Oil, Gas, and Indian Political Competition

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ABSTRACT

Oil and gas are thought to affect a country's political and economic outcomes through many theorized channels that give weight to 'resource curse' literature. This study attempts to find the presence of a 'resource curse' at the microeconomic level through an analysis of the districts of India. This analysis differs from the various factors that plague cross country studies attempting to decipher this effect. This study finds that in India, the share of oil and gas in a district's GDP has a varying effect on political competition. The effect of oil and gas on political competition is dependant on the level of development present in a district. The study finds an interactive effect of oil and gas share on political competition, such that the originally negative effect of oil and gas becomes positive with increasing levels of per capita GDP.

1 INTRODUCTION

Oil and gas have been associated with governments that are likely to be autocratic. Anecdotal evidence points to inhabitants in oil rich areas receiving few benefits from discoveries on their land. Wide corruption in oil and gas rich countries has also been pointed out to as a mechanism for stifling the benefits of oil wealth. It is argued that had some countries not found natural resource wealth, their living standards would have been better.

Previous literature has tried to gain empirical evidence of the various effects of oil and gas on economic and political outcomes. The literature has mainly employed a cross country approach. This poses a problem as different standards of measurements are used across different countries and inter-country institutions differ, making it difficult to compare outcomes. A few studies have analyzed the affects of oil and gas on political outcomes at an intra-country level.

The case of India is unique in that it doesn't export oil and gas, having 32% of it domestic consumption met by local sources (ONGC). Many oil discoveries were made in the 1970s and a few more in the 1990s. Oil and gas account about 15% of India's large and diverse economy, but revenue form oil and gas account for about 18% of federal expenditure (ONGC). This analysis proposes to find the affect of oil and gas on political outcomes at the district level in India, which is the smallest local government and administrative level in India.

Through a cross district analysis, this study uses development related variables to find the effect of oil and gas on political outcomes in India. Previous in-country studies exclude the use of such variables. These variable show significance, as India is a country with large inequality and an overall democratic structure. It is thus affected by scenarios of pervious and continuing redistribution between different groups.

It is found that that oil and gas have an interactive effect on the political competition of a district. The negative effect of oil and gas on political competition changes with the level of development present in a district. This negative effect decreases with the increase in the level of development, as measured by per capita GDP of a district. These results are fairly robust to other proxies of development, such as inhabitants below poverty line. However, the results hold poorly when subjected to robustness test using newspaper diversity in a district. The advantage to these results, however is that compared to cross country studies, they aren't affected by differing institutions or cultures. Additionally, many proposed affects of oil and gas on a country's political or economic landscape can be eliminated by virtue of an in-country study.

This work contributes to existing studies through it utilization of an interactive effect of development and share of oil and gas, rather than a linear effect as suggested by previous work. Additionally this study measures intra-country political competition at the local government level. Over all, this study suggests an intricate pattern through which oil and gas share are likely to effect political or economic patterns – channeling through theorized redistributive measures in a country.

2 EMPIRICAL STUDIES

This section distinguishes previous literature based on empirical studies, theoretical models of democracy, and redistribution, and models of oil and gas revenue redistribution.

2.1 Cross Country Studies

Many empirical correlations provide differing results – of a democratizing, authoritative, or a negligible effect of natural resources. Ross (2001) finds a negative effect of oil and mineral exports to levels of democratic governance in a cross sectional analysis. He finds evidence of the rentier effect and repression effect on a country's polity score. The rentier effect is exhibited

when government use of oil revenues leads to less taxation, and thus less accountability by the populace. The repression effect is exhibited when governments use oil revenues to prevent popular challenge through a police force.

Wantchekon (2002) finds natural resource dependence, measured as a ratio of primary exports to GDP, has a positive association with authoritarianism and a negative correlation with economic growth. Ramsay (2006) argues that in existing literature oil prices and revenues are simultaneously determined by changes in regime structure and thus instruments for oil revenues. He too finds a negative effect of oil wealth on political freedom. Jensen and Wantchekon (2006) conduct an ordered probit cross country regression and find that resource wealth enhances the building of an authoritarian government as well as breaking down democratic regimes. They find a robust conclusion to the negative relation of natural resource wealth to political outcomes. Herb (2003) uses a counter factual to what a country would look like had it not found resources through a study of its neighbors' income levels. He finds that natural resources have a negligible affect on political outcomes, and finds the inexistence of a rentier effect.

