WILL SERVICES BE THE NEW ENGINE OF ECONOMIC GROWTH IN INDIA?

by

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Abstract
This paper revisits the role of manufacturing and services in economic development in the light of the following new facts: (a) a faster growth of services than that of manufacturing in many developing countries (DCs). (b) The emergence of "de-industrialisation" in several DCs at low levels of *per capita* income. (c) Jobless growth in the formal sector even in fast growing countries such as India and (d) a large expansion of the informal sector in both fast growing and slow growing DCs. Although the paper examines these phenomena in the specific case of the Indian economy, the analysis has much wider application, both for economic policy and for theories of growth and structural change.

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Manufacturing, Services, Jobless Growth and the Informal Economy: Will Services be the New Engine of Indian Economic growth?

I. Introduction

The main purpose of this paper is to revisit the role of manufacturing industry and the informal sector in economic development, in the light of certain new empirical tendencies which have been observed in many developing countries during the last decade. These include specifically the following phenomena: **a)** a faster growth of services than that of manufacturing industry in many low and middle-income countries, apparently challenging the idea that manufacturing is the main engine of growth in economic development; **b)** contrary to historical experience, the emergence of "de-industrialisation" in a number of developing countries at low levels of *per capita* income; **c)** the question of jobless growth in the formal sector which has manifested itself even in fast growing countries such as India; **d)** partly as a consequence of (a), and partly due to other factors, there has been a large expansion of the informal sector in a number of both fast growing and slow growing developing countries.[i]

These phenomena will be explained below and examined in relation to the specific case of the Indian economy where they have direct and immediate policy relevance. However, as we shall see, the evolution outlined above also has important analytical implications for the theory of economic growth and structural change.

II. Manufacturing, Services, Jobless Growth and the Informal Sector in the Indian Economy

Informed opinion about the prospects for the Indian economy has changed enormously during the last decade. This is partly because of the country's huge advances in Information Technology (IT); but it is also due to new thinking with respect to the theory of economic development. The Indian economy has expanded at a rate of 5.5% to 6% per annum over the last two decades. This is a considerable achievement in itself in that the economic growth rate in the previous 30 years was only 3.6% per annum (Table 1). Further, the world economy had slowed down during the last 20 years compared with the period 1960 to 1980. Despite this slow-down, the trend rate of growth of Indian *per capita* income has almost tripled over the last two decades. This is mainly due to faster growth of GDP but also on account of some decline in the rate of

population growth (Kelkar 2004). Kelkar also notes that Indian economy has been much less volatile in the last 20 years compared with the period before.

In a recent influential paper, Rodrik and Subramaniam (2004) go further and suggest that India will do even better over the next two decades and achieve growth rates of 7% to 8% per annum, and most likely outperform China. The two authors' optimism about the future course of the Indian economy is shared by other leading economists and organizations, including notably Goldman-Sachs[ii] . There are two major reasons for these very positive assessments of the Indian economy. The first is that India is thought to have a high level of institutional development, much higher than that of China's. India's advantage lies in achieving functioning democracy and other associated institutions at various levels. This accords with the current theories of development economics which suggest that institutions are the most important `deep' determinants of economic development. The second reason for optimism about the Indian economy, and one which is much more relevant to the basic theme of this paper is that Indian labour force is expected to grow over the next several decades at a faster rate than that of China and other competitor countries. In a growth accounting framework, which is the basic analytical tool used by Rodrik and Subramaniam for their projections, a faster growth of labour input should lead to a faster output growth.[iii]

However, one important limitation of growth accounting is that it is entirely based on supply of inputs and does not consider demand at all. It also does not consider at all the composition of demand or that of output. Thus, this whole analysis rests on the assumption that the rapid growth in the Indian labour force will in fact lead to equally rapid increase in the demand for labour. This is where skepticism about India's development prospects as well as the underlying development model creep in. This skepticism stems from the following main facts:

(a) Evidence of jobless growth in organized manufacturing as well as services and the comparatively slow pace of long term structural change in the economy;

(b) Economic history indicates that for developing countries at India's level of per capita income, economic growth has normally been led by the manufacturing sector. However, the leading sector in contemporary Indian economic growth has increasingly been services rather than manufacturing.

