© Kamla-Raj 2004
PRINT: ISSN 0971-8923 ONLINE: ISSN 2456-6756
J. Soc. Sci., 8(1): 29-43 (2004)
DOI: 10.31901/24566756.2004/8.01.05

Wage-Productivity Relationship in Coal India Limited

Prabhas Kumar Chakrabarti and Juin Choudhary

INTRODUCTION

This research paper deals with the behaviour and nature of 'movement of economic variables of production, price, employment, average productivity wage, share of wage in output. This research paper also examines their respective rates of growth and ultimately tries to examine the inter-relationship between wage and productivity of Coal India Limited. The period covered in this research paper is from 1973 to 1998.

Production and Price

Coal production in India had been growing at a fast rate ever since India had started planning for economic development, because of high priority attached to the production of Coal as vital input for economic growth of Country-Exploration programmes which had been conducted in a vigorous way. Concerned efforts for the development of coal production by the introduction of equipment and Building up to the necessary infrastructure facilities resulted in a significant increase in the production of coal. With the advent of Independence, the need for larger and efficient production of coal was stressed in the First Five-year plan. Coal was treated as the most crucial energy resource of the country. So it was considered necessary to expedite the development and modernization of the coal industry. The Coal India was nationalized in 1973.

It is seen that after nationalization of the Coal India, output has grown at a rapid rate.

The table 1 shows the data ratting to production of Coal India since 1973 to 1998.

In the post-nationalisation period, there has been phenomenal increase in Coal production in the year 1974. The production figure was 77870 thousand metric tones in the year 1973 which increased to 84102 thousand metric tones in the year 1974. Thus Coal India achieved the growth rate in output by 8% in the year 1974 . Thus Coal India achieved the growth rate in output by 8% in the year 1974 over the figure of 1973. In the subsequent year coal output increased by 15.17% over the figure of 1974. After nationalization the Government of India had introduced more capital, better safety and mine environment which ultimately resulted a double increase in the production of coal. Thus it can not be denied that nationalization brought about a revival of the coal industry in India. The report of the fuel policy Committee in 1972 states that the oil reserves of the country are very inadequate so the production of coal should be stepped up in order meet the requirements. Consequently the production of coal in India reached the figure of 101340 thousand metric tones in 1978 and 103364 thousand metric tones in 1979. The requirements of coal were revived with reference to emerging profile of the Fifth-Five – Year plan. As the power was given the highest priority during the Fifth five Year plan. The demand for coal increased at an average ratio of 5% during this plan period (1974-79).

Table 1: Production of Coal India period–1973 to 1998

Year	*Production (in thousand metric tones)*	*Index No. (Base 1973=100)*
1973	77870	100.00
1974	84102	108.00
1975	95911	123.17
1976	100876	129.54
1977	100358	128.88
1978	101340	130.14
1979	103364	132.74
1980	109152	140.17
1981	123104	158.09
1982	128504	165.02
1983	134742	173.03
1984	143873	184.76
1985	149712	192.26
1986	162647	208.87
1987	177220	227.58
1988	188180	241.66
1989	198959	255.50
1990	204432	262.53
1991	237757	305.33
1992	249941	320.97
1993	260607	334.67
1994	267522	343.55
1995	284586	365.46
1996	304097	390.52
1997	316681	406.68
1998	32440	422.14

Again the Sixth Five year plan (1980-85) accorded the highest priority to power and initiated many effective steps to augment the coal production in the Country, this resulted a situation in which the production of Coal India exceeded the target in the frist two years of the plan. At the end of the Sixth Five year plan the production of coal became 149712 thousand metric tones. There was 6.57% growth rate in coal output per year during the sixth five year plan period. But the demand for coal was substantially higher 10 to 15% than that of the target production in the sixth five year plan. The seventh five year plan upto 1987 achieved and annual growth rate of 8.9% per year. Consequently the production of Coal India in the year 1987 reached the figure of 177220 thousand metric tones due to an increase of 14573 thousand metric tones over the figure of 1986. Indeed such a large scale augmentation was a pre-requisite for achievement of planned targets in vital sector such as power and transport in which massive investments were made in the Sixth Five year plan. The period 1988 to 1990 noticed a growth rate in coal output in India by 6.96% per annum. The year 1988 alone reflected a growth of 14.08% over the year 1987. During the seventh five year plan period (1985-90), the energy sector was given the top priority in order to augment the huge production of Coal India. So the production of Coal India increased at a rapid rate during the period of Seventh Five year plan. The entire post-nationalization period i.e. from 1973 to 1998 achieved a growth rate of 12.26% in production on Coal India Ltd.,

The table 2 shows the behavilour of the movements of price of coal in the poast Nationalisation period in India. Since 1973 coal has been effectively under administrated pricing system in India.

In the years prior to 1973 coal prices were fixed under colliery control order. But monitoring the actual prices charged by the numerous private coal companies was not effective. Hence, no analysis of price structure is possible for the pre-nationalization periods. Between 1973 and 1987 coal prices were revised several times. Upto the year 1973 coal prices remained fairly low. As can be seen from the table 2 the period 1973 to 1998 witnessed a stage of fast rising coal prices in India at the rate of 46.44% per year. The average price of Coal India in 1973 was Rs. 40.60 and it reached the level of Rs. 204.87 in 1984, which is there was an increase of 40.60 and it reached the level of Rs. 204.87 in 1984, which is there was an increase of 40.60% in the year 1984 over the figure of 1973. Price of Coal India was the result of three revisions in the year 1981, 1982 and 1984. This step of the revision of Coal prices in India from time to time has the come inevitable mainly because of massive investment going on in the coal sector during the post nationalization period. Up to 1975, coal prices in India, prove not controlled statutorily by the Government, but was effectively administrator by the Government. So in the years 1974 the Government appointed and interministarial Committee (Fernandez Committee) for revising the coal price in India. On the basis of the recommendation of this Inter-ministarial Committee', the coal prices were revised in this year. Thus the year 1974 alone shows an increase of price of coal by 26.75% over the price in 1973. The Fernandex Committee had recommended price increase for one year only. Therefore the Government of India appointed 'Chakraborty Committee' in 1975 to go into the question of revision of coal price. Thus again on the basis of the report of this committee coal