Haber and Menaldo (2007) find that natural resources have no effect on regime types through use of intertemporal data from a host of major oil exporting countries. Like Herb (2003), they also use a counterfactual strategy. They find that previous research may have suffered from omitted variable bias, outliers, and the measure of resource dependence may have led to false inferences in cross country approaches. With their temporal approach they plot out the changes in regimes in relation to changes in natural resources prices. They find that profit windfalls, due to changes in oil price, aren't responsible for regime changes.

2.2 Regional Studies

Goldberg, Wibbels and Mvukiyehe (2007) use the American states to specify whether the resource curse is limited to an income threshold. They conclude that dependence on natural resources may lead to slow economic growth and less competitive politics in the United States.

Caselli and Micheals (2008) conduct an analysis on oil deposits in Brazilian municipalities. They focus on the spending of oil revenue on public services rather than political responses. They find that certain areas under municipality jurisdiction experience an increase in public spending, but household income decreases by less. They postulate that corruption takes up a lot of generated oil revenue. They suggest a localized Dutch disease in the increase of services at the expense of the manufacturing sector. They fail to find any rent seeking and suggest that oil revenues are more 'stealable' than other revenues.

Micheals (2007) finds that specialization in the natural resource sector results in higher per capita income, measured in a long term time frame in the Southern United States. He finds some evidence of a localized Dutch Disease. Due to specialization, he finds that education accumulation slowed over time even though counties had higher education accumulation in the short run. He finds a similar effect with per capita income. He concludes that oil abundance didn't increase income inequality.

3 THEORY

3.1 Democracy and Redistribution

Democracies are characterized by redistributive measures generally accomplished through taxation efforts. Taxation is affected by the degree of economic equality, the type of assets available, and the distribution of political resources (Boix, 2003). Democracy flourishes in countries where economic equality or asset mobility is high. With high levels of economic

equality, taxation doesn't severely affect the elite segment of society. Countries are more likely to be authoritarian with high inequality and a large immobility in their assets. In such countries, the wealthy segment has a high cost regarding the redistribution of wealth through taxation. In such scenarios, the elites are likely to use repression to dampen demands of democracy. As assets become more mobile, voters agree on lower tax rates and asset owners are more likely to accede to democracy in unequal societies since the cost of repression is higher than the redistributive costs of democracy to the elites.

Dunning (2008) classifies countries as resource abundant and resource dependent. In resource dependent countries, resources compose a large part of GDP as they are one of the few main activities for income generation. Resource abundant countries have a large non resource sector, but a highly taxed, revenue generating resource sector. India falls into the latter category as the resource sector comprises a small part of the nation's GDP, but is used for about 18% of the federal revenue (ONGC**).** Another quality that is noted in India's non-resource sector is the large inequality. It is specifically these two criteria that push a democratizing effect from resources.

Dunning (2008) argues that resource dependent countries can use resource rents to displace taxation and other forms of revenue generation. This is not the case in resource abundant countries. With an unequal non resource sector, there is a greater redistributive pressure with democracy, which leads to its opposition by the asset owning elites. Resource rents can provide easy redistributive measures without much taxation on other immobile assets such as land and industries. This also decreases the incentive of elites to stage coups or use repression to stay in power, as they aren't bearing the full cost of taxation. This is seen as the democratic

effect of resource rents in resource abundant countries, whereas the authoritarian effect is observed then when a country is resource dependent.

Oil and gas revenues can be used for the mentioned redistributive measures because oil and gas are immobile assets, have a high fixed cost, and don't require many linkages to the external economy. This immobility and monopoly like characteristics make oil and gas easily taxed or controlled by the government.

