied to examine the difference of growth across Indian states. According to Barro's hypothesis, since regions of a country have a common or a rather similar steady-state value, we should expect the existence of an absolute convergence among them. Notably, however, most studies did not find convergence; rather they found divergence, contrary to the consensus obtained from cross-country analysis.

This being a study that supports Barro's hypothesis, first, we can draw attention to Cashin and Sahay (1995) that examined the absolute convergence using a sample of 20 states including the union territory Delhi from 1961 to 1991, and concluded that the level of the State Domestic Product (SDP) per capita was converging among Indian states. Negaraj et al. (2000), based on a panel analysis with a sample of 17 states from 1970 to 1994, found conditional convergence after controlling the social capital variable,

[4] Some empirical studies focusing on the interregional inequalities in a country, such as states in the U.S., prefectures in Japan, and so on, demonstrated the presence of absolute convergence across their regions. These studies concluded that interregional inequalities are diminishing in those countries (Barro and Sala-i-Martin 1992; Sala-i-Martin 1996).

Figure2 Trend of growth rate of SDP per capita (1981-97)
【Data Source:CSO】



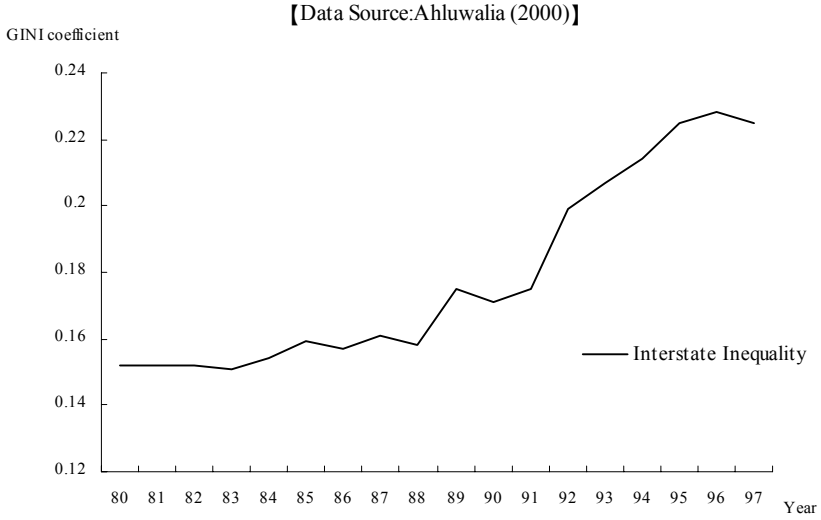
which was composed of some related factors besides the level of the SDP per capita.

On the other hand, as has already been mentioned, a majority of the studies have pointed out that the SDP per capita is diverging rather than converging. For instance, Ghosh et al. (1998), contrary to Barro's hypothesis, demonstrated with a sample of 21 states from 1960 to 1995 that Indian states have been diverging. Similarly, Rao et al. (2000) arrived at the same conclusion by changing the time period of the sample, and Dasgupta et al. (2000) found a significant trend of divergence based on rank analysis. Sachs et al. (2002) reported that they rejected not only absolute convergence, but also conditional convergence, even after controlling the urbanization variable that is regarded as an important determinant of growth in this study.

Simultaneously, some studies have drawn attention to the fact that the regression results that imply convergence across states are insignificant or not robust. First, it should be noted that though Cashin and Sahay (1995) reported a negative sign of the per capita SDP term in their estimated equation, it was not statistically significant. Moreover, Raman (1996) criticized Cashin and Sahay (1995), since the sign of the per capita SDP term in their equation could quite easily be changed from negative to positive if the time period of the analysis was changed. Further, he presented the trend of divergence using three indexes, namely the GINI coefficient, the standard deviation, and the Theils index, which can work as a proxy for interstate inequality.

