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STRUCTURAL CHANGE IN EMPLOYMENT  
IN INDIA SINCE 1980s  
How Lewisian Is It?

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# STRUCTURAL CHANGE IN EMPLOYMENT IN INDIA SINCE 1980s How Lewisian Is It?

*Satyaki Roy\**

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*[Abstract: Indian economy has shown high levels of growth and per capita income in recent years accompanied by an unprecedented shift of labour from agriculture to non-agriculture during the last decade. Reallocation of labour from 'traditional' to 'modern' segments in an economy having large surplus labour was conceived in the Lewisian framework as the process by way of which both accumulation of capital and exhaustion of surplus labour takes place. This paper argues that the structural change in employment in India that results from the exclusionary nature of the growth process hardly approximates the Lewisian trajectory. Finally, in the context of globalisation this paper explains the responses of firms of various size categories in non-agriculture and argues that the shift in employment basically expands the 'reserve army of labour' in the Marxian sense instead of exhaustion of surplus labour conceived in Lewisian conjectures.]*

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## 1. Introduction

Development of the economy is regarded as a process that entails sustained increase in output per capita accompanied by structural change in productive capacities and employment. Structural change in modern development includes a relocation of workforce from agriculture toward non-agricultural production and the sectoral shift is often reflected in a migration from rural to urban areas since most of the industries are often geographically concentrated in and around urban centres. Historical evidence from advanced countries as well as those of growing economies in East and South Asia since 1960s suggests a negative association between growth in GDP per capita and the share of the labour force in the primary sector. The causal relationship between the process of accumulation of capital that drives growth and that of structural change was captured in Arthur Lewis's seminal work on underdeveloped economies. Lewis (1954) brought to the fore the central concern of developing countries having resource constraints such as low levels of investment and savings and at the same time vast reserves of surplus labour—

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how to generate capital accumulation from the surplus labour that these developing countries possess. The answer to this question relied in appreciating the fact that economies having large volume of surplus labour or disguised employment in primary sectors have the option to increase accumulation of capital in the modern sector at a more or less unchanged real wage so long as labour is not a scarce factor. Hence development is conceived as a process that progressively utilizes available labour in a productive way and gradually reduces the share of decreasing returns activities in the economy, be it in agriculture or in non-agriculture.

The course of development envisaged in different versions of the dualist models in the Lewisian tradition is a gradual transformation of the economy by accumulation of capital from a labour surplus economy to one in which all factors including labour become scarce, dualism atrophies and factors receive return by the marginal principle. Lewis derived a general picture of the development process from the historical experiences of Western industrialized countries and described the course of changes without indulging in any normative criterion. The optimistic model of a steady process of labour absorption in the modern sector conceived by Lewis was specified in terms of a limited number of variables and ignores the structural heterogeneity of both 'modern' and 'traditional' sectors. However, Lewis himself provides descriptive reminders of the heterogeneity of the sectors and held the view that gains from the expansion of the modern sector would not unconditionally benefit the traditional sector. Hence, following Lewis's later discussions and what he construed to mean, it would be wise to regard the 'Lewis-model' as a useful historical-analytical framework instead of sticking to the precise formulations of the formal model<sup>1</sup>.

In this context we discuss the present scenario in the Indian economy which shows high levels of growth and per capita income in recent years, those higher than ever before accompanied by an unprecedented shift of population from agriculture to non-agriculture during the last decade. This paper aims to answer one central question: How does the structural change in employment in India since 1980s approximate Lewisian transformation? In section I, the pattern of structural change in employment is discussed with reference to growth of output and investments in respective sectors. Section II explains the evolving nature of employment and looks into the relevant debate on premature deindustrialization as services absorb the major chunk of labour released from agriculture. In section III the demand side of the problem is introduced, that most of the dualist models usually ignore, and discusses how the typical growth trajectory adhered

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<sup>1</sup> For further discussions see Lesson (1979), Lewis (1979), Kirkpatrick and Barrientos (2004), Ranis (2004).

to in the liberalized era influences investments from surplus as well as the nature of technology advancement in countries like ours. Section IV analyses responses of different layers of non-agriculture facing global competition and how likely outcomes diverge from that envisaged by Lewis and his followers.

## 2. Trends in Structural Change in Employment

In this section we discuss the structural change in employment with respect to trends in growth of output and gross fixed capital formation over the last two decades. Table 1 shows the distribution of main workers by industry according to the Census data. In the same table we have computed the distribution of usually employed persons (principal and subsidiary) according to NSS data. Distribution of employment based on Census data is given for three consecutive Census years and in the case of NSS the table shows distribution of employment for four survey years relevant for the present study. The share of employment according to NSS for the years 1983, 1993/94 and 1999/2000 are taken from the computations done by Mathew (2006) and for the year 2004/05 the distribution is computed using the same methodology. Using the data on total population, labour force participation rates and workforce participation rates in different

**Table 1**  
**Distribution of Employment According to Census Data and NSS Results**

Industry	Distribution of Total Main Workers by Industry According to Census Data			Industry	Distribution of Employment(UPSS) by Industry According to NSS Data			
	1981	1991	2001		1983	1993/94	1999/00	2004/05
A&A	68.82	67.20	56.67	A&A	68.29	63.89	60.28	58.17
M&Q	0.64	0.61	0.61	M&Q	0.61	0.72	0.57	0.55
MANU	11.07	9.44	13.41	MANU	10.76	10.65	10.99	11.81
EGW	0.45	0.43	0.49	EGW	0.28	0.37	0.26	0.25
CONST	1.85	1.95	3.70	CONS	2.25	3.24	4.40	5.57
THR	5.48	7.08	9.39	THR	6.38	7.60	10.26	10.32
TSC	2.74	2.82	4.01	TSC	2.52	2.88	3.68	3.87
FIRB	0.79	1.07	1.96	OS	8.91	10.65	9.56	9.47
CSPS	8.16	9.40	9.76					
Total	100.00	100.00	100.00	Total	100.00	100.00	100.00	100.00

*Notes:* Notes: A&A = Agriculture and Allied, M&Q = Mining and Quarrying, MANU = Manufacturing, , EGW = Electricity, Gas & Water Supply, CONST= Construction, THR = Trade, Hotels & restaurants, TSC = Transport, Storage & Communication, FIRB = Financing, Insurance, Real estate & Business Services, CSPS = Community, Social & Personal Services, OS = FIRB+CSPS

*Source:* Census data for various years; Mathew (2006) and NSS 61<sup>st</sup>.Round 'Employment and Unemployment Situation in India - Part I' Report No. 515

industry categories given in NSS employment-unemployment survey, 61<sup>st</sup> Round, 2004/05, we compute the distribution of employed persons for the year, 2004/05.