4 Econometric Specification and Data

4.1 Specification

The analysis is based on the following regression equation

(1) $P_i = \alpha_s + \beta_1(Share_i) + \beta_2 \ln(Income_i) + \beta_3(Share_i * ln(Income_i)) + \beta_5 \boldsymbol{X_i} + \mu$

The dependent variable is the measure of political competition in a district's corresponding parliamentary constituencies. State fixed effects (α_s) reflect unobserved state effects. The vector $\boldsymbol{X_i}$ includes controls such as population density and percentage of scheduled tribes in a district. The variable of interest, $Share_i$ measures the share of oil and gas in a district's GDP. The variable $Income_i$ is the measure of per capita district GDP, measured in 1999-2000 Indian rupees for the year 1999-2000. The interaction term between $Income_i$ and $Share_i$ measures the indirect effect of resource shares on political competition. This indirect effect is noticed in democratic societies where oil revenues are used for redistribution in the face of large inequality (Dunning, 2008).

The OLS regression includes standard errors that are clustered by state with correction for state wise heteroskedasticity (Bertrand, Duflo, Mullainathan, 2004). State fixed effects account for 27 states in the data, with an average of 25 districts per state.

4.2 DATA

Political competition will be the dependent variable for the base regression. Below poverty line measurements and binary variables for oil or gas deposits will be used for sensitivity analysis. Robustness checks will be conducted through use of newspaper circulation data.

4.2.1 Dependent Variables

Political competition is measured by the absolute value of the difference in share of votes gained by a competitor party and the share of votes won by the Indian National Congress. The value ranges from zero to one. A herfindahl index is compiled for newspapers published in each district with a place of publication. This value also ranges from zero to one. Besley and Burgess (2000) find that newspaper circulation is strongly correlated with political competition at the state level in India. However, this limits the sample to 250 districts as only a few districts have publishing centers[1]. The herindahl index of newspaper shows a correlation of -14% with the measure of political competition.

4.2.2 Explanatory Variables

Income per capita in a district is an indicator of development. The control variables, log of population density and percentage of scheduled tribes were shown to have as significant affect on state competition by Besley and Burgess (2000). As a sensitivity check, the percentage of inhabitants below poverty line will be used for a development indicator. This limits the sample to 393 districts as figures for all districts don't exist. Further sensitivity checks will be conducted using a binary variable indicating whether a district has an oil or gas deposit.

4.3 Descriptive Statistics

Table 1 displays descriptive statistics of some variables of interest. Panel A lists statistics from the general sample of 550 districts and Panel B focuses on districts with oil or gas deposits,

[1] Further compilation of these data figures is in process

numbering at 37. Comparing the two types of districts, it's observed that districts with oil or gas deposits surpass districts without deposits on many indicators. Districts with oil and gas only account for about seven percent of the sample but have higher political competition values as well as higher log of capita incomes. Districts with oil and gas deposits also tend to have fewer inhabitatnts living below the poverty line, 26% compared to 32% for the general sample. These districts also have a lower herfindahl index for newspapers, .14 compared to .32, indicating greater diversity in newspapers. Districts with oil and gas tend to be more densely populated and have a lower percentage of scheduled tribe members, 12.6% compared to the national sample at 14.74%.

5 RESULTS

Tables 2 to 5 show results of the empirical model used in this analysis. Table 2 shows results from the benchmark specification while tables 3 and 4 show the results from sensitivity checks.

5.1 Benchmark Results

Table 1 shows results using per capita district income as an indicator of development. Column 1 shows the regression capturing only the effect of per capita GDP on political competition, controlling for state fixed effects. It is seen to be insignificant. Column 2 tests the variable of interest, share of oil and gas measured as a percentage of district's GDP. This too shows insignificance in correlation to political competition. Column 3 shows the correlation of both income per capita and share of oil and gas on political competition. The combination of these terms shows insignificance. When the interaction term is added, as in column 4, the share and interactive term show significance. Column 5 contains the results without state fixed effects showing that the results aren't driven by inclusion of state fixed effects. Column 6 and 7 add the

control terms log of density and the percentage of scheduled tribes respectively. Columns 8 and 9 present the final results with and without state fixed effects respectively.