Table 2: Production of Coal India period – 1973 to 1998

Year	*Average piece in (Rs.)*	*Index Number (Base 1973=100)*
1973	40.60	100.00
1974	51.46	126.75
1975	70.42	173.45
1976	70.14	172.76
1977	70.63	173.97
1978	70.37	173.33
1979	90.57	223.08
1980	118.95	292.98
1981	143.49	353.42
1982	157.26	387.34
1983	166.05	408.99
1984	204.87	504.61
1985	206.88	509.56
1986	229.78	565.96
1987	229.28	564.73
1988	259.05	638.05
1989	285.37	702.88
1990	289.43	712.88
1991	268.17	660.52
1992	302.16	744.24
1993	356.38	877.78
1994	400.12	985.52
1995	418.80	1031.53
1996	426.52	1050.54
1997	512.06	1261.03
1998	597.60	1464.24

prices were revised in 1975. Thus there was an increase of 46.70% in coal price in India over the price in 1974. Again, in the year 1979 on the ground of surmounting cost of mining coal price in India increased by 49.75% over that of the figure of 1978. The coal industry in India faced the evil effects of low/low/subsidized. Energy pricing and the lag between cost escalation and price revision. So the Government revised the coal price in India in 1980 in order to give this Industry a better financial condition. The Government again revised the coal price in 1981 by 20.63% over figure of 1980. In the year, 1982, the Government appointed the Bureau of Industrial costs and prices, in order to study the proposal of further increase in coal price in India. In 1983 this Committee submitted its reports and on the basis of this report coal price in India was revised in 1984. There was an increase of report coal price in India was revised in 1984. There was an increase of 23.4% in coal price in India in 1984. The political uncertain was one of the by a whacking and unprecedented increase of 12.5% in the price of coal in 1979. The year 1988 alone showed a rapid increase of 12.5% in the price of coal in India over the figure of 1987. In the subsequent year the coal price in India against increased and became Rs. 285.37 per metric tone. From the above analysis we get that there was a defining relationship between these two economic variable i.e., production and price during the period, 1973 to 1998. However, from the behaviors of these two economic variables during the period 1973 to 1998 we can identify the nature of the relationship prevailing between production and price during the post – nationalization period in Coal India. In the different sub-periods as stated below:

Production	*Price*	*Period*
Increase	Increase	1973 to 1978
Increase	Increase	1979 to 1985
Increase	Increase	1986 to 1990
Increase	Increase	1991 to 1998

It is clear from the above table that during the first sub-period i.e. between the years 1973 and 1978 both economic variables i.e. production and price achieved the said direction of change. Since the nationalization of the Coal India in 1973 to Government introduced a number of steps to augment production of coal. As a result the coal output in India became 95911 thousand metric tones in 1975 and 77870 in 1973 and ultimately 101340 thousand metric tones in 1978. During this period of six years coal output in Coal India increased at the rate of 5.02% per annum whereas the average of Coal India increased at the rate of 12.22% per annum. After nationalization of Government of India has revised the coal price many times to cope with the rising cost of mining.

In the second sub-period, i.e. between the year 1979 and 1985, production of coal increased at the rate of 9.92% per annum whereas the average price of the coal increased by 47.74% per annum. In the year 1982 the government of India appointed the Bureau of Industrial Costs and Prices' in order to study the proposal of increase in price of coal in India. As per the recommendation of the report of this committee the price of coal India was revised in 1985. Since then the Government of India tried to make this Industry financially sound by revising the price of Coal India time to time.

During the sub-period 1986 to 1990, both production and price in Coal India had an increasing trend. In this period of five years, coal output in Coal India increased at the rate of 98% annually whereas the average price of Coal India rose at the rate of 5% per year. During this sub-period the Seventh five year plan was launched and the energy was given the top priority in order to augment the huge production of coal with a view to meeting the requirements of power sector thus in production of coal became 204432 thousand, metric tones. During this sub-period the average price of coal also rose and the rate of increase in price of coal in India was more than that of coal output. A number of factors can be mentioned which are responsible for such rise in the price of coal. After nationalization of the coal India wages and other social security measures improved rapidly which ultimately guaranteed an increasing trend in Labour costs.

During the sub-period 1991 to 1998, both production and price had an increasing trend.

Thus we get that there is a positive relationship between price and production of coal. India in the post nationalization period. In all the four sub-period after nationalization of the coal India both production and price increased. During the post-nationalisation period the relationship between production and price in Coal India Ltd. Is positive.

During the period production has grown at the rate of 5.5% per annum while price of coal has increased at that of 13.22% per annum.

Thus the rate of increase in price of Coal India Ltd., is double the rate of growth of coal output in Coal India Ltd. The Price of Coal India has been revised several times between the years 1973 & 1998 because of the surmounting cost of mining of coal. The production of Coal India Ltd., increased at a moderate rate between the years 1973 & 1998 because the Government of India adopted several steps to augment Coal output. The production of Coal India had not increases at the same pace as of price of Coal, because of shortage of power and low productivity of workers etc.

EMPLOYMENT AND WAGE

Coal India Ltd. Is an important area for industrial emploayment. The Coal India is found to have 70% of the total employment of Indian mining sector. In 1973 the daily member of workers engaged in raising of Coal India was 474 thousand which became 504 thousand in 1974. Thus there was a growth rate of 6.33% in the employment of Coal India over the figure of 1973. (Table 3) During the period 1973 to 1975, the average daily employment in Coal India increased in each year.

The continuous rise in the employment of Coal India was interrupted in 1976 when there was a reduction of about 2.54% in the employment of Indian Coal Industry over the figure of 1975. (There was spread opinion that nationalization reflected the recording of previously unrecorded employment). Thus, between the years 1977 and 1980 employment in Coal India more or less remained constant. During the sixth five year plan period (1980-85) employment in Indian Coal Industry moved up by 1.056% per year because the sixth five year plan laid emphasis of the industrialization in Indian in Indian economy. More job oppor-tunities were created in Coal India during the sixth five year plan period because the power sector got the highest priority resulting in increase in the demand for Coal Indian economy. There is slight increase in employment in Indian coal industry in the year 1986. The average daily employment figure in Indian coal industry became 535 thousand in 1987 i.e. it increased by 19% over that of 1986. In 1988 employment in Coal India decline by 6%

Table 3: Average daily employment in Coal India Ltd. (Period – 1973 to 1998)

Year	*Average daily employment (in thousand)*	*Index number (Base 1973=100)*
1973	474	100.00
1974	504	106.33
1975	522	110.13
1976	510	107.59
1977	497	104.85
1978	496	104.64
1979	498	105.06
1980	498	105.06
1981	513	108.23
1982	513	108.23
1983	513	108.23
1984	522	110.13
1985	523	110.34
1986	526	110.97
1987	535	112.87
1988	499	105.27
1989	539	113.71
1990	568	119.83
1991	554	116.88
1992	552	116.88
1993	546	115.19
1994	524	110.55
1995	513	108.23
1996	506	106.75
1997	503	106.12
1998	500	105.049

over the figure of 1987. Between the years 1989 and 1990 employment in Coal India increase by 3% to 1987 the average annual rate of increase in the employment of Coal India was about 1.00% per year.