There is a sharp decline in the share of employment in agriculture both in reference to Census years and according to NSS results. The share of Agriculture and Allied sectors has come down from 68.82 in 1981 to 67.2 in 1991 and declined sharply to 56.67 in 2001 showing a fall in about 12 percentage points during the last decade. Considering NSS results the same trend is evident with a decline of more than 10 percentage points in agriculture during the period 1983 to 2004/05. This significant shift in employment away from agriculture and allied activities was absorbed at varying degrees by different industry groups in non-agriculture. Significant increase in the share of employment in non-agriculture has occurred in construction; trade hotels and restaurants; transport storage and communication; finance insurance real estate and business activities and manufacturing. The share increased twofold or even more in the case of construction and service industries like finance and business services; transport storage and communications; and nearly doubled in case of trade, hotels and restaurants. In the case of manufacturing the share also increased although not very significantly given the share of this sector in employment in the initial period.

Now we briefly refer to how the relative shift in employment of various sectors is linked to growth in output and investment in respective sectors as well as with relative shares in output. Table 2 shows the average growth rate in output, average share in GDP at constant prices and average growth rate of gross fixed capital formation (GFCF) at constant prices by industry categories, computed over three consecutive periods from National Accounts Statistics: 1981/82 to 1990/91, 1991/92 to 2000/01 and 2001 to 2005. The sharp decline in the share of employment in Agriculture and Allied sector has also been associated with a decline both in average growth of output and average share in GDP at constant prices in the three successive periods. The average growth of GFCF in this sector declined from 4.32 per cent (81/82-91/92) to 3.69 per cent (91/92-2000/01) and then increased to 6.48 per cent during the period 2001/02 to 2004/05. Sectors gaining in the share of employment during the reference period such as construction and trade, hotels and restaurants recorded more or less a consistent rise in all the three parameters, although in case of construction the share of GDP slightly dipped in the third period and the growth of GFCF slightly declined in case of trade, hotels and restaurants in the second period. In case of transport, storage and communications both average growth of output and average share in GDP at constant prices increased in the three successive periods however this sector registered a sharp decline in the growth of GFCF from 11.49 per cent in 91/92–2000/01 to 4.11 per cent in 2001/02 to 2004/05. The other sector in which share in employment increased significantly is finance, insurance, real estate and

business services. In this sector, however, average growth of GDP declined in the three periods although the sector gained in terms of share in GDP. There is a sharp decline in the growth of GFCF from 10.81 per cent to 1.80 in this sector during the last two periods.

**Table 2**  
**Average Growth of GDP, GFCF and Average Share in GDP at Constant 1999–2000 Prices**

Industry	Average Growth Rate of GDP			Average Share in GDP			Average growth Rate of GFCF		
	1981/82 to 1990/91	1991/92 to 2000/01	2001/02 to 2004/05	1981/82 to 1990/91	1991/92 to 2000/01	2001/02 to 2004/05	1981/82 to 1990/91	1991/92 to 2000/01	2001/02 to 2004/05
Agriculture and Allied	3.52	2.82	2.25	34.39	33.66	21.85	4.32	3.69	6.48
Agriculture	3.65	2.81	2.27	31.42	30.77	19.95	4.17	2.86	6.10
Mining and Quarrying	8.53	3.96	5.29	2.37	2.42	2.22	14.13	-1.88	21.35
Manufacturing	6.23	5.92	6.16	14.59	14.62	15.02	9.34	8.19	18.11
Manufacturing (Registered)	8.34	6.45	7.10	8.49	8.67	10.13	11.26	8.16	18.45
Manufacturing (Unregistered)	3.52	5.04	4.31	6.10	5.95	4.89	17.18	10.74	24.58
Electricity, Gas & Water Supply	8.59	6.81	4.69	1.93	2.00	2.32	7.87	2.61	3.75
Construction	4.70	5.07	9.51	5.93	5.88	6.07	10.43	19.51	21.89
Trade, Hotels & Restaurants	5.94	7.47	8.79	11.87	11.92	15.34	5.91	5.89	21.34
Transport, Storage & Communications	5.86	8.11	13.02	6.26	6.31	9.15	6.69	11.49	4.11
Financing, Insurance, Real Estate & Business Services	9.10	7.84	7.39	9.23	9.62	13.47	10.62	10.81	1.80
Community, Social & Personal Services	5.93	6.50	5.35	13.44	13.57	14.56	3.93	5.17	15.53
GDP/GFCF	5.40	5.59	6.41				6.51	6.05	9.51

*Source:* Computed from National Accounts Statistics, 2007 and back series.

In the manufacturing sector there is a decline in the growth rate in registered manufacturing during the first two reference periods, however, it slightly picked up during 2001/02 to 2004/05. In the case of unregistered manufacturing the growth of output has increased from 3.52 per cent to 5.04 per cent and then declined to 4.31 per cent in the third period and the share in GDP shows a consistent decline. If we see at a more disaggregated level<sup>2</sup> the increase in the average growth rate is highest in the case of communications which picked up from 6.04 per cent during the eighties to 16.89 per cent

<sup>2</sup> Data at a more disaggregated level are not shown in the table.

in the nineties and 23.36 per cent during the first four years of this millennium. In terms of share in GDP the decline in the case of agriculture was quite sharp in the last decade— it came down from 30.77 per cent to 19.95 per cent. Sectors those registered a drastic decline in the growth of investments in the last two periods are storage, banking and insurance, real estate, ownership of dwellings and business services. Hence, it might appear that the share in employment, average growth of output, average share in GDP and average growth in GFCF moved more or less in the same direction although this might not be the case in all the sectors.