Following the hypothesis of this study, the interaction term not only shows significance but shows an opposite sign to the share term. This points to the changing effect oil has on political competition. As development increases, the negative effect of oil on political competition decreases, becoming positive after a per capita income of 3,311 hundred thousand rupees. This hints at some redistributive conflict and at the corruptive nature of Indian politics. With low development, oil revenues may be used for redistribution in the unequal society that is India. However, with increasing development, oil revenue can be used for personal gain, indicating a 'stealability' that Caselli and Michaels (2008) point out to.

Table 2 shows results using the percentage of inhabitants below poverty line (BPL) as an indicator of development. Column 1, 2 and 3 show the $Share_i$ and BPL_i term separately and combined in the regression. The variables don't hold significance. Once the interaction term between $Share_i$ and BPL_i is added, both terms show significance with opposite signs, as seen in column 4. The results once again show significance without state fixed effects, as seen in column 5. Column 6 and 7 add control terms. Column 8 and 9 show the final regression with and without state fixed effects. After as level of 37% of inhabitants below the poverty line, the effect of oil and gas on political competition becomes negative.

This demonstrates the argument of this paper and points to a redistributive conflict. Although the signs of the share and interactive term are reversed from the regression containing per capita income, the terms point to the same conflict as above. It can be theorized that politicians are attracted to oil revenues, but with an increasing number of inhabitants below poverty, redistribution from oil revenues in called upon – decreasing the 'stealability' of oil

rents. Redistribution from taxation of elite's assets would give incentives for elites to hold a coup, or more properly in India - decrease re-election chances of candidates.

These results don't necessarily imply this theory as the specification suffers from endogeniety of per capita income and political competition as well as the percentage of inhabitants below poverty line and political competition. I am unable to find effective instruments for these variables.

5.2 Sensitivity Checks

Table 3 shows the specification using a binary variable, OG_i, which indicates whether a district contains oil and gas deposits. These test aim to find existence of extensive or intensive margins of oil and gas. Columns 1 and 2 of Panel A show that the availability of oil exerts a positive effect on a district's political competition. However, with the inclusion of the interactive term, the variable exerts a negative effect and looses significance, as seen in column 4. Column 5 shows the results without state fixed effects and columns 6 and 7 add control variables to the specification. Columns 8 and 9 show the results with and without state fixed effects respectively.

Panel B of Table 3 shows that the positive effect of the binary variable in column 3 maintains significance once the interaction term is added. The interactive term doesn't show significance, but the binary variable exhibits a positive correlation with political competition throughout the specification. This is different from the negative correlation exhibited by the binary variable in Panel A. These opposite signs of the binary variable in the two specifications, without being countered by a significant interaction term, point to a very weak existence of extensive margins of having petroleum or gas. It can be concluded that political competition is affected by the value of the share of oil and gas rather than just the effect of having oil or gas.

Table 4 shows a robustness test which uses the herfindahl index of newspaper as the dependent variable. All specifications include controls for district density and the population of scheduled tribes. Column 1 shows results through use of per capita income and the interactive term between share and per capita income. The variables of interest show insignificance. Column 2 uses the $Share_i$ and BPL_i variable and their interaction. Only share exhibits a negative correlation with the herfindahl index. The interactive term is insignificant. Columns 3 and 4 use the binary variable with the per capita income and BPL interactive term respectively. The variables of interest in both specifications show insignificance. The herfindahl index of news papers may be a weak indicator of political competition as it shows the supply aspect of newspaper circulation rather than demand. In addition, its availability in districts with a publishing centers indicates a sample bias as these districts may be larger areas of economic activity.

6 CONCLUSION

The findings in this study suggest that the share of oil in a district has an interactive effect on political competition, influenced by levels of development, as measured by per capita GDP and the percentage of inhabitants below the poverty line. This differs from the linear effect that has been debated in literature.

It is seen that as development levels rise, the share of oil exerts an increasingly positive effect on political competition. A possible explanation is that this effect may be noticed due to corruption and redistribution measures that characterize the Indian democracy. With lower levels of development, oil revenues are likely to be used for redistributive measures, hindering their use for a candidate's personal advantage. Because India is a largely unequal society, taxation will greatly disfavor the wealthy. Taxation is demanded by the poor to close this income gap. To

prevent such taxation, and to ensure reelection by support of the wealthy, a candidate may use oil revenues for redistribution to the poor. These results should be interpreted carefully as the specification suffers from endogenity of political competition affecting development related measures.