With the results of previous studies, let us observe the differences in the income per

Figure3 Trend of Interstate Inequality
【Data Source:Ahluwalia (2000)】



capita among 14 major states in India[5] using the Per Capita Net State Domestic Product data provided by the Central Statistical Organization (CSO).[6] We should first note that the per capita SDP in Punjab, the richest state in 1980, was Rs. 2,674 and this was approximately 3 times the amount of that of Bihar, Rs. 917, the poorest among all Indian states. Reverting to the per capita SDP in 1997, while that of both, Punjab and Bihar increased to Rs. 4,416 and Rs. 1,074, respectively, the difference between these two states increased from 3 to 4.5 times the original. Figures 1 and 2 show these trends of the level and the growth rate of the per capita SDP in the three richest and poorest states in 1980. From these figures, we observe that though Rajasthan shows a very good performance, Uttar Pradesh and Bihar grow rather slowly, and the differences between the three poorest and richest states tend to increase during this period.[7] Figure 3 illustrates the trend of the GINI coefficient by Ahluwalia (2000) that was calculated to measure interstate inequality. From this figure, we can observe more intuitively that interstate inequality has been on the increase during this period.

So far, we have briefly witnessed the issues regarding convergence across Indian states by reviewing recent studies, which imply the presence of divergence rather than convergence. Here, we summarize the implication of these previous studies in a manner

[5] States that we employed here are Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.

[6] We should note that there are limitations because the data provided by the CSO is not strictly comparable due to differences in source material for different states, even though several studies employed this source. Dasgupta et al. (2000) tackled this problem.

[7] The average growth rate of Rajasthan in the 1980s is 4.7%, which is the highest among the 14 states. Similarly, the rank of the per capita SDP in Rajasthan rises from 13th in 1980 to 9th in 1990. For further details on the breakthrough of Rajasthan, see Sachs et al. (2002).

similar to the one adopted by Ghosh et al. (1998).

First, we should note that divergence might be understood in the perspective of increasing returns, which is the main mechanism of endogenous growth. Thus, a further detailed analysis focusing on the India-specific situation is required in order to understand the background of this result.

Second, we should take into consideration the existence of conditional convergence in India. If each state has a unique steady-state value, divergence might be found in the growth regression result. Consequently, for an understanding of the background of divergence in India, we should control the additional factors, which can be expected to determine the steady-state value, in order to access the presence of conditional convergence as well as have done in the cross-country analysis.

Starting from the next section, we will begin our main analysis by assessing the effect of the expenditure policy of state government on growth. We control additional variables such as the state government expenditure and social diversity index, which will enable us to assess the conditional convergence hypothesis in running growth regression. Therefore it is safe to say that we employ second approach in the context of previous studies mentioned above.

3 State government expenditure and growth in India

This section deals with the effect of the state government expenditure on growth. It is believed that in particular, development expenditure allocated to public goods increases productivity in the private sector and thereby enhances economic growth.

Theoretically, the importance of government expenditure in the context of the endogenous growth theory was stressed by Barro (1990). Based on Barro's framework, Futagami et al. (1993) demonstrated the positive impact of public investment on growth. Devarajan et al. (1996) showed that a change in the share of public investment in government expenditure has a similar effect on growth. In these models, the government expenditure has positive externalities in production, which can promote the growth rate in the long run, though its effect is ambiguous.[8]

Our empirical analysis shows that the share of development expenditure in total expenditure is positively related to growth. On the other hand, the share of non-development expenditure has a negative effect on growth. This prepares a framework for the next section, in which we analyze the effect of social diversity

[8] These models imply that there exists an inverted-U relationship between government expenditure and growth. An increase in the government expenditure can be positively related to long-run growth only if the share of the expenditure in the economy is less than the optimal level.

through the channel of the expenditure pattern.