In order to figure out the causality between the sectoral shifts in employment, output and investments we look into the relative product per worker<sup>3</sup>, i.e., share in GDP divided by share in employment in the respective sectors and share in GFCF divided by share in employment computed both in terms of Census data and NSS survey results. The share in GDP or GFCF for the years 1981, 1991 and 2001 are actually five-year averages with the respective years taken as the middle year and matched with the share in employment for respective Census years. Averages are taken to neutralize abnormal fluctuations if any in the specific years and to take note of the lagged response of employment with respect to changes in investments. In case of NSS data the matching years are 1983, 1993, 1999 and 2004 and three period averages are taken. Table 3a and Table 3b show the relative changes in output and investment for various industry groups with respect to employment.

The sectors in which the share in employment increased are also the sectors where relative product per worker and share in gross fixed capital formation with respect to employment has sharply declined (Table 3a). These are unregistered manufacturing, construction, trade hotels and restaurants, transport, storage and communication and financial services. Similar pattern of consistent decline in the share of gross fixed capital formation with respect to share in employment is also visible in sectors showing high employment absorption. In case of registered manufacturing the relative shares in gross fixed capital formation with respect to employment increased during the reference period (Table 3a) and that somehow helped in maintaining the increasing trend in the manufacturing sector taken as a whole shown in Table 3b.

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<sup>3</sup> The term was used by Kuznets (1971).

**Table 3a**  
**Relative Product Per Worker and Share in GFCF in Respect to Share in Employment**  
**by Industry Groups (Census Data)**

Industry	Relative Product Per Worker (Census)			Share in GFCF/ Share in Employment (Census)		
	1981	1991	2001	1981	1991	2001
A&A	0.54	0.46	0.41	0.27	0.17	0.18
M&Q	3.34	4.26	3.68	7.34	7.89	3.11
MANU	1.29	1.54	1.12	2.16	3.09	2.15
MANU-R	2.85	4.13	4.81	5.85	9.23	9.55
MANU-U	0.79	0.75	0.44	0.99	1.19	0.79
EGW	3.71	5.32	4.88	27.42	29.63	16.86
CONST	3.38	3.07	1.58	0.63	0.57	0.68
THR	2.11	1.70	1.58	0.65	0.47	0.33
TSC	2.21	2.30	2.09	3.34	4.11	3.31
FIRB	9.94	10.56	6.78	12.10	11.77	9.61
CSPS	1.60	1.48	1.51	2.10	1.42	1.37

*Notes:* MANU-R= Manufacturing (Registered), MANU-U= Manufacturing (Unregistered), others same as in Table 1.

However, the registered component of the manufacturing sector has little contribution in the aggregate increase in the share of employment in this sector, which is why the relative product per worker shows a declining trend for the manufacturing sector taken as a whole even though it increased in the case of registered manufacturing.

**Table 3b**  
**Relative Product Per Worker and GFCF in Respect to Share in Employment**  
**by Industry Groups (NSS Data)**

Industry	Relative Product Per Worker (NSSO)				Share in GFCF/ Share in Employment (NSSO)			
	1983	1993	1999	2004	1983	1993	1999	2004
A&A	0.54	0.47	0.41	0.35	0.24	0.16	0.15	0.14
M&Q	3.73	3.59	4.13	3.93	10.38	7.17	3.53	3.95
MANU	1.34	1.36	1.37	1.28	2.50	2.75	3.08	3.11
EGW	6.24	6.56	9.53	9.08	44.34	32.25	34.21	27.65
CONST	2.60	1.80	1.30	1.16	0.51	0.34	0.41	0.46
THR	1.82	1.62	1.39	1.51	0.43	0.42	0.28	0.32
TSC	2.42	2.31	2.05	2.59	3.39	4.07	3.44	2.95
OS	2.40	2.41	2.89	2.94	2.88	2.59	3.01	3.02

*Notes:* OS= FIRB+CSPS and the abbreviations have the same implications as in Table 1

Hence increase in the share of employment in various sectors has not been accompanied by an increase in the relative product per worker and also not being caused by a relative increase in the share of investments. The fact is reflected further by the increase in the unorganized component in the labour force employed in different sectors.

Table 4 shows that the expansion in the relative share in employment in different sectors is also accompanied by a sharp increase in the share of unorganized workers in respective sectors and also in terms of rise in the share of unorganized workers within industry groups. The relative share in unorganized workers for the construction sector; trade; transport storage and communication; and financial and business services more than doubled during the reference period. The data on unorganized employment by industry categories is arrived by deducting the number of organized workers given in Economic Survey 2005/06 for respective years from the number of Total Main Workers for the same years given in Census data.

**Table 4**  
**Distribution of Unorganized Workers of Total main Workers by Industry**  
**and Share of Unorganized Workers in Various Industry**

Industry	Distribution of Unorganized Workers of Total main Workers by Industry			% Share of Unorganized Workers in Various Industry		
	1981	1991	2001	1981	1991	2001
A&A	75.92	73.60	61.73	99.15	99.24	99.18
M&Q	0.25	0.25	0.34	34.44	37.24	49.95
MANUT	9.34	7.96	12.45	75.83	76.43	84.51
EGW	0.15	0.11	0.19	29.40	23.23	34.77
CONST	1.48	1.67	3.66	72.17	77.95	90.09
THR	5.91	7.64	10.13	96.82	97.77	98.28
TSC	1.68	1.91	3.30	55.20	61.60	74.96
FIRB	0.42	0.62	1.57	47.44	52.38	72.87
CSPS	4.85	6.22	6.63	53.46	59.97	61.81
Total	100.00	100.00	100.00			

*Source:* Computed from Census data and Economic Survey 2005/06

The share of unorganized workers in total employment in the manufacturing sector remained almost the same that is 75.83 per cent in 1981 and 76.43 per cent in 1991, however, it increased to 84.51 per cent in 2001. The same share for the construction sector increased from 72.17 per cent to 77.95 per cent and further to 90.09 per cent during the same reference periods. In the year 2001 the share of unorganized workers in the trade, hotels and restaurants; transport storage and communication; and financial and business services went to 98.28 per cent, 74.96 per cent and 72.87 per cent respectively.

