Performance of Public and Private Mining Firms in India

Performance of Public and Private Mining Firms in India: In Productivity, Environmental and Social Dimensions

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P U B L I S H I N G

To the people of mining regions...

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FOREWORD

The extraction and use of natural resources in developing countries are undergoing a notable transition. First, there has been an unprecedented increase in the demand for such resources driven by the economic growth of emerging economies in Asia, Latin America and Africa. This growth in demand creates pressure to increase the supply of natural resources. Secondly, there have been different changes in the ownership of these resources or the ownership of firms involved in their extraction. On the one hand, there are attempts to assert national ownership and nationalization in certain countries where foreign firms had a near monopoly over these resources due to historical reasons or policies of past regimes. On the other hand, there is a growing pressure for privatisation where only the government firms were extracting the resources, partly driven by the inability of these firms to meet the growing demand in an efficient manner. Though the extraction of natural resources had always caused negative externalities in terms of relocation of settlements and environmental pollution, people in different parts of the world are currently asserting their rights to be free from such externalities.

These are the issues analyzed in the doctoral thesis of Amarendra Das, which is now being published as this book. The most important contribution is the systematic comparison of the performance of private and public-sector mining firms in terms of productivity, compliance of environmental regulations and mitigation of social costs. Though there can be multiple theoretical propositions about the better performance of these two types of firms (private or public sector), ex-ante theoretical prediction of the superiority of any one type is difficult, and this issue needs to be analysed empirically in the specific socio-economic context. Hence the insights of the analysis reported in this book are important for the current situation in India.

The depth of analysis is determined by the availability of data, and it is not easy to have or collect exhaustive data which can be used to compare different firms in terms of environmental pollution or the social costs. Hence the chapters analysing these issues are more indicative in nature. However, it was relatively easy to have comprehensive and comparable data on productivity of the firms. Hence, the insight of the comparative analysis of productivity provides a very reliable picture of the situation.

In summary, the thesis and the book are very important since they analyse certain issues which are very relevant in the contemporary context in a systematic manner.

V. Santhakumar

PREFACE

The mining industry across the world has drawn the attention of the public and researchers for many reasons. Starting from the Mid 1980s, many countries across the globe have opened up their mining industry for private sector participation with a view to receiving more investment and better technology, which will result in augmenting the overall output and productivity of the industry. At the same time, private participation in the mining industry has raised concerns over environmental degradation, loss of livelihood and involuntary displacements without proper compensation. Such concerns have not only been raised in developing countries, but also in economically advanced countries. For example, in fear of severe environmental damage and loss of livelihood, the indigenous (adivasi) people living adjacent to the Niyamagiri hill in the Koraput district of Odisha, India, opposed the mining and aluminium project of the Vedanta Aluminium Company. The mass protest in India drew global attention, and consequently the Church of England withdrew its' share invested in the Vedanta Aluminium Company.

Against this backdrop, I undertook a comprehensive study to examine the performances of public and private sector mining firms in three dimensions: productivity, environmental compliance and social compliance. The word social compliance has been defined as the compensation provided by the mining firms for direct and indirect losses caused to the land surrendering households as per the promises made during the land acquisition. The results of the studies were submitted as a dissertation for my PhD degree at the Centre for Development Studies, Thiruvananthapuram, Kerala, which is affiliated to the Jawaharlal Nehru University, New Delhi, India.

I am extremely grateful to Cambridge Scholars Publishing, UK, for showing interest to publish my research work. The completion of this research work involved a great deal of help from a number of individuals in a direct and indirect manner. Therefore, upon the completion of this work, I feel it is my sincere duty to put on record the generous support I have received from all of them. I am sure that my words will be scant to appreciate the contributions of every individual. First of all, I express my deep sense of gratitude to my PhD supervisors –Dr Vellapan Santhakumar and Dr Mavanoor Parameswaran— for their continuous cooperation and moral support in completing this research work. The Global Development