It is also found that the oil and gas availability doesn't exhibit an extensive margin as availability shows diverging effects on political competition when interacted with different development variables. The overall results hold weak significance when tested for robustness using a herfindahl index of newspapers.

Further research should conduct microeconomic analysis using intertemporal data and should seek to correct the endogenity that's present in the specifications. Additionally, future research should look at other countries to attest to the presence of this redistributive effect that's hypothesized in this study.

7 Appendix: Indian districts, oil royalties, and parliamentary elections

The district represents the third tier of government in India. The first and second tiers are the federal government and state government respectively. The state and federal government determine which areas are taxed and oil and gas fall under the jurisdiction of the federal government. The states however get 20% of all royalties generating from oil companies within their boundaries. There aren't many laws regulating the return of oil and gas royalties back to the citizens directly affected. However, companies are required to compensate affected individuals a certain profit margin. Anecdotal evidence points to many affected citizens asking for greater share in oil revenues in their affected lands. One such example is the inhabitants of Mon district in Nagaland (Sema, 2001).

Citizens can voice such concerns through their representative in the Lok Sabha. The Lok Sabha is the lower parliamentary house for which membership is gained through direct election. The majority of the seats held by a party in this house determines the party of the national government. The Lok Sabha has 552 seats, each seat representing a parliamentary constituency or reserved seats for groups that are underrepresented. Each state has a certain number of seats in the Lok Sabha, reflecting the number of parliamentary constituencies within it. Generally, most parliamentary constituencies match up to a district within a state.

With regard to taxation and redistribution, there are few areas through which local governments earn revenues. These areas are determined by the state and federal government. However, local or district governments are exclusively in control of terminal taxes, property and building taxes, oil engine, food, timber, fishers and produce, and profession and labor taxes. The tax pool accruing to districts is about 22%. Areas that local governments are responsible for are

primary education, roads and bridges, public health and sanitation, public works, irrigation and water development and markets and fairs (Rao and Singh, 2001).

8 Data Appendix: Measurements and Sources

Political Competition: Data on turnout in Lok Sabha elections in 2004 comes from the Electoral Commission of India. To construct a measure of political competition, the absolute value of the share of votes gained by a competitor party was taken from the share of votes won by the Indian National Congress. For districts without representation from the Indian National Congress, competition values were coded as zero, indicating low levels of competition. The Indian National Congress is used as the party in reference because it was the ruling party in the 2004 Indian National Elections. To map parliamentary constituency data to the district level, a method similar to Baxter (1969) was used such that constituencies were assigned according to their present district location. In some cases, a district had multiple constituencies or multiple districts were in one constituency. In the first case the average from each parliamentary constituency was taken to derive a district measure for competition. In the latter case, the parliamentary competition measure was assigned to each district within the constituency.

Oil and Gas: Share values for oil and gas were constructed by calculating the share of the gross production value of a district's refinery in the year 2000 from a district's GDP. The data only concentrates on oil and gas discoveries made before the year 2000, with the latest discovery in the sample at year 1994. There is regional diversity in the districts containing oil or gas deposits. About thirteen different states contain these deposits with most deposits in the southern states of Tamil Nadu, Karnataka, Kerala, and Andhra Pradesh. Gas deposits are generally found in the Northeastern states of West Bengal, Assam, Nagaland and Tripura. A few western states, such as Gujarat, Rajasthan, Madhya Pradesh, and Maharashtra also contain oil and gas deposits.

Northern states containing oil deposits include Uttar Pradesh, Haryana, and Bihar. Figure 1 shows a map indicating oil and gas deposits within states.

Data regarding petroleum and gas was collected from the Ministry of Petroleum and Natural Gas, The Ministry of Statistics and Program Implementation, Indian Bureau of Mines, Petroleum Planning & Analysis Cell, and the Ministry of Environment and Forests.