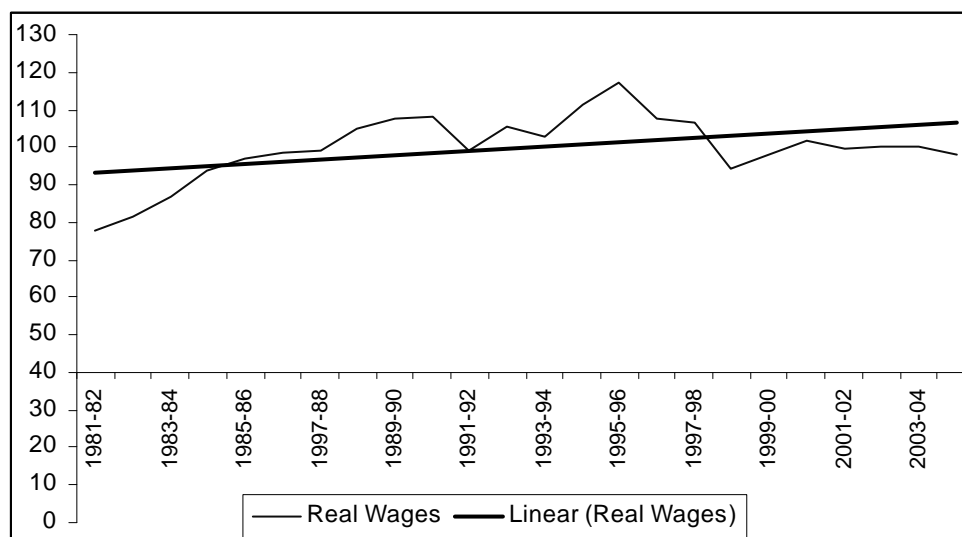
Thus the structural change in employment in India over the last three decades reveals the fact that a) significant shift in employment has occurred from agriculture to non-agricultural sectors and the major destinations of employment being construction, manufacturing, wholesale and retail trade, transport related activities and financial and business services; b) increase in the share of employment has not been caused by an increase in the relative share in investments and did not result in higher levels of relative product per worker either; c) Those sectors that contributed to the growth of employment are also the sectors where the share of unorganized workers increased sharply.

### **3. Structural Change and the Lewis Model**

Developing economies are characterized by the existence of disguised unemployment which means there exists large number of labour in agriculture and in the informal segments of non-agriculture who produce less than what they require to survive. The notion of surplus labour implies the existence of low skilled labour who collaborate with little amount of capital or land and the marginal productivity being zero in the strict sense or in a more relaxed version it could be positive but less than the average product or income sharing wage. Wages in the commercialized sector are tied to the average product in the non-commercialised sector and given the existence of surplus labour, the commercialised sector can employ additional labour without raising wages. Hence, so long the average product or institutionally determined wages in the traditional sector remains same the linked wages in the modern sector also remain unchanged. However, in the real world since the marginal product of labour hardly equals to zero, the more the labour moves out from the traditional sector the more the average product gradually creeps up pushing wages upwards in the commercialized sector as well. Approximating this real world situation, instead of a strictly horizontal wage curve Lewis conceived a horizontal step function where wages rise gently.

There is no doubt about the fact that the rapid growth in non-agricultural employment over the last decade in India appears to be the kind of structural transformation Lewis conceived. Not only is there a marked shift in employment from agriculture to industry and services, but it has almost happened keeping real wages in the modern sector more or less unchanged. Figure 1 shows that the wages at constant prices in the factory sector remained more or less same or with little drift upwards.

**Figure 1**  
**Wages Per Worker in the Factory Sector at Constant Prices**



*Source:* Computed from ASI data by deflating nominal wages with CPI for industrial workers.

Nevertheless, the Lewisian transformation does not imply only accumulation of surplus in the modern sector facing a fixed real wage scenario, subsequently there should be a gradual process of the exhaustion of the surplus labour. Growth occurs because of the efficiency gains attained by reallocating surplus labour to sectors where labour productivity is higher, that is, by utilizing labour in a productive way in the classical sense. And if the absorption of surplus labour in sectors having higher productivity continues at a rate faster than the rate of population growth, surplus labour situations will end up in a world where labour is also a scarce factor and additional employment can only be done by raising real wages. At this moment leaving aside the dynamic issues related to technology and investment of accumulated surplus the simpler version would say that with a given technology, accumulation of surplus shall continue to increase as more and more labour are drawn out from traditional sector presuming that this transfer is engaging disguised unemployed population to productive employment, that is where labour produces more than what they receive.