ABBREVIATIONS AND ACRONYMS

CEC	Central Empowered Committee
CIL	Coal India Limited
CMA	Compania Minera Antamina
CMIE	Centre for Monitoring Indian Economy
CSE	Centre for Science and Environment
CSO	Central Statistical Organisation
CSR	Corporate Social Responsibility
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ENAMI	Empresa Nacional de Mineria
FDI	Foreign Direct Investment
FIMI	Federation of Indian Mining Industries
FIPB	Foreign Investment Promotion Board
GDP	Gross Domestic Product
GFA	Gross Fixed Asset
GMM	Generalised Method of Moments
GoI	Government of India
GSI	Geological Survey of India
HDI	Human Development Index
IDC	Industrial Development Corporation
IPR	Industrial Policy Resolution
LAA	Land Acquisition Act
M&Q	Mining and Quarrying
MCDR	Mineral Concession and Development Rules
MCR	Mineral Concession Rules
MEDI	Multidimensional Environmental Defiance Index
ML	Mining Lease
MMRD	Mines and Minerals Regulation and Development
MoC	Ministry of Coal
MoEF	Ministry of Environment and Forest
NELP	New Exploration Licensing Policy
NIC	National Industrial Classification
NMP	National Mineral Policy
NSDP	Net State Domestic Product
OIL	Oil India Limited
OLS	Ordinary Least Squares

OMC   Orissa Mining Corporation
ONGC   Oil and Natural Gas Corporation
OP   Olley and Pakes
PAP   Project Affected Persons
PE   Private Enterprises
PL   Prospecting License
POSCO   Pohang Steel Company
PSE   Public Sector Enterprises
PSU   Public Sector Undertakings
RBI   Reserve Bank of India
RP   Reconnaissance Permit
RSI   Relationship Specific Investment
SCCL   Singareni Collieries Company Limited
SoE   State Owned Enterprises
SPCB   State Pollution Control Board
SPM   Semi Parametric Method
SPM   Suspended Particulate Matter
TFP   Total Factor Productivity
TRR   Total Revenue Receipts
UN   United Nations
USA   United States of America
VAT   Value Added Tax
VCHC   Value of Capital at Historical Cost
VCRC   Value of Capital at Replacement Cost
WWF   World Wildlife Fund

CHAPTER ONE

INTRODUCTION

"Mines are the source of wealth; from wealth comes the power
of government..."
—Kautilya, as translated in Rangarajan, 1992; p.84

1.1 Motivation

Minerals are considered a national treasure endowed by nature, and obtain enormous value for being finite and non-renewable. They constitute the vital raw materials for many basic industries and are a major resource for development (GoI, 2010). The mining industry provides the basic inputs to a number of key sectors of the economy like power and manufacturing. Thermal power generation, for example, depends upon the uninterrupted supply of coal; production of automobiles depends upon the supply of aluminium and steel and construction activities depend upon the supply of steel and cement. The growth of the manufacturing sector is thus largely influenced by the growth of mining industry. Low production and productivity in the mining industry may constrain the production and productivity in the related manufacturing sectors and dampen overall economic growth. In order to overcome these bottlenecks, from the mid-1980s many developing countries have been diluting the monopoly of the public sector on the extraction of non-renewable natural resources and attracting private players (both domestic and foreign) to take part in exploration and extraction. Several countries have been amending their mining legislation and putting in place the necessary institutions for this purpose. By 1993, around 70 countries in Latin America, Africa and Asia-Pacific had fully liberalized their mining laws and implemented deregulation in a wide range of areas, including land rights, mineral rights, taxation and environmental protection, in order to attract foreign mining investors (TWN, 1997).

The participation of private players is expected to increase production and overall productivity[1] of the mining sector through direct and indirect effects. Under direct effects, it is presumed that private firms are more efficient than their public counterparts and their participation will bring in more capital, better technology and superior managerial skills, thus raising the overall productivity of the sector. Under indirect effects, the participation of private players is supposed to increase competition in the sector, while the spread of superior technology leads to an increase in overall productivity. The thinking is that in the face of competitive pressure, inefficient public firms will attempt to raise their productivity levels, at least to be on par with those of efficient private firms, and this will increase the overall productivity of the mining industry.

Such a massive change in the investment climate of mining industry is taking place at a time of significant technological change within the industry. Not only have innovations in processing technology improved productivity and efficiency but also, by improving process control, increasing recovery rates and reducing waste, several key processing innovations have enabled firms to combine gains in competitiveness with a reduction in environmental damage (Warhurst and Bridge, 1997). Thus, it is believed that direct foreign investment through joint ventures with state-firms and/or newly privatised entities in developing countries may, under certain conditions, provide an effective vehicle for the transfer of these innovations, generating improvements in production efficiency and environmental performance (Warhurst and Bridge, 1997).