3.1 Data and regression framework

Due to our interest in the long-run growth rate, we study the economic performance over the decades. The explained variable in our regressions is the average annual growth rate of the SDP per capita in the 1980s and 1990s. The Central Statistical Organization provides these data. From the "Reserve Bank of India Bulletin" that provides the state-wise government expenditure table, we calculated the decade average share of every component expenditure in the total government expenditure for both decades and entered them into the regressions. We focus on the impact of these variables on growth. All equations are estimated by seemingly unrelated regressions, which allows for different error variance in each period, and for a correlation of these errors over the two periods, as in Easterly and Levine (1997), and others.[9] In addition to different intercept terms for each decade, we include a dummy variable for Rajasthan, since it recorded an exclusively good performance, especially in the 1980s, as already confirmed in the former section.[10]

Regarding the fiscal policy variables, we should mention following two points. First, as main fiscal policy variables, we employ the share of each component in the total expenditure in addition to the share of each component in the SDP, though previous studies such as Rao et al. (1999) controlled only the latter. This is done as the variables captured by their share in the SDP can be affected not only by a change in the composition. Devarajan et al. (1996) emphasized the importance of dividing two such different effects, the "composition effect" and the "level effect."[11] We follow this proposition.

Second, we focus on "development expenditure", and "non-development expenditure". Precisely, there are two dimensions to classify the government expenditure. One classification that is based on the economic characteristics of expenditure is "capital expenditure" or "current expenditure," while another classification is based on the purpose of the expenditure. The most important items in the latter classification are "development expenditure" and "non-development expenditure." In cross-country analysis, while the importance of capital expenditure has been emphasized, current expenditure has been regarded as a disturbance in economic

[9] See Easterly and Levine (1997), Barro and Sala-i-Martin (1995), and Barro (1997).
[10] In order to assess the hypothesis of conditional convergence, Sachs et al. (2002) used a Rajasthan dummy variable along with an urbanization variable, which has the strongest explanatory power. We employ only the Rajasthan dummy variable because urbanization is highly correlated (correlation is more than 0.80) to the SDP per capita.
[11] See Devarajan et al. (1996) for details.

growth (Barro 1991; Easterly and Rebelo 1993). However, these classifications are not necessarily appropriate as public goods can function optimally only when they are combined with current expenditure, which includes expenditure on maintenance and administration. Thus, in running regressions, we focus on functional classification, development expenditure, and non-development expenditure, where the former is expected to have a positive impact and the latter is expected to have a negative impact.

3.2 Growth regression results

We begin our analysis by examining the hypothesis of absolute convergence. Regression (1) in Table 1 presents evidence on the empirical association between the logarithm of the SDP per capita and that of growth. A glance at this result will reveal that the coefficient of the SDP per capita is positive and significant at the 0.05 significance level, which means that the level of the per capita SDP is diverging rather than converging, contrary to the implication of neoclassical growth models. Therefore, first in our analysis, we reconfirm the results of previous studies that found the absence

Table 1
State Government Expenditure and Long Run Growth
Dependent Variable: Growth rate of Per capita Net State Domestic Product

Independent Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Log of initial SDP	0.016	0.018	0.026	0.025	0.026	0.023	0.023
	[0.04]	[0.05]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Share of Total Exp. in SDP		-0.036		-0.039		0.000	
		[0.73]		[0.63]		[0.99]	
Share of Development Exp. in SDP			0.153				
			[0.19]				
Share of Development Exp. in total Exp.				0.112	0.109		
				[0.01]	[0.01]		
Share of Non Development Exp. in total Exp						-0.215	-0.216
						[0.00]	[0.00]
Interception for the 1980s	-0.087	-0.093	-0.184	-0.211	-0.232	-0.092	-0.091
	[0.13]	[0.25]	[0.01]	[0.01]	[0.00]	[0.10]	[0.01]
Interception for the 1990s	-0.093	-0.099	-0.191	-0.218	-0.239	-0.082	-0.081
	[0.13]	[0.24]	[0.01]	[0.01]	[0.00]	[0.16]	[0.03]
Dummy for Rajasthan		0.021	0.016	0.021	0.019	0.019	0.019
		[0.03]	[0.04]	[0.01]	[0.00]	[0.00]	[0.00]
No. of Observations	14,14	14,14	14,14	14,14	14,14	14,14	14,14
R^2	0.06,0.19	0.26,0.28	0.35,0.24	0.26,0.50	0.28,0.47	0.32,0.51	0.32,0.51

P-values are in parentheses
Estimated using Seemingly Unrelated Regressions

of absolute convergence across Indian states.