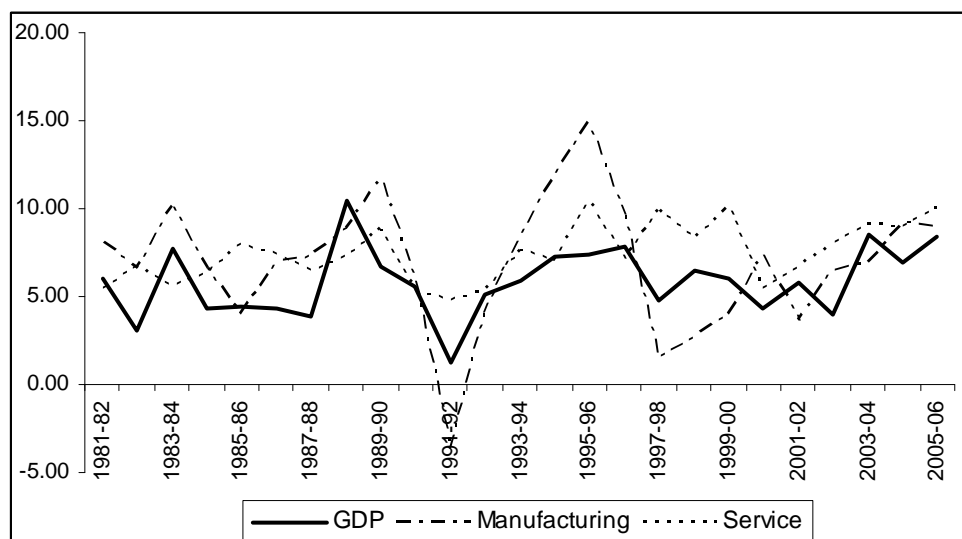
In this context shift in employment from agriculture to industry is justified on the ground that it essentially reallocates labour from diminishing returns activities to activities with increasing returns. And increasing returns scenario implies higher growth and higher labour productivity accompanied by no limit to employment at the subsistence wage level. The incentive for migration from traditional sectors, according to Lewis, could be a reasonable real wage gap, the intersectoral 'hill' between wages in two sectors. Although the shift in employment from agriculture to non-agriculture with

employment in the informal sector being the larger share cannot be explained by wage-differentials alone. Informal employment in non-agriculture may grow because of many reasons depending on productivity and incomes in the agriculture as well as on relative income sharing opportunities in agriculture and non-agriculture. If the growth in agriculture slows down and the sector fails to produce additional employment opportunities, according to Harris-Todaro model, a small increase in the formal sector employment may result in large rural-urban migration. And in the extreme case when the formal sector employment happens to be contracting then also in all possibilities it could be accompanied by a relatively large informal sector because those retrenched from formal sectors would find jobs in the informal sector.

Given the fact that employment in the organized sector declined in absolute terms during the last decade increasing absorption of labour in non-agriculture together with a decline in the relative product per worker in the labour absorbing sectors might give rise to a situation when open unemployment may be declining but since the disguised nature of employment keeps increasing there can be infinitely elastic supply curve of labour even with near full employment. Therefore for the Indian case it would be quite reasonable to conclude that the expansion of non-agricultural employment is a result of the 'push' factor, i.e., a result of declining incomes in agriculture and second, informal sector appears to be the last resort for those thrown out of formal sector jobs. In either of these cases there is no reason to believe that this process relocates labour from low-productivity income sharing segment to the high-productivity income generating opportunities.

The other important issue of concern in the context of structural transformation in employment in India is the declining share of manufacturing in the growth of GDP. Increasing share of services and deindustrialization in terms of output and employment is a worrying sign to many economists as it raises serious concern about the stability and equity related to the peculiar pattern of growth (Papola, 2006). Kaldor (1966, 1967) in his two-sector model analysed structural dualism and introduced the concept of dynamic economics of scale that is observed in manufacturing and not in agriculture and services. Kaldor suggested that there is a strong causal relation running from the growth of manufacturing to growth of GDP and faster growth of productivity in manufacturing by its spillover effects causes shrinkage in decreasing returns activities in the whole economy. Trends in Indian growth compared to that of the manufacturing sector however do not reflect any such pattern in the past two decades. Figure 2 shows the growth rate of GDP, manufacturing and service during the period 1981/82 to 2005/06. The growth of manufacturing didn't exceed the growth of GDP for most of the years while the growth of services was higher than the growth of GDP in many of the cases.

**Figure 2**  
**Growth of GDP, Manufacturing and Services**



*Source:* Computed from National Accounts Statistics back series and current data

However, there is a view that deindustrialization may not be a pathological condition in that sense if it is a normal response to change in tastes and technology and there may be many other dynamic service activities that fulfil the requirements for dynamic sectors (Dasgupta and Singh, 2006). There is no doubt about the fact that activities related to ICT and ITES are dynamic and high value added services but they employ a miniscule minority of those employed in non-agriculture. We have shown in Table 4 that large proportion of employment has been created in the unorganized segment of the service sector. NSSO gives data about unorganized service sector in India for the year 2001–02. The percentage distribution of enterprises by enterprise type for each type of service activity shows that out of the total number of enterprises considering all service activities 87.7 per cent and 77.4 per cent in rural and urban areas respectively are own account enterprises. These own account enterprises alone employ 59.6 per cent of the total employed in unorganized service activities of which 62.6 per cent are employed in rural enterprises. The report also provides gross value added per worker for each type of activity (Table 5).

If we compare gross value added per worker for different activities in services with gross value added per worker in agriculture for the same year (which amounts to Rs. 19077)<sup>4</sup>,

<sup>4</sup> According to National Accounts Statistics the three year (99/2000, 2000/01 and 2001/02) average of GDP at 2000/2001 prices in Agriculture and Allied activities amounts to Rs. 4594546 million, from NSS data estimated employment by usual status for the same year is 240.84 million and

*contd...*

the gross value added per worker in most of the service activities in the rural segment is even lower than and many of them are close to that in agriculture in the urban areas. The simple fact in any case does not suggest the view that despite deindustrialization, increased activities in services in India leads to a reallocation of labour from low-productivity segments to activities with higher labour productivity rather reflects a process of moving around inside the composite subsistence/traditional sector in the Lewisian sense.