Both theoretical and empirical literature lacks consensus when examining the relationship between firm ownership and productivity. A section of theoretical and empirical economic literature argues that private firms are more productive than the public firms (Stiglitz, 1988; Majumdar, 1998; Sheshinski E and López-Calva L.F , 2003; Faria et. al., 2005; and Li and Xia, 2008). Another section of literature counters these views (Caves

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[1] Raising the productivity level of the mining industry is crucial, given its distinct character. Mining is more prone to diminishing returns and increasing costs. For example, the cost of production increases substantially as the depth of mines increase. Geological characteristics also play an important role in determining productivity. Therefore, the traditional view was that productivity in the mining industry was largely determined by geological characteristics and the production cycle. However, many later studies have countered this view and emphasised the role of technology and innovation in attaining higher productivity (see Tilton and Landsberg, 1999; Aydin and Tilton, 2000). A number of productivity analyses for the mining industry have been carried out by the Centre for Study of Living Standards, Ontario, Canada. For example, see Smith (2004).

and Christensen, 1980; Boardman and Vining, 1989; and Issac et. al., 1994). The relative inefficiency of public sector firms has been explained by lack of incentive, absence of competition, and principal agent problems. The detailed theoretical explanation and empirical evidences in this respect is provided in Chapter Three which specifically deals with firm ownership and productivity issue.

Liberalisation of the mining industry also raises serious apprehension of accentuating environmental degradation and the marginalisation of local communities. The mining industry is considered to be one of the most polluting industries, especially the mining of chromites, coal and uranium. The basic textbook knowledge of public economics and environmental economics tells us that private firms only focus on the maximisation of profit, and seldom bother about the environmental health of the mining periphery. The greater participation of private firms in the mining industry therefore amplifies the apprehension of increasing environmental damage (Akabzaa and Darimani, 2001). Research by the World Wildlife Fund (WWF) shows that the relationship between the inflow of private foreign investment and the environment is complex: they can be both positive and negative. In many cases, foreign direct investment (FDI) has had largely negative impacts; especially in natural resource sectors which form the largest proportion of investment flows to the least-developed countries. WWF recognizes that the FDI can also bring substantial benefits, particularly in developing countries. However, such positive outcomes only occur inside an international regulatory framework that actively promotes sustainable development (CSD, 2000).

On environmental performance of public and private firms, economic literature is highly divided. While one set of studies point out the underperformance of private sector firms (Friedman, 1970; Baumol and Oates, 1988) another set highlights the underperformance of public sector firms, or sometimes no difference (Pargal and Wheeler, 1996). The differential environmental performance of public and private firms has been explained with the difference in regulatory compliance, internalisation of environmental damages and production efficiency. A detailed survey of the literature in this field will be provided in Chapter Four.

Mineral extraction also causes displacement of local communities, mostly the indigenous communities who are marginalised both economically and socially (Downing, 2002). There have been serious allegations on the payment of no compensation, or much less than the desired level of compensation, to the project affected households (Fernades et al., 1997). No systematic work has been done to compare the compensations provided by the public and private mining firms. Drawing

arguments on the line of environmental performance of public and private mining firms we can hypothesise that public firms will provide better compensation (better social compliance) compared to private mining firms. However, better economic performance of private mining firms would enable them to provide better compensation. Therefore, the relationship between firm ownership and social compliance remains an empirical issue. A detailed theoretical framework for explaining the differential social compliance of public and private mining firms has been provided in Chapter Five.

In sum, the question whether liberalisation of the mining industry will have positive or negative impacts on the productivity, environmental health and social welfare, remains as an empirical issue. In this context, the present study empirically examines the productivity, environmental and social performances of public and private mining firms operating in India.