Regressions (2)-(7) examine the effect of the state government expenditure. As a preliminary step, in the first two regressions, we employ the fiscal policy variables captured by their share in the SDP. In regression (2), the coefficient of the share of the total expenditure in the SDP is negative, but statistically insignificant. The most likely explanation of this result is that there exist some components that do not contribute to growth. In regression (3), we employ the share of the development expenditure in the SDP. Like Rao et al. (1999), we also find this variable to be insignificant at the 0.10 significance level, though the sign of the coefficient is positive. We should remember that in this case, the result might be affected not only by the level effect, but also the composition effect.

In Regression (4), in order to divide these two effects, we employ the share of the development expenditure in the total expenditure, which is expected to capture the composition effect, besides the share of the total expenditure in the SDP, which is expected to capture the level effect. In this regression, we find the coefficient of the share of the development expenditure to be positive and highly significant. This variable remains positive and significant in Regression (5), in which we exclude the share of the total expenditure in the SDP. These results indicate that an increase in the budgetary share of development expenditure is positively related to the growth rate. On the other hand, Regressions (6) and (7) assess the impact of non-development expenditure. In both regressions, the coefficients of the non-development expenditure variables are negative and significant, which indicate that the non-development expenditure represented by interest payment, cost of pension, and administrative service, is negatively linked to growth. Therefore, from Regressions (4)-(7), we conclude that an increase in the budgetary share of development expenditure can enhance growth through the accumulation of public capital; non-development expenditure that can crowd out development expenditure is related negatively to growth. This is a major finding of this section.

4 Social diversity, state government expenditure, and growth in India

We have confirmed that the expenditure pattern of the state government can affect the long-run growth rate. We, now turn our attention to the main objective of this paper, namely, examining the effect of social diversity on growth through the channel of expenditure policy by the Indian state government.

4.1 Effect of social diversity

Fragmented societies are likely to exhibit competitive rent seeking by different groups. Since it is difficult to reach a consensus, a more diverse country might choose a distorted public policy, which in turn reduces long-run growth.

Easterly and Levine (1997) is the comprehensive study that focused on the ethnic fractionalization, which shows that the ethnolinguistic fractionalization is reducing growth by its adoption of unfavorable policies, such as low schooling, political instability, poor quality of infrastructure, and underdeveloped financial systems. According to them, this mechanism accounts for the poor economic performance of the sub-Sahara African countries. La Porta et al. (1999) was attempting to identify the fundamental source of variation in socio-political characteristics. Using legal origin, latitude, and religions, they proposed that ethnolinguistic fractionalization has a certain effect on the quality of the government. This is evaluated by multiple dimensions, such as government efficiency, quality of public goods, size of the government, and the degree of political freedom.

Regarding the effect of social diversity on fiscal policy, Alesina et al. (1999) demonstrated that the heterogeneity of preferences reduces the amount of infrastructure. In order to arrive at this conclusion, it is assumed that different ethnic groups have different preferences, while each ethnic group's utility level for a given public good will decrease if other groups share the public good. Keeping these assumptions in focus, the progress of fractionalization, namely the increase in the heterogeneity of preferences, negatively affects the utility level derived from one unit of a public good. This in turn, leads to individuals shifting their preferences from public goods to consumption, which reduces the provision of public goods. In the empirical analysis of the city and local-level data of the U.S., they found that ethnic fragmentation is negatively associated with the share in the budget of three "productive" public goods: education, roads, and sewerage and trash pickup.

Similarly, Annett (2000) presented a model that links social fractionalization and fiscal policy based on the endogenous growth model, in which a policymaker chooses an intertemporal path for consumption. According to this model, since social fractionalization in a fractionalized country is directly related to political instability, a policymaker is likely to allocate more resources for government consumption, which works to placate people, to remain in power for a longer period.