**Table 5**  
**Annual Average Gross Value Added Per Worker for Each Type of Activity**  
**in the Unorganized Service Sector**

<i>Activity</i>	<i>Share of OAE Rural</i>	<i>GVA/Worker (in Rs.)</i>	<i>Share of OAE Urban</i>	<i>GVA/Worker (in Rs.)</i>
Hotels	25.0	26988	12.5	23177
Restaurants	86.4	14954	66.4	20380
Hotel & Restaurants	86.0	15016	64.0	20410
Storage and Warehouses	50.0	19064	77.8	16111
Mechanised Road Transport	67.1	37150	87.9	37343
Other Transport & Related Activity	97.4	16881	96.3	21438
Communication	81.9	17551	69.9	18111
Storage & Communications	85.2	23049	88.5	26739
Renting and Business Activities	83.6	18426	70.4	34810
Education	70.5	12405	67.6	17028
Health & Social Work	92.4	21807	61.4	41392
Other Community & Social Activities	96.4	9642	83.3	16833
All	87.7	16305	77.4	24618

*Source:* NSS report on 'Unorganised Service Sector in India, 2001/02: Salient Features' Report No.482

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according to Census data, Total Main Workers working in the same sector in the same year was 176.9 million. Hence annual average gross value added per worker in agriculture and allied activities in the same year amounts to Rs. (4594546/240.8) = Rs. 19077 and Rs. (4594546/176.9) = Rs. 25972 respectively from two estimates of employment. This is a crude measure (also used in Anant *et al*, 2006) in the sense labour productivity in agriculture varies widely across regions and depends on several factors. Moreover, comparability between results arrived from enterprise survey and that arrived from aggregate values using employment data that recognizes only time dispositions has obvious limitations.

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#### 4. Investments and Technology in a Liberalized Regime

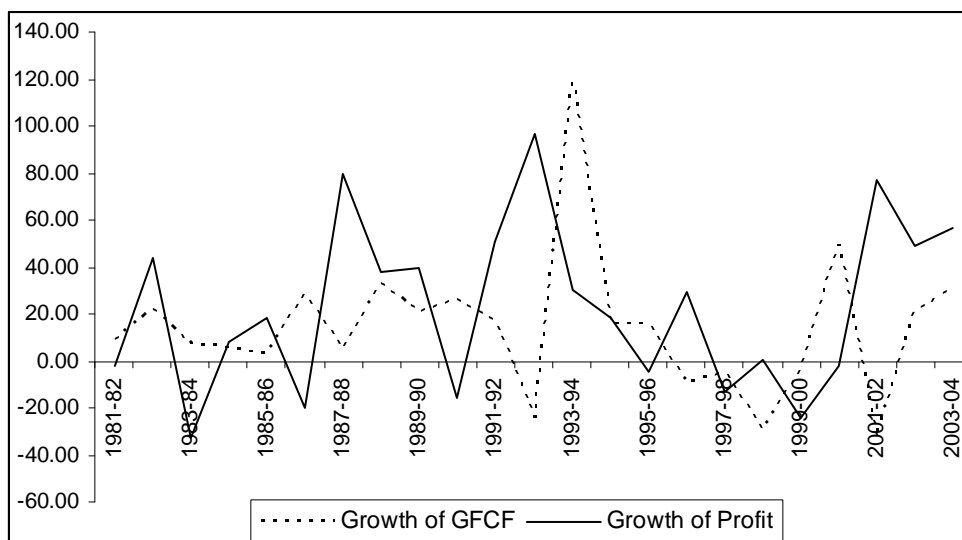
We have discussed, so far, the structural change in employment with reference to the closed version of the simple Lewis model that analyses only organizational dualism and ignores product dualism between commercial and non-commercial sectors. The extended version of Lewis model proposed by Fei and Ranis (1964) explains the trajectory of a dynamic balanced growth path which captures the implications of trade between modern and traditional sectors mediated through the inter-sectoral labour market, inter-sectoral product market and inter- sectoral financial networks . The 'balance' in growth essentially depends upon the pace at which industrial capital stock and related employment opportunities grow relative to the growth of population. Thus, the extended version of the Lewis model explores the relationship between sectors although maintaining the implicit assumptions of the simple model, i.e., profits get automatically invested and use of technology is in tune with the dynamics of release and absorption of labour. The critical minimum effort criteria for successful industrialization as proposed by Fei and Ranis (1964) says, "the rate of industrial capital accumulation must be large enough, the intensity of innovation should be high enough, the labour using bias of the innovation strong enough and law of diminishing returns to labour must be weak enough so that the demand for labour in industry exceeds growth of labour force". Thus having moved to the innovation frontier, the developing economy should choose technologies that are not only economically feasible, but also socially justifiable so that both output and employment can be maximized.

Although the extended version provides a deeper understanding of the structural change in developing countries, nonetheless it ignores the demand considerations, those that critically influence the transformation of profits into investment and the choice of technology. Lewis and most of the dualist models relied upon the presumption that higher surpluses created by the growth of labour productivity, given the real wage, leads to higher investment. However, in the Keynes-Kalecki framework the level of investment is determined independent of savings; it is not constrained by the availability of savings but by the possibility of mobilizing credits. Keynes did not propose a precise investment function and in Keynesian terms it is the 'animal spirits' of capitalists that drive investments. Kalecki (1971) was more precise in identifying factors that determine the level of new investment. New investment depends upon gross savings out of profits, desire of a standard rate of profit and technical innovations that usually increases the expectations of profit. The expectations of a desired rate of profit, however, depend on the expected growth of market and more precisely on the effective demand. According to Kalecki, investment with mark-up determines the level of national income. The nature of effective demand on the other hand depends on the mark up pricing that captures distribution among social classes. In the Kaleckian framework saving propensity and

profits are inversely related to output as they are considered to be leakages to effective demand.

In the context of developing economies Kalecki (1976) identified three kinds of supply constraints: lack of productive capital, low levels of production of food and essentials and lack of foreign exchange. In India at present there is large foreign exchange reserve because of increased inflow of finance as well as large amounts of credit available to industrial sectors as a fall out of financial liberalization. Thus it would be reasonable to assume that the supply constraints are no longer predominant at least for the formal enterprises. It is true indeed that the scenario of slow growth in agriculture may pose constraints that may result in a redistribution of income against wages.