The Indian mining industry is an interesting case for examining the above mentioned issues for several reasons. For more than four decades, the Indian mining industry was under the unitary control of the government, with state ownership of mining firms and restrictions on private investment. With the rapid growth of the Indian economy since the early 1990s and a resultant growth in demand for mineral products, the Indian government changed its policy. With the aim of raising mineral production and the productivity of extraction, the industry was opened up to private (both domestic and foreign) sector participation in 1994. Alongside the economic liberalisation introduced by GOI in 1991, a comprehensive National Mineral Policy (NMP) was announced in March 1993. The policy introduced for the first time the idea of encouraging private investment in exploration and extraction of minerals. Recognising the lack of resources and up-to-date technology with the Geological Survey of India (GSI) for carrying out even regional (or preliminary) exploration, domestic and foreign investment was allowed into the mining industry for undertaking exploration and prospecting activities (GoI, 2006). This resulted in the entry of many private players. More interestingly, some of the Indian mining firms (both public and private) have emerged as multinational companies. Public-sector firms such as the Oil and Natural Gas Corporation (ONGC Videsh), and private-sector firms such as Tata Group, Aditya Birla Group, Essar Group, and Reliance Industries, have made forays into foreign countries for exploration, extraction and high-end value addition of minerals. At the same time, the Indian mining industry has made space for foreign private mining firms such as Insilco and Sesa Goa. Keeping in view the rapidly changing profile

of the Indian mining industry, this study compares the performances of public- and private-sector firms without making any distinction between foreign and domestic firms.

1.2 Objectives of the Study

The present study seeks to examine the following research questions:

1. Are private-sector mining firms more productive than public-sector mining firms?
2. Do public-sector mining firms comply with environmental regulations better than their private counterparts?
3. Is the social compliance of public-sector mining firms better than that of private-sector mining firms?

The term social compliance has been defined as compensation made to individual households and communities as a whole for the direct and indirect economic, social and environmental losses accrued due to the involuntary land transfer.

1.3 Methodology and Data

The three questions mentioned above have been examined independently in Chapters Three, Four and Five. First, for comparing the productivity differences between public- and private-sector mining firms, total factor productivity (TFP) of the two groups have been measured for the four sectors of the mining industry—metallic, non-metallic, coal and petroleum—for the periods 1988-89 and 2005-06. For this purpose, firm-level data provided by the Centre for Monitoring the Indian Economy (CMIE) in its Prowess data base has been used. Second, for comparing the environmental compliance of public- and private-sector mining firms, the study focuses on the chromite mining industry. Data on four pollution indicators—overburden management, air pollution, the quality of mine drainage water after treatment, and the quality of ground water—provided by the Odisha State Pollution Control Board have been used for the comparison. A new methodology (adapted from poverty literature[2]) to measure environmental performance in a multidimensional framework is presented. Third, for comparing social compliance, the compensation paid by the public- and private-sector mining firms when acquiring private land is examined. For this purpose, 69 households (which make up 84 land transfer cases) which surrendered their land to public- and private-sector

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[2] Alkaire and Foster(2008)

mining firms have been surveyed in the Kendujhar and Jajpur districts of Odisha. The survey, with a pre-tested questionnaire, gathered information on the direct and indirect compensations received by the households and the local community, and their perception of the land acquisition process.

1.4 Chapter Outline

The book has been organised as follows. The comparison of the performances of public and private mining firms in three different indicators—productivity, environmental performance and social compliance—need specific treatment on their own. Therefore, the review of literature, narration of the methodology and data sets used for answering the three different questions have been mentioned separately. The remainder of the book is organised on the following lines. Section 1.5 of this chapter describes the policy changes that have taken place in the Indian mining industry; Section 1.6 discusses the contribution of the mining industry to the national and state economies; Section 1.7 discusses the issues relating to resource curse in Indian context; and Section 1.8 concludes the chapter. Chapter Two provides a normative analysis of the efficiency, environmental and social implications of Indian mining laws. Chapter Three examines the first research question whether the type of ownership affects the productivity of mining firms operating in India. The differences between the environmental performances of public and private mining firms are examined in Chapter Four. Chapter Five probes the third research question of whether public and private mining firms differ in their social compliance—basically in compensating those affected by their operations. A summary of the findings is provided in Chapter Six, followed by the description of the limitations of the study and issues for further research.