In applying these political-economic theories to India, we can point out that India too might suffer the negative effect of heterogeneity. It is well known that India is a

multidimensional society composed of a large variety of religions, languages, races, and classes, and these varieties not only result in the social conflicts represented by communal violence, but also rent seeking in the political arena, which is called "identity politics" based on caste and religion.

We can observe typical suffering due to such identity politics in the formation of an expenditure policy by the central and state government. Goyal (2003) indicated that the first reaction of new parties to the acquisition of power is likely to result in the adoption of an expenditure policy featured by populism for their support groups. As an example of distortion in the process of policy formation, Pai (2002) presented that parties based on caste, religion, and regional groups have not been able to aggregate public opinion, which in turn led to political instability, lack of incentive for development, and a low development expenditure in Uttar Pradesh. Kurian (2002) argued that the regime of responsible public finance has become extremely difficult with the era of frequent elections and competitive populism, which is practiced by different political parties aspiring for power.

Here, with implications of previous political economic studies and these aspects of the Indian reality, we summarize the major effects of social diversity on government expenditure as follows: social diversity is expected to distort the expenditure policy of state governments by decreasing the provision of public goods.

4.2 Measures of social diversity

Since India is a multidimensional society, diversity can be measured in different ways. In this paper, in order to assess the impact of social diversity, we focus on two dimensions, religion and caste, since they are the major factors used to swing votes in Indian politics (Goyal 2003). To capture the degree of social diversity resulting from castes, we employ the percentage of scheduled castes to the total population as backward castes have been deeply associated with a majority of the social and political conflicts.

To evaluate the social diversity in the dimension of religion, we constructed the fractionalization index with data from Census India that provides the population of five major religions,[12] and others in states, based on the following equation, which was employed in Taylor and Hudson (1972), Easterly and Levine (1997), Alesina et al. (1999), and Annet (2000). In this equation, N and n_i each correspond to total population and the population belonging to the ith religious group. The religious fractionalization index

[12] The five major religions are Hinduism, Islam, Christianity, Sikhism, and Buddhism.

Table 2
Social diversity in Indian States (1991)

	REL	Rank	SCR	Rank
ANDHRA PRADESH	0.204	8	0.149	8
BIHAR	0.291	5	0.142	10
GUJARAT	0.191	12	0.072	13
HARYANA	0.196	11	0.191	4
KARNATAKA	0.249	7	0.151	7
KERALA	0.574	1	0.100	12
MADHYA PRADESH	0.133	13	0.140	11
MAHARASHTRA	0.324	4	0.071	14
ORISSA	0.089	14	0.147	9
PUNJAB	0.494	2	0.269	1
RAJASTHAN	0.196	10	0.170	6
TAMIL NADU	0.204	9	0.184	5
UTTAR PRADESH	0.280	6	0.212	3
WEST BENGAL	0.361	3	0.220	2
Mean	0.271		0.158	
Median	0.249		0.151	
Max	0.574		0.269	
Min	0.089		0.071	
Std. Dev	0.134		0.055	

REL: Religious fractionalization, SCR: The percentage of scheduled castes to total population

is more precisely defined as "the probability that two randomly drawn people in a specific country will not belong to the same religious group." This index increases with an increase in the number of groups.[13]

$$REL = 1 - \sum_{i=1}^{M} \left(\frac{n_i}{N} \right)^2, i = 1 \ldots M$$

Table 2 shows the value and ranking of those indexes. From the religious fractionalization index, we can see that Kerala (0.574), Punjab (0.494), and West Bengal (0.361) are highly fractionalized, while Orissa (0.089) and Madhya Pradesh (0.133) are ranked low. With regard to the percentage of scheduled castes to the total population, we can see that states, such as Punjab, West Bengal, and Uttar Pradesh have a large population of scheduled castes. In our regressions, besides these two indexes, we assess