**Figure 3**  
**Growth of GFCF and Profit in the Factory Sector**

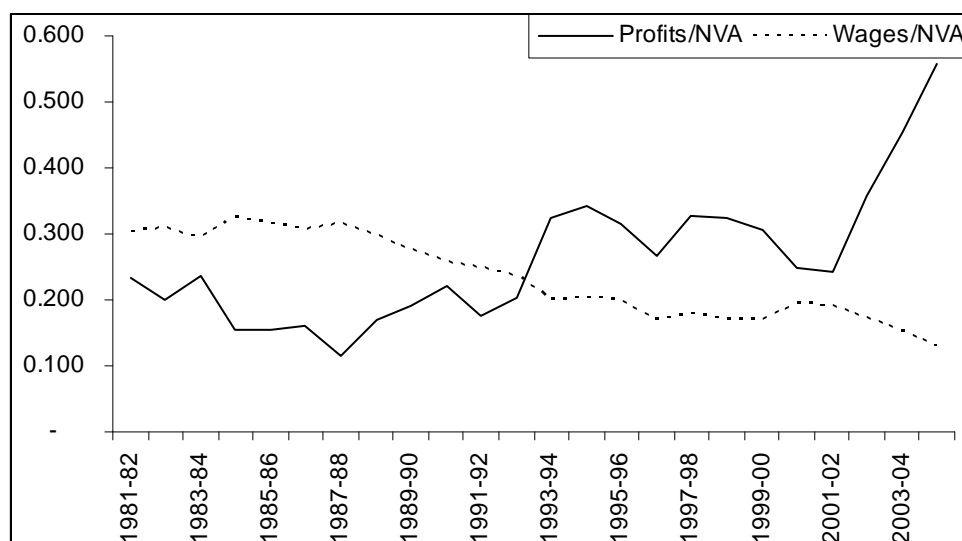


*Source:* Computed from ASI data summary results, several years

In the Harrod-Domar framework growth in India depends on increased investment or bringing down the capital-output ratio. Capital-output ratio can be brought down either by using unutilized excess capacity or by more efficient use of existing capacity. Efficiency of capital has not increased even after liberalization since there is no decline in incremental capital-output ratio for agriculture and industry, although it declined for services (Bhattacharya and Kar, 2004). Given that the efficiency of capital remaining more or less same the way to increase growth would be to utilize excess capacity and increase investment. But investment has not increased significantly despite the rise in the share of surplus. Figure 3 shows the growth of profits and investment in the factory sector. Increasing divergence between the rate of growth of profit and that of investment

in this sector clearly reveals the fact that the growth of investment in manufacturing is increasingly lagging behind the rate of growth of profits. What is evident is that increase in investment does not follow automatically from higher accumulation of capital, given real wages remaining same, rather the gap increases due to lack of effective demand that has link with the distribution of income in the economy. Figure 4 makes it amply clear that in the wake of liberalization the degree of monopoly (that determines the distribution) of capital has increased considerably resulting in a sharp rise in the share of profits in net value added in the factory sector and a consequent sharp fall in the labours' share.<sup>5</sup>

**Figure 4**  
**Share of Wages and Profit in Net Value Added in the Factory Sector**



*Source:* Computed from ASI data summary results, several years

The steady rise in the share of profits and unprecedented decline in the share of wages explains the demand constraint because it is reasonable to assume that savings mostly originate from profits and wages are fully consumed.

The lack of effective demand and the pattern of demand are largely influenced by the existing trends in the distribution of income. This crucially influences the adoption of newer technologies in developing countries once we relax the closed economy assumption. Lewis in a closed economy perceived a threat to accumulation of capital in the modern sector if there is increase in the labour productivity in the traditional sector.

<sup>5</sup> See Banerjee (2005) for detailed analysis on trends in wages and profits.

Because the consequent rise in average product of labour in the traditional sector pushes up the institutionally determined real wages and also the real wages in the modern sector that is tied to it. Thus in the Lewis model, technological change in the subsistence sector may slow down accumulation in the modern sector unless it is counterbalanced by the growth of population or unless the elasticity of demand for food is less than unity, which it happens to be. However, in the modern sector the Lewisian notion was capital accumulation and technological change goes in tandem and creates greater employment in the modern sector. The argument runs as follows: technological change will increase factor productivities at all levels of employment and so for any given real wage the optimum level of employment determined by the equality between existing levels of wages and marginal product of labour will be reached at higher levels of employment than before. But if the effective demand is given and markets do not expand much, technological change will not necessarily increase the level of employment as the quantitative accumulation of capital. Second, the choice of position in the innovation frontier in an open economy also depends on the economic regime and the mode of diffusion and competition that economies face. Patnaik (2003) has argued that in the process of liberalization when the dichotomy between home and global market is gradually eroding the choice of technology in developing countries like India is constrained by the nature of consumption demand and the kind of competition they face with foreign goods. Technologies at shelf mostly originate in developed countries and they happen to be labour displacing in nature. On the other hand, diffusion of those technologies in countries like ours heavily depends upon the demand for 'Western' goods and life-styles and therefore depends on the expansion of consumption from surplus incomes. Hence, with the declining autonomy for developing economies in terms of technological choice, and given the typical pattern of growth that heavily depends on luxury consumption, there is no point assuming growth of employment along with technological change. Fei and Ranis (1964) conceived an escape route for labour absorption in an open economy which is known to be 'export substitution': that is shifting from land based exports to export of light industrial goods that may provide a vent for surplus labour. However, Cooper (1995) argues that in the present context these kinds of strategies also require higher technological capabilities even in the labour surplus phase. With the advent of generic technologies those having wide multi-sectoral impacts, technological competition has become more of a Schumpeterian type, i.e, competition is less depending on minimizing costs at a given technology rather on a continuous process of disequilibrium that new innovations generate. Furthermore, today's choices will determine what the firm learns in the immediate future and the knowledge it accumulates will determine choices open to it in the future. Therefore, in the open economy perspective and given the growth trajectory the choice of technological advancement in developing economies becomes ambiguous in the sense

that using technologies available in the international shelf would reduce absorption of labour and on the other hand denying those would increase technology gap and make domestic industries incompetent in a vertically integrated market. Although Lewis (1979) appreciated the fact of pervasiveness of labour-saving innovations in both agriculture and industry in reference to developing countries and conceived a prolonged process of absorption in the modern sector. For obvious reasons increasing use of labour-saving technology as a response to the peculiar kind of growth that followed from the globalization process was a much later development and beyond Lewis' perspectives.