GDP and Below Poverty Line: Data was collected through various state statistical manuals. These contain more intricate data on estimated GDP figures and inhabitants living below nationally defined poverty lines at the district level. GDP is calculated for the year 2000 in 1999-2000 prices in hundred thousands Indian Rupees. For a few districts, GDP figures were constructed using main and marginal worker data available through the 2001 Indian Census at the district level. The proportions of a districts main workers (those who worked more than six months in a year), marginal workers (those who worked less than six months in a year), agricultural laborers, and industry workers with respect to the total state workers were multiplied by a state's domestic product to produce district domestic product measures. This gave a rough estimate of GDP for districts. Sources for GDP and BPL figures are listed in the Data Sources section.

Newspapers: Data on newspaper circulation was obtained from Press in India, Annual Report of the Registrar of Newspapers in India, 2001. Newspapers were listed by their place of publication which was matched to the proper district. A herfindahl index of the total newspapers in a district was created to reflect the diversity of print media available.

Population and Village Amenities: Population, density, and scheduled tribe population data come from the Census of India, 2001. Population density figures are calculated in log of density and percentage of scheduled tribe is calculated as the share of the total district population.

Village level data listed in the summary statistics, in Table 1, also comes from the Census of India, 2001.

Figure 1: Oil and Gas Fields in Indian States

Table 1: Summary Statistics

Panel A: General Sample

Variable	Obs	Mean	Std. Dev.	Min	Max
Political Competition	533	0.6139814	0.3639564	0	0.9994926
Log(GDP/ Population)	544	8.80309	1.709673	4.42153	15.57752
Below Poverty Line, %	404	0.3205287	0.1894685	0.0115	0.9798057
Log(Density)	547	5.745177	1.087917	0.6931472	10.11698
Sch. Tribe, %	551	0.1473688	0.2439739	0	0.9809
Log(Oil, Gas Production)	548	1.245411	4.915012	0	25.84723
GDP	545	436795.7	1603414	2282	1.86E+07
Oil, Gas Binary	550	0.0672727	0.2507218	0	1
Share of Oil, Gas in GDP	546	0.0157357	0.0781521	0	0.6815779
Herfindahl Index of Newspapers	320	0.3151064	0.4097379	0.000024	1
Villages w. Mud Road	545	0.6257862	0.2739368	0	1
Average HH size	551	5.46098	0.8810232	0	8
Total Inhabited Villages	551	1051.933	824.9927	0	10548
Log(Total Literate Population)	550	13.43789	0.9870801	9.504799	15.70519

Panel B: Districts with Oil and Gas Deposits

Variable	Obs	Mean	Std. Dev.	Min	Max
Political Competition	36	0.7153218	0.3199551	0	0.9991652
Log(GDP/ Population)	36	9.269947	1.705533	5.937319	14.01158
Below Poverty Line, %	33	0.2605226	0.1491996	0.074	0.5366
Log(Density)	37	5.885951	1.451324	2.564949	9.961285
Sch. Tribe, %	37	0.1258568	0.1910308	0	0.9393
Log(Oil, Gas Production)	35	19.49958	4.715017	6.552508	25.84723
GDP	36	1243637	3297555	7014	1.86E+07
Oil, Gas Binary	37	1	0	1	1
Share of Oil, Gas in GDP	33	0.2603546	0.1958179	0.0464634	0.6815779
Herfindahl Index of Newspapers	29	0.1391475	0.2525293	0.0004	1
Villages w. Mud Road	35	0.6407161	0.289067	0.079922	0.9967742
Average HH size	37	5.162162	0.8664587	4	7
Total Inhabited Villages	37	1158.081	1723.244	0	10548
Log(Total Literate Population)	37	13.82489	1.104828	10.84527	15.70519