The movement of the average productivity of Coal workers in Indian can be seen in the table 4. In 1973 the Coal India was nationalized. The immediate effect of the nationalization was not encouraging from the point of view of the movement of the average productivity of the colliery workers in India which feel steeply in 1973 due to greater rise in employment in compared to output. However, in 1974 the average productivity of the colliery workers in India increased by 1.6% over the figure of 1973. But in the year 1975 and 1976 the rate of growth of output had been higher than that of employment in Coal India. In these two years the average productivity per workers in Coal India had been 183.74 and 197.80 metric tones respectively.

While in 1974 it was only 1660.87 metric tones. Between the years 1977 the average productivity of coal workers India also had an

Table 4: Average productivity of workers per year in Coal India Ltd. (Period–1973 to 1998)

Year	*Average piece (in Rs.)*	*Index Number (Base 1973=100)*
1973	164.28	100.00
1974	166.87	101.58
1975	183.74	111.85
1976	197.80	120.40
1977	201.93	122.92
1978	204.31	124.37
1979	207.56	126.35
1980	219.18	133.42
1981	239.97	146.07
1982	250.50	152.48
1983	262.73	159.93
1984	275.62	167.77
1985	286.26	174.25
1986	309.21	188.22
1987	331.25	201.64
1988	377.11	229.55
1989	369.13	224.70
1990	359.92	219.09
1991	421.00	256.27
1992	453.00	275.75
1993	477.00	290.36
1994	511.00	311.05
1995	554.00	337.23
1996	601.00	365.84
1997	629.00	382.88
1998	658.00	400.00

increasing trend. During the period 1973 to 1978 the average productivity of colliery workers in India increased at a rate 3 of 1.18% per year. During the same period output increased by 5.40% per year while employment increased by 4.22% annually. Between the years 1979 and 1981 it increased at a rate of 1.82% per year. During this sub-period i.e. 1979 to 1981 output and employment rose by 5.33% and 3.51% per year, respectively. During the sub-period 1982 to 1988 employment declined by 1.19% per year while output increased by 4.01% per annum and consequently average productivity of colliery workers India increased by 5.20%. Thus in the year 1988 the average productivity of the colliery workers India became 377.11 metric tonnes resulting an increase of 14% over the figure of 1987. However after the year 1988 the average productivity of colliery workers India had taken a downward trend. In 1989 it declined by 2.1% over the figure 1988 and in 1990 it feel by 3% over the figure of 1989. This happened because in these two years the rates of increase in employment were higher than that of output.

Thus it is clear that the trend of the average productivity of the workers in Indian coal mines is not satisfactory. This is because of the differences in technologies, condition of work and living, motivation involved, the levels of general and technical education etc. There is no doubt that a steadily rising level of productivity of the economy as whole is the source of real improvement in the level of living of a people particularly of the wage earners in the economy. There is fairly a close relationship between the rate of change in productivity of the economy as a whole and the rate of change in real wage level. Productivity can rise not only by intensive effort and hard work but also by new capital investment, greater mechanisation and automation, application of improved technology, scientific management and a climate of a production oriented society. Indian economist has been giving adequate emphasis on this aspect but it has not received adequate emphasis by the authorities concerned. As a result there has been a disproportionate relationship between growth of productivity and wages in Coal India.

We now analysis the nature of the movement of money wage of Coal India's workers during the post nationalization period. The aveage weekly money wage of the colliery workers in India was Rs. 75.25 in 1973, which increased by 14.9% over the figure of 1972 (Table 5).

In 1974 it increased by 21.3% over the figure of 1973. The year 1975 depicted an increase in Money wage of the colliery workers by 32.3% over the figure of 1974. In this year Government of India constituted 'Joint tripartite wage' negotiating committee to review the wage structure of colliery workers India. The agreement make in this committee was called National Coal Wage Agreement which was operated since 1975 for a period of four years. Thus, from 1975 to 1978, the average weekly money wage of colliery workers India was more or less constant. During the period 1975 to 1978, the money wage of colliery workers increased by 0.54% per year only. In 1979 there was National coal wage agreement II and consequently the money wage of the colliery workers in India 1979 increased by 7.09% over the figure of 1978. This agreement was operated upto the end of the year 1982. In 1983 the management of the Coal India decided to review the wage wtructure of colliery workers India which resulted in the certation of "National Coal Wage Agreement III" in 1983. Due to this agreement the average weekly money wage of the colliery workers India increased by 9.61% over the figure of 1982. Since then there was continuous

Table 5: Average weekly money wage of Coal India Ltd. (Period – 1973 to 1998)

Year	*Average weekly money wage (in Rs.)*	*Index Number (Base 1973= 100.00)*
1973	75.25	100.00
1974	86.43	114.86
1975	141.37	151.99
1976	123.04	163.51
1977	123.61	164.27
1978	129.84	172.54
1979	139.05	184.78
1980	174.57	231.99
1981	196.99	261.78
1982	222.67	295.91
1983	244.06	324.33
1984	301.07	400.09
1985	325.55	432.62
1986	326.01	433.24
1987	328.22	436.17
1988	372.17	494.58
1989	409.80	544.58
1990	478.67	636.11
1991	481.10	639.34
1992	627.10	833.36
1993	627.10	833.36
1994	932.57	1239.30
1995	1210.00	1607.30
1996	1344.00	1786.05
1997	1409.00	1872.43
1998	1474.00	1958.81

rise in the average weekly money wage of the colliery workers in India increased by 9.61% over the figure of 1982. Since then there was continuous rise in the average weekly money wage of the colliery workers in India. The year 1985 witnessed an increase in the money wage by 8.13% over the figure of 1984. Between the year 1985 and 1987 the annual rate of increase in the average weekly money of the colliery workers India was 10.9% during the period 1987 to 1990 it increased by 8.8% per year. Thus it can be seen that the increase in money wage of the colliery workers India has been significant during the post-nationalization period. The relationship between employment and average weekly money wage of the colliery workers India during the sub-periods 1973 to 1976 and 1977 to 1990 had been positive. During the entire period after nationalization i.e. 1973 to 1998 the money wage of the colliery workers in India moved up by 11.6% per year only. Thus we observe that all the three negotiations which had been carried out by the Joint Bipartite Committee' formed with the representative of the workers and the coal producing companies gave substantial benefits to the colliery workers and the coal producing companies gave substantial benefits to the colliery workers in India during the post nationalization period. In this way the coal mine workers who were among the lowest paid Industrial workers some years back have already reached the higher strata of organized working class as far as wages and living conditions are concerned.