1.5 Policy Changes in the Indian Mining Industry

The Mineral Policy Conference, held in 1947, led to the enactment of the Mines and Mineral (Regulation and Development) Act, 1948, which constituted the first legal framework for the regulation and development of mines in independent India. The Constitution of India empowered the Central government and the state governments to regulate mining activities and the development of minerals by including Entry 54 of List I and Entry 23 of List II in the Seventh Schedule (GoI, 2006). The Constitution of India accorded the ownership rights over mines to the states. However, to provide the benefits of randomly located minerals to

all states, the Central government retained regulatory authority over all major minerals defined in Schedule A of the Industrial Policy Resolution, 1956 (IPR). They included iron ore, coal and lignite; mineral oils; the mining of iron ore, manganese ore, chrome ore, gypsum, sulphur, gold and diamonds; the mining and processing of copper, lead, zinc, tin, molybdenum and wolfram; and minerals specified in the Schedule to the Atomic Energy (Control of Production and Use) Order, 1953 (MSME, 2007). The management of the minerals listed in Schedule B, known as minor minerals, was left with the state governments. The Mines and Mineral (Regulation and Development) Act, 1957 (MMRD Act 1957) entrusted the Central government with the right to regulate mines and develop minerals. Two Rules—the Mineral Concession Rules 1960 (MCR 1960) and the Mineral Conservation and Development Rules 1958 (MCDR 1958)—were framed under the Act. While the MCR dealt with the major minerals, the state governments were free to frame their own rules for concessions to do with minor minerals. Accordingly, most states framed their own minor mineral concession rules.

The Central governments control over mining was extended in 1972 by bringing in amendments, for the first time, to the MMRD Act 1957. Measures such as premature termination of mining leases (MLs), lowering the ceiling on individual holdings, the power to modify MLs and the right of the Central government to undertake prospecting and mining operations in certain areas, removal of the ceiling on royalty charged on minerals, the inclusion of a provision to collect dead rent as part of the Act, and the enhancement of penalties were introduced. The MMRD Act 1957 was further amended in 1986, incorporating more stringent measures. For example, first schedule minerals, in which prior approval of the Central government had to be obtained under the Act, were increased in number from 27 to 38, the Central government was authorised to reserve areas for public-sector undertakings (PSUs), and mining plan approval was made compulsory (GOI, 2006).

Until 1993, the Indian mining industry thus remained under the control of the public sector, with minor private-sector participation under captive mining provisions. Private investment in the industry was minimal and in some sub-sectors, such as coal, it was almost zero. The restriction on private investment limited the scope for creating a competitive environment in the Indian mining industry.

A growing demand for minerals coupled with low productivity[3] (Jalan, 2006) made the government open up the mining industry to private (domestic and foreign) investment in 1994. Both domestic and foreign private firms were allowed to invest in the mining sector with the hope to benefit from superior technology and more capital (GoI, 2006). The National Mineral Policy 1993 brought about comprehensive changes to the country's mineral policy, including allowing private participation in the extraction of 13 major minerals which had hitherto been reserved for the public sector. The list comprised iron ore, manganese ore, chrome ore, sulphur, gold, diamonds, copper, lead, zinc, molybdenum, tungsten, nickel, and the platinum group of minerals. Consequently, the MMRD Act 1957 was amended in January 1994, and the MCR 1960 and the MCDR 1958 soon after, to incorporate the changes and simplify the procedure for granting mineral concessions. With the aim of attracting large private investments, the MMRD Act was further amended in December 1999, and the MCR and the MCDR in 2000. This brought in a number of changes in procedures for obtaining prospecting licences (PLs), reconnaissance permits (RPs) and MLs, and delegated more powers from the Central government to state governments (GOI, 2006).

Coal Industry

Apart from public-sector firms dominating coal production, government control over this sector was imposed through price controls. Administered prices prevailed in the coal sector until the late 1990s. It was partially deregulated in 1997 (grades A to D) and completely in January 2000 (grades E to G). This, in theory, conferred the right to fix the price of coal on two public-sector companies, Coal India Limited (CIL) and Singareni Collieries Company Limited (SCCL), which operate as exclusive producer-cum-traders of coal in India. However, the price fixed by the companies is, in reality, "guided" by the Ministry of Coal (MOC), Government of India (GOI, 2005).