[13] It is possible that social conflicts emerge more easily, when the population is distributed in two groups of equal size. Therefore, an alternative indicator of religious diversity is proposed by Montalvo and Renyanl-Querol (2002). In this new indicator, the index reaches a maximum in case there are two equally-sized groups in a society. In fact, we also tried this new indicator in our regressions; however we could not find any significant effect on growth and expenditure variables. This is consistent with Alesina et al. (2002), which showed the advantage of the old index that we employ here. At the same time, we should mention that this kind of measure has a drawback as it does not measure the intensity of conflict between groups.

the impact of the percentage of scheduled tribes to the total population and the GINI coefficient as income and minority groups can also comprise interest groups.

4.3 Growth regression

Prior to examining the effect of social diversity on the expenditure pattern, we assess the direct relationship between social diversity and growth. By controlling other explanatory variables employed in the former section, Regressions (1)-(4) in Table 3 show evidence of the effect of social diversity indexes on growth. Regressions (1)-(2) demonstrate that income distribution and the percentage of scheduled tribes are not significantly related to growth. From these results, we consider that these two social factors do not account for the interstate differences in economic performance.

On the other hand, in Regressions (3)-(4), we can see that the percentage of scheduled caste and religious fractionalization are significantly related to growth at the 0.10 level of significance and the anticipated negative sign. On the basis of this result,

Table 3
Social Diversity and Long Run Growth in India
Dependent Variable: Growhth rate of Per capita Net State Domestic Product

Independent Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Log of initial SDP	0.038	0.037	0.023	0.022	0.026	0.024	0.027	0.022
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Gini Coefficient	0.000							
	[0.56]							
Scheduled Tribe		-0.011						
		[0.62]						
Scheduled Caste			-0.068		-0.014	-0.045		
			[0.05]		[0.75]	[0.07]		
Religious Fractinalizaion				-0.025			0.009	0.013
				[0.09]			[0.58]	[0.32]
Share of Development					0.099		0.130	
Exp. in total expenditure					[0.06]		[0.01]	
Share of Non						-0.195		-0.252
Development Exp. in total						[0.00]		[0.00]
Interception for the 1980s	-0.233	-0.242	-0.125	-0.126	-0.223	-0.099	-0.250	-0.083
	[0.00]	[0.00]	[0.01]	[0.01]	[0.00]	[0.00]	[0.00]	[0.02]
Interception for the 1990s	-0.243	-0.251	-0.131	-0.133	-0.230	-0.091	-0.257	-0.071
	[0.00]	[0.00]	[0.01]	[0.01]	[0.00]	[0.01]	[0.00]	[0.07]
Dummy for Rajasthan	0.019	0.019	0.020	0.018	0.020	0.020	0.020	0.019
	[0.00]	[0.00]	[0.01]	[0.01]	[0.00]	[0.00]	[0.01]	[0.00]
No. of Observations	12,12	12,12	14,14	14,14	14,14	14,14	14,14	14,14
R^2	0.10,0.56	0.06,0.58	0.25,0.38	0.45,0.19	0.28,0.48	0.36,0.54	0.20,0.52	0.20,0.56

P-values are in Square Brackets
Estimated using Seemingly Unrelated Regressions

we consider social diversity in the dimensions of caste and religion to have a negative impact on long-run growth in each Indian state. In Regressions (5)-(8), we control social diversity variables simultaneously with expenditure variables. In Regression (5), we can see that the percentage of scheduled castes has become insignificant after introducing the budget share of development expenditure. On the other hand, in Regression (6), which includes the budget share of non-development expenditure, the percentage of scheduled castes remains significant with little change in the coefficient and P-value. From these results, it is implied that the percentage of scheduled castes is related to the budget share of development expenditure. However, we can not find a relation to the budget share of non-development expenditure. Similarly, in Regressions (7)-(8), we control these two expenditure variables using the religious fractionalization index. In both regressions, the religious fractionalization index has become insignificant. These results indirectly imply that religious fractionalization is related to expenditure policy as it loses its independent relationship with growth in these two regressions. This is consistent with the above discussion. In other words, social diversity might distort the expenditure policy of the state government, which in turn affects growth.