Improvement in money wage gives no clear idea of the changes in the standard of living. The purchasing power of money is continuously reducing due to the increase in the prices of the consumer goods. The worker is interested to know how much he can purchase with his earning. This is known with the help of real wage of the worker. So the rise or fall in real wage influences directly the standard of living of the workers. The National commission of Labour remarks "The Level of Living is a Function of Real Wage".

In order to assess the charges in the level of living of the working in working in India the consumer price variation which are deflected in the all India consumer Price Index Number of Industrial workers have been taken into consideration. Table 6 presents the average

Table 6: Average weekly real wage of Coal India Ltd. (Period – 1973 to 1998)

Year	*Average weekly real wage (in Rs.)*	*Index Number (Base 1973=100.00)*
1973	27.06	100.00
1974	24.13	89.17
1975	30.24	111.75
1976	32.44	119.88
1977	32.39	119.70
1978	33.50	123.80
1979	33.73	124.65
1980	38.01	140.47
1981	37.93	140.17
1982	39.81	147.12
1983	35.80	132.30
1984	44.40	164.08
1985	45.50	168.14
1986	41.90	154.84
1987	38.76	143.24
1988	40.78	150.70
1989	44.28	163.64
1990	47.95	177.20
1991	48.11	177.79
1992	55.20	203.99
1993	51.74	191.20
1994	70.28	259.72
1995	82.76	305.84
1996	66.04	244.05
1997	81.30	300.44
1998	96.56	356.84

weekly real wage of the coal mine workers in India during the period 1973 to 1998. The coal miners in India had achieved substantial increase in money earning since the nationalization of the coal industry. The average weekly real wage of the colliery workers in India was Rs. 27.06 in 1973. This increased by 18.26% in 1975 over that previous year.

In 1975 the average weekly real wage of the colliery workers became Rs. 30.24. In the next year it became 32.46. During the period of subsequent three years i.e. from 1977 to 1979 the average weekly real wage of the colliery workers India were more or less constant. As a result the average weekly real wage of the colliery workers India during the period 1976 to 1980 moved up at a rate of 0.46% per year whereas the money wage rose by 7.15% annually. Ultimately, during the last seven years of our study the money wage of the colliery workers in India increased by 9.65% per year whereas the real wage could not register an annual increase by more than 1.66% annually due to the presence of high inflationary pressure in the economy. It is true that after nationalization of the coal industry the real wage of the colliery workers achieved an increasing trend. The money wage of the colliery workers rose by 11.6% per year during the period 1973 to 1997 whereas the real wage moved up only 3.6% annually. Between these years of the post-nationalisation period there was the most significant increase in the real wage of the colliery workers in 1984 because in this year the increase in money wage was much higher that of consumer price.

From the above analysis it is clear that the rate of increase in money wage in the coal mines in India had been very significant during the post-nationalisation period i.e. 1973 to 1998. But the rate of increase in real wage of the colliery workers had been lower because of the increasing trend of the consumer price index number between the year 1973 and 1997. During the period 1973-1998 there was eleven times increased in money carryings of the colliery workers, whereas the consumer price index number increase by seven and half times.

There should exist a close relationship between the rate of change in average productivity and real wage of the colliery workers in India during the post-nationalization period i.e. 1973 to 1998. However, the rate of growth in the average productivity of the colliery workers in India had been higher than that of increase in real wage between the 1973 and 1998. Thus there had been a disproportionate relationship between these two economic parameters in Indian coal industry during the post nationalization period i.e. 1973-1998. During this period real wage of the colliery workers had gone up by 3.6% per year whereas the average productivity had increased by 4.8% annually.

SHARE OF WAGE IN OUTPUT

In 1973 Coal India Ltd., was nationalized. The share of wage bill to total value of output in Coal India moved up to 58.67% in 1973.

There was an increase in wages share in Coal India in 17% in 1973. However, from the table 7 it is clear that since 1974 there was gradual decline in the share of wage bill to total value of output in Coal India.

Table 7: Share of wage in total value of output (Period – 1973 to 1998)

Year	*Average daily employment (in thousand)*	*Index Number (Base 1973=100)*
1973	58.67	100.00
1974	52.34	89.21
1975	45.96	78.34
1976	46.12	78.61
1977	45.07	76.82
1978	46.96	80.04
1979	38.46	65.55
1980	34.82	59.35
1981	29.75	50.71
1982	29.39	50.09
1983	29.09	49.58
1984	27.73	47.26
1985	28.59	48.73
1986	23.86	40.67
1987	22.47	38.30
1988	19.81	33.77
1989	20.23	3.48
1990	23.90	40.74
1991	39.55	67.41
1992	35.33	60.22
1993	34.15	58.21
1994	36.59	62.37
1995	37.88	64.56
1996	35.11	59.84
1997	31.54	53.76
1998	30.64	52.54

In 1974 the wage share in Coal India became 52.24% i.e. there was a fall in wage share of about 10.08% over the year of nationalization i.e. 1973, the wage share in Coal India Limited started falling since 1974 and reached the level 45.07% in 1977. Between the years 1973 and 1975 the share of wage bill to total value of output in Coal India faced a downward trend. Wage share in Coal India decreased at the rate of 3.84% per year during the period 1973 to 1975. On an average, during the period.

1973 – 1976 the share of the wage bill to total value of output in Coal India was 52.32% further, during the period 1976 to 1981, the share of wage bill to total value of output in Coal India declared at the rate of 8.62% per year. However, in 1978 there was an increase in the wage share in Coal India Limited by 4.19% in compared to that of the previous year. It is seen in the table no. 7 that the wage bill to total value of output in Coal India declined in 17 years out of 26 years out of 26 years of post-nationalisation period i.e., from 1973 to 1978. One thing is to be noted in this connection that, after nationalization in spite of significant increase in money wage of the colliery workers in India, the wage share in Coal India had a declining trend. The reason behind this downward trend of wage share is that since Nationalization the Govt. of India had been trying its level best to develop this core sector by investing huge capital. Due to the massive capital expenditure, large scale mechanization in Coal India after Nationalization began to take place, modern sophisticated technology started working, manual work was being replaced by machine at repaid rate. Thus the expenditure on capital, in Coal India increased at a repaid rate after the nationalization of Industry in 1973. In 1988 the wage share in Coal India became lowest i.e. 19.81% only. During the seven year i.e. 1982 to 1988, the average share of wage bill to total value of output in Coal India had been 25.13% only. In 1989 the wage share in Coal India got an upward trend and ultimately in 1990 it increased by 18.14% over that of 1989. During the entire period after nationalization of Coal India i.e. form 1973 to 1998 the share of wage bill to total value of output had varied between 58.67% to 19.81%. The wage share in Coal India between the year 1973 to 1998 declined at a rate of 6.34% per year. There has been slight improvement in wage share in Coal India in nine years out ot Twenty six year during the period of post-nationalization period i.e. 1973 to 1998. Thus with the help of the above analysis we understand that since nationalization of the Coal India the strategy had been shifted from labour-intense to capital intense and therefore the intensity to employee more capital than labour had been rising rapidly. The fluctuation in the rate of change in the wage bill to total value of output in Coal India during the period 1973 to 1978 can be seen from table 8.