The coal industry is dominated by two fully government-owned companies operating in two different geographical regions. These companies have never had to compete in the market place and as such have had no interest in creating a vibrant and competitive coal market

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[3] Mining costs of Indian companies are at least 35 percent higher than those of leading coal exporting countries such as Australia, Indonesia, and South Africa. To match productivity, they will need to invest in new technologies, improve processes in planning and execution of projects, and institutionalize a comprehensive risk management framework.

(GoI, 2005, pp.57). They see their role as one of fulfilling the production targets set by the government and take up plans and projects to just meet the targets, leaving very little as a surplus to meet any unanticipated or sudden increase in demand. New players in the coal mining industry face huge entry barriers. So the supply response tends to lag, and demand-supply gaps persist. In the end, only a minuscule quantity of coal is available for free trade. To understand the demand response to domestic price variations, one has to recognise that around 80% of the domestic coal production is used for power generation (utilities plus captive) (GOI, 2005). Only 20% is left for market forces to determine the price and, of this, around 12% to 13% is consumed by brick kilns. Therefore, deregulation of the coal price even after the 1990s and 2000 has done little to ensure that it is determined by market forces.

Mineral Oil

The government has been trying to attract private (domestic and foreign) investment in the petroleum sector from as early as the 1970s, and trying out various policy instruments to realise this objective. Until the launch of the New Exploration Licensing Policy (NELP) in 1999, private-sector firms were permitted to invest only if they were part of a joint venture with public-sector firms. Public firms had the option to take a minority stake (40%) in joint ventures. After the launch of the NELP, the conditionality of joint venture was relaxed, and private firms were allowed to undertake projects independently. However, apart from this, the NELP did not provide for any of the liberal fiscal incentives that had been declared in earlier production-sharing contracts (Dey, 2001). Although the government of India proposed a production sharing mechanism in the 1970s, it did not yield much success. For example, in 1974 the government offered 7 million acres of the Bay of Bengal to Natamas Carlsburg Co. of the USA for offshore exploration and production. A contract was entered into between the US Company and Oil and Natural Gas Commission (ONGC) for the same. Subsequently another contract between Readings and Bates, USA and ONGC for Kutch basin (Gujarat) was signed. It was agreed that initially the foreign company would have a 61% share in the joint venture and the price of the crude, if produced, would be based on the Indonesian and Persian Gulf crude. 40% of the total crude would go to the US Company as "Cost Oil" towards the recovery of their expenses. 65% of the remaining crude would be ONGCs share, and the remaining 35% would go to the US Company. However, the venture was unsuccessful (Dey, 2001).

Under the NELP, private firms can undertake exploration and extraction activities independently and share a fixed percentage of the profits with the government, which is determined through competitive bidding. A part of the petrol called 'Cost Petrol' goes to the investor (say, for example, a private firm) to recover the cost, and the rest (called 'Profit Petrol') is shared among the two parties—the government and the contractor. Thus, under the NELP, public firms such as the Oil and Natural Gas Corporation Limited (ONGC) and Oil India Limited (OIL) have to compete on a level playing field with private companies for exploration blocks and new production acreage.

FDI into Mining Industry

In the first 40 years after independence, foreign direct investment (FDI) was not allowed in the mining sector. Mineral concessions were restricted to companies with less than a 40% foreign holding, as in other sectors. With the formulation of the National Mineral Policy in 1993, there was a slight easing up and FDI was allowed up to 50% with no limit on captive mines. Additional FDI could also be allowed on a case-by-case basis. All FDI proposals had to be cleared by the Foreign Investment Promotion Board (FIPB). In 1997, FDI up to 50% was taken out of the purview of the FIPB and put on an automatic approval route. For exploration and mining of diamonds and precious stones, FDI was allowed up to 74% under the automatic route in February 2000. In February 2006, the mining sector was fully opened up to FDI.

The Effect of Liberalisation

The effect of liberalisation on the industry can be observed from the steady rise in the share of the private sector in the aggregate value of minerals produced. In Table 1.1 we present the share of public sector in various sectors of the mining industry up to 2003-04, when we started our analysis. The share of the public sector in the total value of mineral production declined from 91.19% in 1988-89 to 74.61% in 2004-05. Specific industries, such as limestone, have experienced a substantial rise in private-sector participation. Similarly, the role of private firms in other sectors such as iron ore, chromite, bauxite and coal, has been growing rapidly. This is expected to reduce the government's control over the mining industry, create a competitive environment and foster productivity.