Before concluding this analysis, we should note the absence of convergence across Indian states. If we look at Tables 1 and 3, it is observed that the coefficient of the SDP per capita remains positive and significant at the 0.05 significance level in all growth regressions even after controlling various additional determinants, such as fiscal policy variables, religious fractionalization, and the percentage of scheduled castes to the total population. Therefore, we can conclude that not only absolute convergence, but also conditional convergence remains unsupported in the framework of this paper.

4.4 The impact of social diversity on state government expenditure

Now, we examine the effect of social diversity on the state government expenditure. In the beginning, it was confirmed that development expenditure can promote growth while non-development expenditure hampers growth. Since we are interested in the effect of social diversity on growth, we investigate the empirical relationship between social diversity and development and non-development expenditure. Our main hypothesis is that social diversity distorts the expenditure policy by decreasing the provision of public goods. Thus, we anticipate that social diversity is negatively related to development expenditure as it is an input for the accumulation of public goods.

4.4.1 Regression result

In running regression, we employ the percentage of scheduled castes to the total population and the religious fractionalization indicator as the social diversity variable. This is because the growth regression results in Table 3 show that two variables are related to growth. It further implies that there exists a certain relationship between these two social diversity variables and the expenditure variable. Apart from these social diversity variables, we employ two other variables. One is the logarithm of the initial SDP that controls the impact of the development level. It is possible that a less developed state government will have more incentive to develop. As the second variable, we employ the logarithm of initial population to deal with the scale effect, since the state that has a large population might enjoy the scale effect in providing public goods.[14] Both variables are used in previous studies such as Easterly and Rebelo (1993) and Alesina et al. (1999).

In this paper, we examine the empirical relationship between social diversity variables and two fiscal policy variables, and development and non-development expenditure variables. Table 4 shows the regression results. In the first two regressions, we employ the percentage of scheduled castes to the total population as an explanatory variable. Regression (1), in which we control only the scheduled castes variable beside the interceptions, shows that this variable is negatively and significantly correlated to

Table 4

Social Diversity and State Government Expenditure

	Dependent Variable							
	Share of Development Expenditure in Total Exp.				Share of Non-Development Expenditure in Total Exp.			
Independent Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Scheduled Caste	-0.575	-0.542			0.045	0.058		
	[0.00]	[0.00]			[0.67]	[0.60]		
Religious			-0.214	-0.197			0.094	0.104
Fractionalization			[0.00]	[0.01]			[0.01]	[0.01]
Log of Initial SDP		-0.033		-0.018		0.004		-0.009
		[0.25]		[0.59]		[0.86]		[0.63]
Log of Initial Population		0.003		0.008		0.000		-0.001
		[0.85]		[0.65]		[1.00]		[0.94]
Interception for the	0.715	0.902	0.682	0.668	0.201	0.169	0.182	0.256
1980s	[0.00]	[0.04]	[0.00]	[0.18]	[0.00]	[0.61]	[0.00]	[0.33]
Interception for the	0.710	0.906	0.673	0.663	0.279	0.247	0.261	0.337
1990s	[0.00]	[0.04]	[0.00]	[0.19]	[0.00]	[0.47]	[0.00]	[0.22]
No. of Observations	14,14	14,14	14,14	14,14	14,14	14,14	14,14	14,14
R^2	0.42,0.41	0.52,0.39	0.34,0.30	0.39,0.32	-0.06,0.05	-0.08,0.07	0.16,0.21	0.18,0.21

P-values are in Square Brackets

Estimated using Seemingly Unrelated Regressions

[14] See Easterly and Rebelo (1993).

development expenditure. In Regression (2), we see that the scheduled castes variable remains significant after controlling other variables. These results show that the percentage of scheduled castes is negatively related to development expenditure. Regressions (3)-(4) examine the effect of religious fractionalization on development expenditure. In both regressions, we find the expected significant, negative link between the religious fractionalization and development expenditure variable. Therefore, from Regressions (1)-(4), we can conclude that social diversity has a negative impact on development expenditure.