From following table it is clear that the share of wage bill to total value of output in Coal India Ltd. Industry during the post nationalization period had increased in some years varying in the range of 1.14% to 9.65% per year, while in some years varying in the range of 1.02% to 16.50% per year.

Table 8: Rate of change (%) in wage-share for different years in the period 1973 to 1998

Year	*Increase*	*Decrease*
1973 – 75		2.31
1976 – 78	2.33	
1979 – 81		11.90
1982 over 81		1.21
1983 over 82		1.02
1984 over 83		4.68
1985 over 84		14.90
1986 over 85		16.50
1987 over 86		5.83
1988 – 90	9.65	
1973 – 90		6.34
1991 over 90	65.48	
1992 over 91	-	10.67
1993 over 92	-	3.34
1994 over 93	1.14	
1995 over 94	3.53	
1996 over 95	-	7.31
1997 over 96	-	10.17
1998 over 97	1.22	-

Between the year 1973 and 1975 the share of wage bill total value of output in Coal India had decreased at the rate of 2.31% per year. However the wage share in Coal India had increased at a rate of 2.33% per year between the years 1976 and 1978. During the sub-period 1979 to 1981 the share of wage bill to total value of output in Coal India had declined at a share rate of 11.09% per year. There was slow declined in the way share Coal India of 1.21% in 1982 over 1981 and again in 1983 it had declined by 1.02% over 1982. In 1984 the share in wage bill to total value of output in Coal India had fallen by 4.68% over 1983. Further in 1985 it had declined very sharply by 14.90% over 1984. This declining trend had also continued in 1986 when the share of wage bill to total value of output in Coal India had decreased rapidly by 16.50% over the year 1985. However, in 1987 the wage share in Coal India had decreased by 5.83% over the previous year. Between the years 1988 and 1990 there was significant increase in the wage share in Coal India of about 9.65% per year because at the same time there had been many fold increased in the money wage of the colliery workers in India which had resulted a significant rise in the wage share in Coal India Ltd. Thus from the above analysis it appears that in 1973 when the Coal India increased substantially because there was Massive increase in money wage of the Colliery Workers but after the successive years of nationalization wage bill to total value of output in Coal India had declined. During the period of 26 years after nationalization i.e. from 1973 to 1998 the share of wage in Coal India feel at a rate of 6.34% per year.

This was seen that the share of wage in Coal India between the years 1973 and 1998 fluctuated between 19.81% and 58.67%. The factors responsible behind such fluctuation can be identified from the nature of the movements of Coal output, Employment and money wage of the colliery workers between the years 1973 and 1998. The movements of production, price, Employment and money wage in Coal India during the period 1973 – 1998 are shown in table 9.

The factors responsible for sharp fluctuations in the share of wage in Coal India during the period 1973 to 1998 are identified in the above table. Between the years 1973 and 1975 the share of wage bill to total value of output in Coal India had decreased the rate of 2.31% per year. The reason for the decline in wage share in Coal India between the years 1973 and 1975 were higher rate of increase in price in compared to the rate of increase in money wage as well as higher rate of increase in output in compared to the rate increase in Employment. Between the years 1976 and 1978 the share of wage bill to total value of output in Coal India had increased by 2.33% per year. Between the years 1976 and 1978 the money wage of the colliery workers had increased moderately at a rate of 3.51 annually, where as the Employment in Coal India had declined at a rate of 8.14% per annum. During the period 1976-1978 there was increased in the average price of Coal India and coal output in Coal India had increased nominally by 0.23% per year. This situation had ultimately resulted in the increase in the increase in the wage share in Indian coal industry between the years 1976 and 1978. In the next sub-period i.e. 1979 to 1981 there was a significant declined in the wage share in Indian Coal Industry of about 11.90% per year although there was a significant increase in the money wage of the colliery workers between the years 1979 and 1981. Because during this period price of Coal India increased at a higher rate in compared to the rate of increase in the money wage of the colliery workers India, while coal output also increased at a higher rate in compared

Table 9: Annual rate of change (%) period 1973 – 1998

Year	*Output*	*Price*	*Employment*	*Money wage*
1973-75	12.20	25.90	4.71	23.03
1976-78	0.23	Nil	-1.14	3.51
1979-81	9.60	25.90	3.51	18.85
1982 over 81	4.4	9.59	Nil	13.85
1983 over 82	4.90	5.59	Nil	9.61
1984 over 83	6.70	23.40	1.06	23.40
1985 over 84	4.05	0.98	0.28	8.13
1986 over 85	8.60	11.07	0.57	0.14
1987 over 86	8.90	0.17	1.17	0.68
1988-90	4.71	5.70	7.15	13.50
1973-90	5.50	17.20	1.00	11.50
1991 over 90	16.30	-7.35	-2.46	0.51
1992 over 91	5.12	12.67	-0.36	30.35
1993 over 92	4.27	17.94	-1.09	0.00
1994 over 93	2.65	12.27	-4.03	48.71
1995 over 94	6.38	4.67	-2.10	29.75
1996 over 95	6.86	1.84	-1.36	11.07
1997 over 96	4.14	20.06	-0.59	4.84
1998 over 97	4.18	20.00	-0.54	4.74

to the rate of increase in Employment in Coal India. This situation had ultimately resulted in the declined in the wage share in Coal India during the period 1979-1981.

Between the years 1982 and 1985 the wage share in Coal India had continuously declined because during this period the Employment in Coal India was more or less constant but the Growth rate in Coal output in Coal India in every year was satisfactory. However in 1986 the wage share in Coal India increased by 16.50% over 1985. Again in 1987 the wage share Coal India had declined by 5.53% over 1986. In 1987 although employment in Coal India increased slowly by 1.17% over 1986, Coal output in Coal India had increased by 8.90% over 1986. The situation ultimately resulted in the decline in the wage share in Coal India by 5.83% in 1987 over 1986. Between the years 1988 & 1990 the wage bill to total value of output in Coal India had increased at the rate of 9.65% per year. The reason for very significant increased in wage share in Coal India between the years 1988 and 1990 are that the money wage of the Colliery workers in Coal India. During this period increased significantly at a rate of 13.50% per year, while price of coal output in Coal India increased only by 5.70% per year and on the other hand employment in Coal India between the years 1988 and 1990 increased at the rate of 7.15% per year first Coal output in Coal India increased only by 4.17% per year. This situation ultimately resulted in the steep increase in the wage share in Coal India between the year 1988 and 1990.