Table 1: Oil/Gas Share and Income per Capita

	Dependent Variable: Political Competition								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Income	-0.0294		-0.0270	-0.0328	-0.0374**	-0.0293	-0.0430	-0.0365	-0.0159
	(0.0316)		(0.0317)	(0.0296)	(0.0165)	(0.0198)	(0.0298)	(0.0217)	(0.0121)
Share		0.0338	0.0530	-2.433**	-4.078***	-2.049*	-2.450**	-2.130*	-2.513**
		(0.181)	(0.189)	(1.087)	(1.109)	(1.190)	(1.058)	(1.143)	(0.998)
Income*Share				0.285**	0.490***	0.241*	0.286**	0.250**	0.305**
				(0.117)	(0.127)	(0.125)	(0.114)	(0.120)	(0.111)
Density						0.0593***		0.0485***	0.0761***
						(0.0142)		(0.0153)	(0.0193)
Scheduled Tribes							-0.231***	-0.148**	-0.383***
							(0.0430)	(0.0695)	(0.0998)
State Fixed Effec	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Observations	527	529	524	524	524	524	524	524	524
R-squared	0.368	0.360	0.366	0.371	0.040	0.384	0.380	0.388	0.216

Income is the log of per capita income in a district in the year 2000 in 1999-2000 Indian Rupees. The share value is the percentage of production that oil and gas account for in a district's GDP. The Income*Share term is the interaction of per capita district income and the percentage of oil and gas production in a district's GDP. Density is measured as the log of population density in a district. Scheduled Tribes are measured in percentage terms to a district's population. All specifications are clustered for state wise heteroskedasticity. Robust standard errors are in parentheses

***significant at 1%, **significant at 5%, *significant at 10%

Table 2: Oil/Gas Share and Inhabitants Below Poverty Line

	Dependent Variable: Political Competition								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
BPL	-0.0697		-0.0655	-0.0408	-0.134	-0.00733	0.0210	0.0328	0.0123
	(0.122)		(0.124)	(0.124)	(0.124)	(0.122)	(0.126)	(0.119)	(0.110)
Share		0.0338	0.0244	0.751**	0.754***	0.773**	0.711**	0.740**	0.781***
		(0.181)	(0.190)	(0.288)	(0.254)	(0.305)	(0.281)	(0.288)	(0.239)
BPL*Share				-2.062**	-1.890**	-2.113**	-1.978**	-2.043**	-1.918***
				(0.925)	(0.680)	(0.937)	(0.926)	(0.927)	(0.596)
Density						0.0675***		0.0568**	0.0798***
						(0.0211)		(0.0206)	(0.0229)
Scheduled Tribes							-0.260***	-0.191**	-0.421***
							(0.0648)	(0.0758)	(0.104)
State Fixed Effec	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Observations	397	529	394	394	394	394	394	394	394
R-squared	0.342	0.360	0.344	0.350	0.013	0.367	0.362	0.373	0.201

BPL measures the percentage of inhabitants living below the poverty line in a district. The share value is the percentage of production that oil and gas account for in a district's GDP. The Share*BPL term is the interaction of per capita district income and the percentage of inhabitants living below the poverty line. Density is measured as the log of population density in a district. Scheduled Tribes are measured in percentage terms to a district's population. All specifications are clustered for state wise heteroskedasticity. Robust standard errors are in parentheses

***significant at 1%, **significant at 5%, *significant at 10%

Table 3: Specifications using Oil/Gas Binary Variables

Panel A: Specification with Oil/Gas Binary Variable and Per Capita Income Figures

	Dependent Variable: Political Competition								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Income	-0.0294		-0.0379	-0.0427	-0.0393**	-0.0377*	-0.0519*	-0.0449**	-0.0171
	(0.0316)		(0.0287)	(0.0262)	(0.0166)	(0.0191)	(0.0260)	(0.0199)	(0.0119)
OG		0.0903*	0.101*	-0.494	-0.729**	-0.373	-0.510*	-0.408	-0.405
		(0.0524)	(0.0537)	(0.323)	(0.321)	(0.360)	(0.296)	(0.333)	(0.308)
OG*Income				0.0645**	0.0921***	0.0499	0.0652**	0.0533	0.0541*
				(0.0306)	(0.0318)	(0.0341)	(0.0282)	(0.0316)	(0.0295)
Density						0.0561***		0.0449***	0.0736***
						(0.0142)		(0.0150)	(0.0200)
Scheduled Tribes							-0.229***	-0.153**	-0.398***
							(0.0437)	(0.0676)	(0.101)
State Fixed Effects	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Observations	527	533	527	527	527	527	527	527	527
R-squared	0.368	0.365	0.372	0.377	0.042	0.389	0.386	0.393	0.221