In Regressions (5)-(8), instead of development expenditure, we employed non-development expenditure as an independent variable. We find that in regressions (5)-(6), the scheduled castes variable is positive, but not significantly related to non-development expenditure. These are consistent with the growth regression results in Table 3, which implied the absence of an empirical relationship between these two variables. On the other hand, we observe from Regressions (7)-(8) that the religious fractionalization variable is positive and significantly related to non-development expenditure. Therefore, we find that only religious fractionalization has a positive impact on non-development expenditure. Regarding the SDP variable and the population variable, both are not significantly related to the expenditure variables in all the regressions. Therefore, we can say that the income level and the population scale are not important factors in determining the expenditure pattern.

Based on these results, we can now derive important implications on the effect of social diversity. By and large, social diversity distorts the state government expenditure in the form of decreasing pressure on development expenditure, and increasing pressure on non-development expenditure though the latter mechanism is not always successful. Since development expenditure is capable of promoting growth, and non-development expenditure affects growth negatively, it is concluded that social diversity retards long-run growth through the channel of expenditure pattern. We consider this is as the main finding of this paper.

5 Concluding remarks

In the context of the recent political economy of growth, it has been emphasized that explaining the inequality among regions requires not only an understanding of the link between growth and public policies, but also an understanding of why growth-retarding public policies are adopted. So far, this paper has focused on the social diversity of Indian states, and assesses its effect on the state government's expenditure

policy and interstate disparity, as indicated by previous studies. The major conclusion and implication of this study is summarized as follows.

First, our regression results showed that an initial level of the SDP per capita is positively related to the growth rate, even after controlling various factors, such as the expenditure policy and social diversity of each state. Hence, we can conclude that not only absolute convergence, but also conditional convergence is not observed across Indian states. In other words, interstate inequality is expanding, contrary to neoclassical growth theories, which suggest that future research should focus on the possibilities of increasing returns.

Second, we found that social diversity, in terms of caste and religion, distorts the state government expenditure by decreasing development expenditure and increasing non-development expenditure. Considering that development expenditure can promote growth, while non-development expenditure can work negatively, we conclude that social diversity retards long-run growth through the channel of expenditure policy.

DATA APPENDIX

Variable name	Definition	Source
Growth rate	Average of annual growth rate in each decade (1980-1989,1990-1997)	Central Statisitical Organization
Log of initial SDP	Logarithm of initial Per capita Net State Domestic Product (at the start of each	Central Statisitical Organization
Log of initial POP	Logarithm of initial Population (at the start of each decade)	Census of India (1981,1991)
Scheduled Caste	Share of Scheduled Caste Population in Total Population (at the start of each	Census of India (1981,1991)
Scheduled Tribe	Share of Scheduled Tribe Population in Total Population (at the start of each	Census of India (1981,1991)
Gini Coefficient	Gini Coefficient (at the start of each decade)	Ravallion, M., Datt, D., and Ozler, B. (1996)
Religious Fractionalization	The probability that two randomly drawn people in a specific country will not belong	Author's construction from Census of India
Share of Total Exp. in SDP	Average Share of Total Expenditure in Net State Domestic Product of each decade	Reserve Bank of India Bulletin (various issues)
Share of Development Exp. in SDP	Average Share of Development Expenditure in Net State Domestic Product of each	Reserve Bank of India Bulletin (various issues)
Share of Development Exp. in total Exp.	Average Share of Development Expenditure in Total Expenditure of each decade	Reserve Bank of India Bulletin (various issues)
Share of Non Development Exp. in total Exp	Average Share of Non Development Expenditure in Total Expenditure of each	Reserve Bank of India Bulletin (various issues)
Dummy for Rajasthan	Dummy variable for State of Rajastan	

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