During the entire period of 1973 to 1998 the wage share in Coal India had declined at the rate of 6.34% per year. Inspite of increase in money wage of colliery workers in Coal India between the years 1973 and 1998 at the rate of 11.5% per year the wage share in Coal India during the period 1973 and 1998 at the rate of 6.34% per year the reasons for such decline in wage share in Coal India during the entire post nationalization period increased only at the rate of 1% per year. One the other hand between the years 1973 and 1998 production in Coal India increased at the rate of 5.50% per annum and price of coal in India increased at the rate of 17.20% per year. This situation ultimately resulted in the decline of wage share at the rate of 6.34% per year between the year 1973 & 1998.

In 1973 the Coal India was nationalized and since then we observed a declining trend in the wage share in Coal India during the period of 26 years after nationalization i.e. 1973-1998. The wage share in Coal India since 1973 fluctuated between the range of 58.67% and 19.81%. The reasons of such down word trend in wage share in Coal India since 1973 were massive in investment by the Government in Coal India resulting large scale mechanization and automation in Coal India after nationalization. After taking over of the Coal India in 1973 machines started replacing manual labours and thus the strategy was shifter from labour intensive to capital in intensive. This situation ultimately resulted in the declining trend of the wage share in Coal India during the post nationalization period i.e. 1973-1998.

WAGE AND PRODUCTIVITY

Wage is important to the employment wage not only constitutes a major portion of his standard of living but also it determines his status and position in the society Money paid to the worker is considered as his money wage. Other types of benefits as well as pension, welfare fund, social security, vocation and holidays are regarded as the fringe benefits because they are paid in addition to wage and form total labour cost.

In fact, wage is remuneration for labour. Wage is contractual income, wage rate, whether price rate or fine rate or whether fixed in money or in goods is agreed upon by the payer and the recipient of wage before the product is sold in India, however, different labour enactment's include different items under the term 'wage' through the basic components of wage are same. The money wage of an employee in Coal India consists of the following components.

(a) Basic wage
(b) Fixed dearness allowance
(c) Variable dearness allowance
(d) Attendance bonus
(e) Special dearness allowance
(f) Additional payments

Wage earned by employee is normally expressed in terms of money wage which only expresses the amount in terms of currency, while real wage refers to the goods and services a worker can buy with his money wage. Real wage is calculated by relative change in money wage to exchange in consumer price index number. Consumer price index number helps to measure the rise or fall in consumer price. It takes into consideration only the consumer or retail price and not whole sale price of the commodity. If is used for real wage calculation. It gives us an idea of the rate of increase in consumer price over a particular period of time. The real wage of the workers of Coal India Ltd., in a particular year has been calculated through deflating money wage of the colliery workers in Coal India in that year by corresponding consumer price Index number for Industrial workers in the Coal Mining area in India.

Broadly speaking, productivity is the relation between output and input, it is the measurement of the degree of efficiency with which resources of all kinds are transformed into goods/services thus productivity is the optimization (or maximization of economic utilization) of all available resources through investigation into least known resources and generation of new resources through creative thinking, research and development and by the use of all possible improvements in techniques and methods.

In simple, it is a ratio of output to input and gives a measure of how efficiently a system is working labour productivity is a direct result of advancement in technology. Hence all factors which raise labour efficiency such as working conditions, employment conditions technological improvements, higher moral etc lead to raise productivity. Thus labour productivity is an indicator of increased welfare and better utilization of resources.

The labour productivity is the ratio of total output divided by total labour other things remaining the same. Here other things remaining the same includes balanced allocation of resources, homogeneous labour, wage managerial policy etc. hence the productivity of labour is the ratio of total output to total labour input. In case of Coal India Ltd., the ratio of output to labour input in a particular year gives the idea of the average productivity of labour in that year-Nationalisation of the Coal India represents the taking over by the Government of responsibility to ensure the co-ordinates, rational and scientific development of the coal resources of the economy. The Government of India had inherited in past a situation of chaos created by the comparative private system. Thus the problem were formidable and could be over comic only by sustained and dedicated efforts by Coal India Ltd.

Money wage per manshift and real wage per manshift and output per manshift in Coal India Ltd., are given in table 10.

Production of Coal India had gone up to 2.60 Million metric tones in 1973 but output per manshift had come down to 0.06 in 1974 coal output in India increased to 6 million metric tones but output per manshift in Coal India further came down to 0.03 metric tones in Coal India. From 1975 the average productivity in terms of output per manshift had started moving upward, in that particular year it has grown at a rate of 6.00% per annum. It may be noted in this connection that output per manshift in Coal India had increased appreciably in case of open cast mines where coal in own by quarrying either manually or mechanically.

Table 10: Money wage per manshift and real wage per manshift and output per manshift in Coal India Ltd.

Year	*Money wage per man-shift (in Rs.)*	*Real wage per man-shift (in Rs.)*	*Output per man-shift (in metrics tonnes)*
1973	8.25	3.00	0.36
1974	8.91	2.49	0.33
1975	11.40	3.01	0.35
1976	12.55	3.31	0.39
1977	13.00	3.40	0.41
1978	13.61	3.51	0.42
1979	14.52	3.52	0.42
1980	18.23	4.00	0.44
1981	20.22	3.85	0.47
1982	22.57	4.04	0.49
1983	24.74	4.05	0.51
1984	30.00	4.42	0.53
1985	32.40	4.52	0.55
1986	32.23	4.14	0.59
1987	31.90	3.80	0.52
1988	38.78	4.25	0.76
1989	39.54	4.25	0.68
1990	43.82	4.39	0.64
1991	153.76	15.38	1.31
1992	170.85	15.04	1.41
1993	191.79	15.82	1.46
1994	208.52	15.71	1.52
1995	237.78	16.26	1.64
1996	280.10	13.76	1.75
1997	311.68	17.98	1.86
1998	340.68	21.74	1.94