## **5. Heterogeneity in Non-agriculture**

In this section we try to indicate some of the trends in the responses of different levels of industries in the context of globalization. This is basically meant to address the issue, as it is often argued, that having the possibilities of expanding markets in the context of globalization, employability in the formal sectors would increase and the productivity gap between the formal and informal sectors can be reduced by an appropriate forging of sub-contracting relationships. Hence it would take care of accumulation of capital together with gradual exhaustion of surplus labour. The responses of firms of different sizes and their interrelations, however, depend on several factors including the labour market and the demand pattern they face. The dismal pattern of growth of factor incomes, characterised by growing profit share and falling wage income, as discussed in the previous section gives rise to a typical pattern of valorization of capital and accumulation that drives the economy away from Lewisian conjectures.

In a situation of excess capacity cumulative competitiveness requires the relative capacity to produce efficiently compared to competitors such that efficiency gains in terms of rents can be increased through productive and innovative efforts. Large industries and the corporate sector are eager to come to terms with international capital in order to get entry into internationally oligopolistic industries and remain buoyant in global technology driven competition. Moreover, eyeing upon the increased consumption spree of the upper middle class segment of the domestic market, as well as looking for a larger share of global demand drives Indian corporates to engage with capital intensive global value chains and learning processes. However, those efficiency gains cannot be achieved by all since it requires an increase in the degree of monopoly which few firms can attain in the global market. For most of the firms the implication of liberal trade regimes is that they face fixed mark-ups and can retain profits either by increasing productivity or by shrinking wages.<sup>6</sup> With large new entries in the global labour force together with

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<sup>6</sup> For a detailed discussion see Kaplinsky (2005), Nathan (2007).

relatively little addition to collaborating capital in the global production system capital succeeded in increasing its bargaining strength over labour and the obvious consequence is weakening of labour institutions (Freeman, 2005). This gives an additional opportunity to firms to reduce labour costs either by directly pushing down wages or indirectly by the route of subcontracting.

Subcontracting may have positive effects on productive employment in the informal sector, as Ranis and Stewart (1999) argued, if that process of subcontracting leads to expansion of the modernizing upper-tier of the informal segment characterized by firms with relatively larger size, more dynamic in terms of technology and produces goods that often compete with goods produced in the formal sector or with imports. In any case the nature of expansion of the modernizing sector depends on various demand and supply factors, those linked with macroeconomic regimes. There needs to be speedy growth of the manufacturing sector and increased competition within firms, supply constraints related to availability of credit, skills, technology and inputs that most small firms usually face should be taken care of and the demand for products in this sector depends on declining inequality such that demand for low-quality goods on the one hand and demand for imported products on the other end of the spectrum gradually falls. The patterns of growth we have discussed so far in any case do not conform to the requirements for the expansion of the upper-tier modernizing informal segment. There is little empirical evidence in regard to the nature of subcontracting relationship evolving between large and small enterprises in the present context in India and this is an area of further research. However, the fact that the share of wages in the costs of production for Indian companies had declined from 6.1 per cent in 1991–92 to 4.4 per cent in 2002–03 and the share of purchase of finished products increased from 13 per cent to 20 per cent during the same period implies that labour subcontracting as a cost cutting practice increased during this period (CMIE, 2003).

Labour subcontracting as a means to protect the margin of profits in a scenario when few parent firms maintain oligopsonic relations with large number of small subcontracting firms, as it often happens to be, gives rise to self-exploitative fragmentation within the unorganized space and the obvious outcome would be proliferation of tiny units as well as of self-employment (Roy, 2007). The survey on unorganized manufacturing enterprises in three points of time during the course of reform show that the share of own account enterprises within the unorganized manufacturing space has increased in recent periods (Table 6).

**Table 6**  
**Shares of Enterprises in Unorganized Manufacturing by Size Category**

Enterprise	1989-90			1994-95			2000-01		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
OAME	92.14	69.61	86.54	90.84	67.76	84.46	92.66	70.88	86.14
NDME	6.03	21.93	9.98	6.36	23.26	11.03	5.27	21.26	10.05
DME	1.83	8.46	3.48	2.80	8.98	4.51	2.07	7.86	3.8
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Source:* Computed from NSS Report on 'Unorganised manufacturing Enterprises in India: Salient Features' (Report No. 434) and 'Unorganised manufacturing Enterprises in India: Key Results' (Report No.477)

This also has important political economic implications. Self-employed producer can receive the return from labour only when the value of the goods s/he produces get realized and hence by this way capital can easily transfer the burden of cyclical fluctuations directly to the labour, a case not readily possible in *a priori* wage contract. Moreover increase in the share of self-employment helps capitalist accumulation in two ways: capital can increase absolute surplus value by compelling workers to work extended hours to earn a minimum income. On the top of that this extension can be achieved at least in appearance as a choice of the self-employed instead of being coerced by the capitalist enterprise. Second, failure to earn a minimum income appears to the worker as a personal failure and does not get mediated through any kind of class claims. The self-exploitative small producer cannot be considered as an autonomous 'self-enterprise', capable to engage itself in the capitalist market by the law of value — rather it encounters the market and survives in the face of competition, only by increasingly losing the profit margin<sup>7</sup>. Capitalism exorcises the self-exploitative economy from its discursive space, it is the 'other' non-capitalist periphery which is suppressed but never extinguished. Thus, the relative increase in the share of non-agricultural employment that the present growth scenario brings into place simply manifests a process of income and poverty sharing of the atomized labour. In no case this structural change in employment in India approximates a Lewisian transformation where labour gradually turns into a scarce factor — rather the whole process expands the structural 'reserve army of labour' in the Marxian sense with the only new element in it is that the reserve army is relatively more docile than ever.

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<sup>7</sup> See Choudhury et al (2000).

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