Panel B: Specification with Oil/Gas Binary Variable and Below Poverty Figures

	Dependent Variable: Political Competition								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
BPL	-0.0697		-0.0449	-0.0275	-0.124	-0.00355	0.0310	0.0368	0.0188
	(0.122)		(0.128)	(0.127)	(0.128)	(0.124)	(0.130)	(0.122)	(0.111)
OG		0.0903*	0.114**	0.239**	0.244**	0.197*	0.220**	0.190*	0.223**
		(0.0524)	(0.0534)	(0.0931)	(0.101)	(0.109)	(0.0937)	(0.104)	(0.0826)
OG*BPL				-0.439	-0.485	-0.348	-0.409	-0.341	-0.421
				(0.445)	(0.309)	(0.456)	(0.437)	(0.443)	(0.251)
Density						0.0628**		0.0523**	0.0784***
						(0.0218)		(0.0214)	(0.0244)
Scheduled Tribes							-0.254***	-0.193**	-0.427***
							(0.0598)	(0.0723)	(0.103)
State Fixed Effects	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Observations	397	533	397	397	397	397	397	397	397
R-squared	0.342	0.365	0.349	0.352	0.018	0.366	0.363	0.372	0.204

OG is a binary variable with the value one if a district contains oil or gas deposits. Income is the log of per capita income in a district in the year 2000 in 1999-2000 Indian Rupees. BPL measures the percentage of inhabitants living below the poverty line in a district. OG*Income is the interactive term between the binary variable indicating oil or gas deposits in a district and per capita income in a district. OG* BPL is interactive term between the binary variable indicating oil or gas deposits in a district and the percentage of inhabitants below the poverty line in a district. Density is measured as the log of population density in a district. Scheduled Tribes are measured in percentage terms to a district's population. All specifications are clustered for state wise heteroskedasticity. Robust standard errors are in parentheses

***significant at 1%, **significant at 5%, *significant at 10%

Table 4: Robustness Using Newspaper Herfindahl Index

Dependent Variable: Herfindahl Index of Newspapers				
	(1)	(2)	(3)	(4)
Income	-0.0643**		-0.0597**	
	(0.0258)		(0.0260)	
Share	-0.0731	-0.722**		
	(0.790)	(0.323)		
Share*Income	-0.0419			
	(0.0897)			
BPL		0.132		0.153
		(0.224)		(0.229)
Share*BPL		0.690		
		(0.961)		
OG			-0.0936	-0.0260
			(0.329)	(0.135)
OG*Income			-0.00354	
			(0.0353)	
OG*BPL				-0.384
				(0.378)
Constant	1.256***	0.766**	1.190***	0.712**
	(0.240)	(0.313)	(0.244)	(0.306)
State Fixed Effects	Yes	Yes	Yes	Yes
Observations	314	252	316	255
R-squared	0.200	0.207	0.199	0.207

Income is the log of per capita income in a district in the year 2000 in 1999-2000 Indian Rupees. The Income*Share term is the interaction of per capita district income and the percentage of oil and gas production in a district's GDP. The share value is the percentage of production that oil and gas account for in a district's GDP. BPL measures the percentage of inhabitants living below the poverty line in a district. The Share*BPL term is the interaction of per capita district income and the percentage of inhabitants living below the poverty line. OG is a binary variable with the value one if a district contains oil or gas deposits. OG*Income is the interactive term between the binary variable indicating oil or gas deposits in a district and per capita income in a district. OG* BPL is interactive term between the binary variable indicating oil or gas deposits in a district and the percentage of inhabitants below the poverty line in a district. Population density and the percentage of scheduled tribes in a district are controlled for in the specifications.

All specifications are clustered for state wise heteroskedasticity. Robust standard errors are in parentheses.
***significant at 1%, **significant at 5%, *significant at 10%

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