The output per manshift is off course bound to differ from unit to unit, seam to seam, place to place, depending upon the degree of Mechanisation and Geological conditions. Between the years 1976 and 1980 the output per man shift in Coal India moved up at a rate of 2.7% per annum, the output per man shift in Coal India was 0.38 metric tones in 1976 which became 0.44 metric tones in 1980. Between the years 1981 and 1985 the output per manshift in Coal India had grown at a rate of 4.02% per year. In the sub-period 1981-1985 the output per manshift in Coal India Ltd., had generally been accepted as the criterion for assessing the average productivity of the colliery workers. The average productivity or output per manshift in Coal India Ltd., during the sub-period 1986-1990 had gone up by 2.60% per year. The overall output per manshift in Coal India form 1973 to 1998 increased at the rate 4.38% per year. Money wage per manshift of the colliery workers had increased at the rate of 12.13% per year during the twenty five years of post nationalization period i.e. form 1973 to 1998. In the money wage of the colliery workers had ground by 9.3% over that of the previous year. Money wage in Coal India had a steady in increase since the taking over of the industry by the Government of India had grown at a rate of 13.3% per year. Between the years 1981 and 1986 the money wage of the colliery workers had grown at a rate of 13.3% per year. Between the years 1986 and 1990 the money wage of the colliery workers had increased at a rate of 8.64% per year. Thus we see that after nationalization of Coal India money wage of Colliery worker had increased significantly. However, real wage per manshift in Coal India grows only at a rate of 2.3% per year during the period 1973 to 1998. From the table 10 it is apparent that only after 1982 the real wage per manshift of the colliery workers had increased to some extent and between the years 1986 and 1990 it had moved up significantly. In 1990 the real wage per manshift of the colliery workers had come down by 6.3% over that of previous year. During the period of 26 years after nationalization the real wage per manshift of the colliery workers the India varied between Rs. 3.00 to Rs. 4.52 only Real wage is the indicator of the standard of living of the worker. So the rise or fall in real wage influences directly the standard of living of the workers.

Real wage of the workers of Coal India Ltd., for a particular year is obtained by deflating the money wage of the worker of Coal India Ltd, for the particular year by the consumer price index no of the corresponding year. In this analysis the consumer price index number of the 1949 series had been shifted to the base of (base 1956 = 100). From table 5 it is seen that the coal miners in India had got substantial increased in money wage per manshift since the second five year plan. But the real wage per manshift of the colliery workers between the years 1973 and 1998 the money wages the workers of Coal India Ltd., increased by 9.50% per year while the real wage of workers in Coal India Ltd., increased by 4.60% per annum. It is observed that their had been marked increase in money wage of the workers in Coal India Ltd., between the years 1973 and 1998. The increase in money wage of the workers in Coal India Ltd. had been the highest between the year 1980 and 1985 when it had grown at the rate of 8.16% per year over a span of six years. But during the period of six years i.e. from 1980 to 1985 the real wage of the workers in Coal India Ltd., increased only t the rate of 4.30% annually.

The rate of increase in money wage in Coal India Ltd., between the years 1973 & 1998 had been phenomenal in the post-nationalization era of the industry when ownership was transferred from private sector to public sector. But the rate of increase in real wage of the workers in Coal India Ltd. between the years 1973 and 1998 had been slow because of the fast rising consumer price index number, between the years 1973 and 1998.

There was 10.40 times rise in money wage while there was only 2.30 times rise in the real wage of the workers in Coal India Ltd., as consumer price index numbers for the industrial workers in mining areas in India had increased by 7-8 times during the period 1973-1998.

It was expected that the output per man-shift in Coal India Ltd., during the period 1973-1998 would be continuously increasing overtime as a result of the increasing trend in Mechanisation in Coal India between 1973 and 1998. The over all output per manshift in Coal India was about 0.36 metric tones in 1973. It has attained a gradual growth of the level 0.64 metric tones in 1990. This trend in labour productivity in Coal India Ltd is much below the level of labour productivity of the major coal producing countries in the world. The major factors responsible for the low output per manshift in Coal India Ltd., were delay in implementing new mining projects, low pace of Mechanisation, labour absenteeism and short-fall in power supply etc.

Labour absenteeism in Coal India Ltd., had an increasing trend from a lower rate of 11.18% in 1966 to 21.66% in 1990. There were 178 sanctioned Coal Mining project in India fill 1984 and only 104 of the were either completed or on schedule. Delay in implementation of new colliery projects in India had lowered the output per man-shift in Coal India Ltd., the increasing trend in cost of Coal India Ltd., was due to higher labour cost and rising capital cost. The sale value in Coal India Ltd., was elastically held back through administered pricing. Since 1973 Coal pricing in India was by and large based on the principle of TRANSFER PRICING.

The mechanism of transfer pricing for any product in the long run may be harmful cost-pricing for any can account for both efficiency and growth of a particular Industry. Thus we get that there were many factors responsible for lower output per manshift in Coal India Ltd.

The statistical techniques of multiple co-efficient of correlation has been used in order to identify the nature of relationship among money wage per manshift, real wage per man-shift and output per manshift in Coal India Ltd., during the period 1973 to 1998. The values of co-efficient of multiple co-relation are given below :

X = Money wage per man-shift (in Rs.)
Y = Real wage per man-shift (in Rs.)
Z = Output per man-shift (in M.T.)
ΣX = 1970.93, SY = 177.90, SZ = 19.81
ΣdX = 00, SdY = 00, S dZ = 732.87
Σdx^2 = 221700.43, Sdy^2 = 732.87
Σdz^2 = 6.26
dXdy = 12209.83, dx dz = 1164.15
dydz = 65.94

Summation of Money wage per Man-shift (Rs.) = $\frac{\Sigma X}{N}$ = $\frac{1970.93}{25}$ = 78.8372
Number of years =

Summation of real wage per man-shift (Rs.) = $\frac{\Sigma Y}{N}$ = $\frac{177.90}{25}$ = 7.1160
Number of years =

Summation of output per man-shift (in M.T.) = $\frac{\Sigma Z}{N}$ = $\frac{19.81}{25}$ = 0.7924
Number of years

(1) Co-efficient of co-relation between X and Y or correlation be wage per man-shift.

$$R(X \& Y) = \frac{\Sigma dX\,dy}{\sqrt{\Sigma dx^2 . \Sigma dy^2}}$$

r = 0.96

(2) Co-efficient of co-relation between Y & Z or co-relation between money -shift.

$$R(Y \& Z) = \frac{\Sigma dx\,dz}{\sqrt{\Sigma dx^2 . \Sigma dz^2}}$$

r = 0.97

(3) Co-efficient of co-relation between X & Z, or co-relation between money wage per man-shift and real wage per man-shift.

$$R(X \& Z) = \frac{\Sigma dy\,dZ}{\sqrt{\Sigma dy^2 . \Sigma dz^2}}$$

r = 0.99

(4) Multiple co-relation among money wage and output per man-shift (average productivity in Coal India Ltd. (1973 to 1998)

$$Rx.Yz = \frac{\sqrt{r^2 Xy + r^2 Xz - 2r Xy.ryz.xz}}{1 - r^2 yz}$$

rx.yz = 0.99
Probable error = 0.0026
Since r is > P.E (0.99 > 0.0026)

Hence the relationship between real wage per manshift in rupees and output per man-shift in metric tonne in Coal India Ltd. during the period 1973 – 1998 was significant. Thus we get that real wage per man-shift and output. Per manshift in Coal India Ltd. during the period 1973 to 1998 had significant correlation.