Table-1.1: Share of Public Sector in the Total Value of Mineral Production in India

Year	Baux-ite	Iron Ore	Lime Stone	Chro-mite	Manga-nese	Coal	*Mining Industry
1988-89	53.6	55.7	16.5	47.7	52.0	98.1	91.19
1989-90	51.6	55.8	15.1	40.5	48.5	98.1	90.21
1990-91	48.1	56.0	14.1	32.4	47.2	98.2	89.72
1991-92	45.8	58.4	14.1	34.7	46.9	98.3	87.72
1992-93	51.6	63.0	12.3	31.8	50.1	97.0	88.24
1993-94	51.3	59.6	12.1	31.7	58.4	97.4	89.06
1994-95	51.6	58.4	17.0	29.7	61.2	97.1	88.12
1995-96	NA	NA	NA	NA	NA	NA	88.15
1996-97	NA	NA	NA	NA	NA	NA	88.33
1997-98	50.6	55.7	9.2	38.0	56.6	98.0	85.65
1998-99	49.8	53.4	7.2	39.8	58.0	97.6	83.41
1999-00	46.0	55.2	6.3	38.7	58.8	96.0	80.43
2000-01	42.0	53.9	7.7	32.1	59.5	95.8	80.68
2001-02	46.5	52.3	7.3	20.8	55.4	95.3	79.45
2002-03	52.9	50.2	6.5	23.0	55.5	95.4	76.86
2003-04	49.9	46.8	6.4	26.7	53.4	94.7	74.96
2004-05							74.61

Source: Indian Mineral Year Book, Various Volumes; * Source: Indian Mineral Industry At a Glance Various Volumes, Government of India, Ministry of Mines, Indian Bureau of Mines, Nagpur.
Note: NA- Not available

1.6 Contribution of the Mining Sector to the National and State Economies

Before entering into the firm wise analysis it is pertinent to have a broad understanding of the mining sector in India. For this purpose we use the data on the mining and quarrying sector (M&Q) published in the website of the Reserve Bank of India in its section Handbook of Statistics on Indian Economy. Table-1.2 presents the value of output in the M&Q sector from 1988-89 to 2005-06. Also, we compute the share of the M&Q sector in the gross domestic product (GDP) of the country, annual growth rate and average growth rates for different periods of the mining industry. At the national level, the M&Q sector has a very small share in the GDP; it has

Year	Value of output*	Share of M&Q sector in GDP	Annual growth rate %
1988-89	39433	2.5	16.17
1989-90	42429	2.6	7.60
1990-91	46868	2.7	10.46
1991-92	48442	2.7	3.36
1992-93	48888	2.6	0.92
Average Growth rates from 1988-89 to 1992-93			7.70
1993-94	49568	2.5	1.39
1994-95	54171	2.6	9.29
1995-96	57349	2.5	5.87
1996-97	57667	2.4	0.55
1997-98	63324	2.5	9.81
1998-99	65114	2.4	2.83
1999-00	67190	2.3	3.19
Average Growth rates from 1993-94 to 1999-2000			4.70
2000-01	68797	2.3	2.39
2001-02	70002	2.2	1.75
2002-03	76194	2.3	8.85
2003-04	78549	2.2	3.09
2004-05	84954	2.2	8.15
2005-06	86083	2.6	1.33
Average Growth rates from 2000-01 to 2005-06			4.26
Average Growth rates from 1988-89 to 2005-06			5.39

Source: RBI (2011) Handbook of Statistics viewed on website on 11th May 2011
Note: * At factor cost in rupees crore at 2004-05 base year price

remained around two percentages. The annual growth rate of M&Q sector shows a high rate of fluctuation. The average growth rate of the sector in the pre-liberalisation period (1988-89 to 1992-93) was highest at 7.70%. Gradually the growth rate has slowed down in the first (1993-94 to 1999-2000) and second phases (2000-01 to 2005-06) of liberalisation to 4.7% and 4.26% respectively.