Multiple correlation among X, Y and Z assuming y as independent variable :-

$$Ry.Xz = \frac{\sqrt{r^2 Xy + r^2 yz - 2rxy.Ryz.Rxz}}{1 - r^2 Xz}$$

ry.Rz = 0.94
Probable error (i.e.) = 0.023

Since r is > P.E. i.e. (0.94>0.023) hence the relationship between money wage per manshift and output per manshift in Coal India Ltd., assuming real wage per manshift independent variable is significant.

Multiple Correlation Amont X, Y & Z Assuming Z as Independent Variable

$$rz.ry = \frac{\sqrt{r^2 Xz + r^2 yz - 2rxy.xyz.rxz}}{1 - r^2 Xy}$$

rz.ry = 0.2388
Probable error (P.E.) = 0.1277
Since r is > PE i.e. (0.2388 > 0.1277)

Hence the relationship between money wage per man-shift and real wage man-shift in Coal India Ltd., during the period 1973 to 1998 assuming output per man-shift independent variable is significant.

After taking over of Coal Industry by the Government of India since 1973 money wage per man-shift, real wage per man-shift grew at the significant rates in the positive direction, this had been substantiated form the multiplied co-relation analysis in which we get the existence of high degree of co-relation among the money wage per man-shift real wage per manshift and output per man-shift in Coal India Ltd., during the period 1973 to 1998. Because the probable error was always less than the value of co-efficient of correlation.

Correlation

This research paper has analysed the nature of the trends of production, price, wage, employment average productivity and wage share in Coal India Limited between years 1973 to 1998. This research paper also examines the nature of interrelationship among these economic variables.

During the period 1973 to 1998, we examined the trend of production and price of Coal India Limited and we have obtained that the average price of Coal India has increased at the rate of 17.70% per years whereas production of Coal India Limited grew at a rate of 5.49% per year. Hence, we found that the average price of Coal India Limited between the years 1973 and 1998 has increased steeply but the growth rate in Coal output in Coal India Limited during the same period was lower in compared to the rate of increase in price of Coal India Limited. Thus the rate of increase in production and price in Coal India Limited was always positive and higher during the period 1973 to 1998.

During the period i.e. 1973 to 1998 the output in Coal India Limited grew more or less continuously at a rate of 5.49% per year but employment of Coal India Limited between the years 1973 and 1998 was more or less stagnant.

The average weekly money wage of workers in Coal India Limited has increased at the rate of 11.5% per year but employment was more or less stagnant because of employment of Coal India Limited has increased only at the rate of 0.57% per year during the period 1973-1998. The main reason behind such sharp rise in the average weekly money wage in Coal India Limited was the growth of a strong trade Union Movement. However, the real wage and average productivity of the workers of Coal India Limited livened positive during the period 1973 to 1998. Both the average weekly real wage and average weekly real wage and average productivity of workers in Coal India Limited between the years 1973 to 1998 has increased, but the rate of increase in average weekly real wage was higher in compared to that of the average productivity of the workers of Coal India Limited.

The wage share in Coal India Limited between the years 1973 and 1998 varied in the range of 58.67% and 19.81%. Thus we have seen that the wage share in Coal India Limited had more or less a continuous declining trend during the period 1973 to 1998.

In case of wage and productivity there was some variations in the rate of increase in wage and productivity of workers of Coal India Limited between the years 1973 to 1998. Thus we have got a positive trend of increase in wage and productivity of Limited during the entire period of the study i.e. 1973 to 1998.

KEYWORDS Economics variables; enery; con-sumption; industries development.

ABSTRACT This research paper highlights the nature of the development of Coal India Ltd., analyses with the help of the economic variables like production, price, employment, wage, productivity, wage-share during the period 1973 to 1998. Coal, which dominates the Country's energy scene today, is the source of about 60% of the Country's commercial energy consumption. In addition to its use in Iron and Steel, Chemical Industries and for generation of gases, Coal is widely used by Railway, Steel Plants, Thermal Power Plants, Industrial Boilers, Cement Plants and Fertilizer Industry. Thus the rate of Industrial development of India almost depends on the better performance of Coal India Limited.

REFERENCES

Chakrabarti, P. K. 1987-88a. Socio-Economic Study in Ghusick underground project of Eastern Coalfield Limited;Asansol. *Research Monograph,* 1987-88. Dhanbad: Indian School of Mines.

__. 1987-88b. Socio-Economic Study in Jhstis Coalfield (area I to area VII). Research Monograph. Dhanbad: Indian School of Mines.

__. 1989. *Coal Industry in West Bengal.* New Delhi: Northern Book Centre (1989).

__. 1992a. A Study of Economic Variables of Coal Industry in India (1901-1986) *Commerce and Management,* 8 (1, 2).

__. 1992b. Socio-Economic Conditions in the Mining Areas West Bengal & Bihar.The Idea International Volt II No 1, Nagercoil, Tamilnadu.

__. 1992c. An Economic Study of Indian Coal Industry. The Idea International, 1991 Vol. I, No. 2, Nagercoil, Tamilnadu.

__. 1992d An Economic Study of Indian Coal Industry. Commerce & Management, Muzafarnagar, Uttar Pradesh.

__. 1996. *Wage Productivty Relation-ship in Indian Public Sector,* New Delhi: Northern Book Centre, New Delhi. (1996).

__. 2002. *Investment Decision in Indian Public Sector.* New Delhi: Northern Book Center.

__. and Patanaik Dulu. 1997. "New Economic reforms-A Challenge for Indian Industries." *Indian Journal of Economics.*

__. and Juin Choudhury. 2000 "Wage Productivity Relationship in Indian Public Sector" *Indian Journal of Economics.*

Chakrabarti, P. K. and Juin Choudhury. 2002a. "Wage and Employment of Bharat Coking Coal Limited." *J. Soc. Sci.,* 6.

__. and __. 2002b. Productivity of Bharat Coking Coal Limited: "An Economic Analysis." *J. Soc. Sci.,* 6.

Mangalam, S. Mohan Kr. 1973. *Coal Industry in India*.

Authors' Address: **Prabhas Kumar Chakrabarti and Juin Choudhary,** Department of Management Studies, Indian School of Mines, Dhanbad 826 004, Jharkhand, India