Table 1.3 presents the share of the M&Q sector as a percentage of the net state domestic product (NSDP) in 21 states from 1993-94 to 2007-08. Here, our analysis is confined to the major mineral-producing states only. In a majority of the states, the M&Q sector has a very negligible share in the NSDP. Only in a few states such as Chhattisgarh, Jharkhand, Meghalaya, Odisha, Assam, Goa, Andhra Pradesh and Madhya Pradesh does the M&Q sector have a sizeable share in the NSDP. In 2007-08, Chhattisgarh recorded the highest contribution of the M&Q sector to its NSDP at 14.43%. All other states recorded less than 10%. Jharkhand ranked second in the contribution of the M&Q sector to its NSDP at 8.66%. This was followed by Meghalaya (8.35%), Odisha (6.39%), Goa (4.13%), Madhya Pradesh (3.90 %), Andhra Pradesh (3.56%) and Assam (3.29%). Inter-temporal analysis of the share of the M&Q sector in the NSDP reveals that a few states have recorded steady growth while others have experienced a decline. In the former category are Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Meghalaya, Odisha and Rajasthan. In the latter are Assam and Jharkhand. Goa has shown a fluctuating trend; between 1993-94 and 2000-01 the share of the M&Q sector in its NSDP fell from 5.58% to 3.16% but then recovered to rise to 4.13% in 2007-08.

The contribution of the mining sector to the economy can also be assessed by looking at the revenue generated from mining activities. Mineral-rich states derive a sizeable amount from this source. A major component in this is the royalty collected from mining firms. In addition, states collect dead rent from lessees who have not been operating their mines and thus not paying any royalty. Besides royalty and dead rent, states also get an income from the initial application fee payable by a concession seeker, the annual fee payable by RP/PL holders on the basis of the area held, surface rent, sales tax or value added tax (VAT), local area tax (for example panchayat tax), and stamp duty. Some states, for instance Odisha and West Bengal, have also imposed a specific cess and surcharges on minerals to mobilise additional revenue for special purposes. However, revenues from all these sources are meagre, even in comparison with the modest returns from royalty and dead rent. No systematic data is available on the total revenues collected by states from mining sources. Besides, royalty being the chief source of revenue from mining, we calculate its contribution to the total revenue receipts (TRR) of 16 major states. Table 1.4 presents the total amount of royalty collected by the states and its share as a percentage of the TRR between 2002-03 and 2004-05. Jharkhand received the largest amount as royalty from mining activities, followed by Andhra Pradesh, Madhya Pradesh, Chhattisgarh and Odisha. In terms of the percentage of contribution to the TRR,

Jharkhand led with 12.54%, followed by Chhattisgarh, Odisha and
Rajasthan with shares of 9.31%, 5.77% and 3.37 % respectively.

Table 1.3 Percentage Share of Mining and Quarrying Sector in NSDP

States	1993-94	1995-96	2000-01	2005-06	2007-08
Andhra Pradesh	2.06	1.72	2.51	3.04	3.56
Arunachal Pradesh	1.42	0.38	1.42	1.16	0.97
Assam	5.97	4.29	4.56	3.58	3.29
Bihar	0.12	0.09	0.21	0.11	0.08
Chhattisgarh	7.80	7.17	13.36	14.55	14.43
Goa	5.58	4.72	3.16	3.77	4.13
Gujarat	2.63	1.95	2.45	1.93	NA
Haryana	0.20	0.15	0.28	0.35	0.28
Jharkhand	15.50	13.48	12.81	10.30	8.66
Karnataka	0.61	0.54	0.57	0.90	0.95
Kerala	0.21	0.18	0.29	0.49	0.59
Madhya Pradesh	2.78	2.32	3.11	3.46	3.90
Maharashtra	0.52	0.50	0.79	0.75	0.63
Meghalaya	3.38	3.50	7.92	8.04	8.35
Odisha	4.33	4.25	4.60	6.14	6.39
Punjab	0.01	0.01	0.00	0.02	0.02
Rajasthan	1.93	1.84	2.06	2.27	2.69
Tamil Nadu	0.59	0.46	0.41	0.47	0.43
Uttar Pradesh	0.63	0.73	0.87	1.08	0.79
Uttarakhand	1.40	0.96	0.57	1.34	NA
West Bengal	1.20	1.02	1.16	1.18	0.93

Source: Computed from the data on the Reserve Bank of India (RBI) website
(viewed on 9 July 2008 and 2 November 2009) on components of NSDP at factor
cost