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These points and their significance will be elaborated upon in the next section. Here, we simply note that there is an important controversy about the implications of (b). Some regard it as a temporary phenomena and unsustainable in the long term, as it contradicts previous historical patterns of economic growth. [See for example, Joshi (2004)] There is, however, an alternative view which suggests that because of the new technological developments and other factors, services in the future may replace industry as the engine of growth, even in developing countries. In that sense, India may be regarded as pioneering a new development path which gives primacy to services rather than to manufacturing as the leading sector. This controversy is a central concern of this paper. This is because the debate on the subject has a direct bearing on the salient practical policy issues facing the Indian economy today: how to provide jobs to an already huge labour force which is growing at 2% per annum and where there is increasing evidence of jobless growth in the organized sector. This implies that jobs and work will have to be found in the informal sector for an ever-larger numbers of people. The Indian informal economy, therefore, deserves serious concern and attention of policy makers. These issues are discussed further in Section VII.

The paper is organized as follows. Section III will start by outlining some empirical facts about manufacturing and services in the Indian economy particularly during the last two decades. Section IV will discuss the services versus manufacturing controversy in theoretical terms. Specifically, the section will provide a brief commentary on the Kaldorian theory of structural change. Section V will present econometric analyses of the main Kaldorian hypotheses and attempt to throw light on the question: to what extent, if any, the Kaldorian model which emphasizes the pivotal role of manufacturing in economic development is still valid. The empirical analysis of this section will be carried out at three levels: a) the comparative international level; b) the interstate level within India and c) the sectoral level. The section constitutes the core empirical contribution of this paper. It is supplemented in Section VI by a brief examination of services in relation to the Indian balance of payments. Section VII will address the policy implications of the analysis, particularly for employment and work, comparative role of manufacturing and services in economic growth and the informal economy.

III. Sectoral growth of output, employment and productivity: Indian experience in a comparative international context

Tables 1 to 3 provide some of the basic empirical information on the topics in the title of this section. First, we note that during the 1990s, the Indian economic growth begins to diverge from Kuznets's historical pattern for today's developed countries. As Table-I indicates, after 1997, the growth rate of services became much faster than that of either industry or agriculture. The slow pace of structural change in the Indian economy in a comparative international context is indicated by the data in Table-2. The Table suggests that between 1960 and 2000 the share of industry in Indian GDP rose only by 7 percentage points. Most of this increase took place between 1960 and 1980 and there was only a marginal improvement of one percentage point between 1980 and 2000.[iv] The data in Table-2 also indicate poor Indian industrial performance relative to other Asian countries, such as Korea, Malaysia, Thailand. However, the bottom half of the table suggests that India is not alone in experiencing a stagnant or reduced share of industry in GDP. Several Latin American countries albeit with higher per capita incomes than that of India also have lower proportions of output emanating from the industrial sector in 2000 compared with 1980.[v] There has similarly been an increasing share of services in GDP in most of these countries. To supplement the data on GDP growth, Table-3 provides basic information on the growth and share of employment by sectors in the Indian economy over the last 20 years. The table indicates that the share of the primary sector in total employment was much greater than in GDP.- more than 60% compared with 27% for GDP, taking the figure for agriculture in Table 2 as a rough proxy for the primary sector. If de-industrialization is defined in terms of a fall in the share of industry in total employment, the Indian economy strictly speaking did not de-industrialize in the 1980s or in the 1990s. There was a small increase overall in the share of secondary sector in employment from 13.8% in 1983 to 16.8% in 1999-2000. This compares favorably with the record of other developing countries including China, as suggested by Table-4. The table provides evidence of de-industrialization in the above sense in several developing countries. Indeed, Palma (2004) suggests that, during the 1990s, de-industrialization has been beginning at an increasingly lower level of per capita income compared with the earlier period.

Table 5 provides information on changes in employment elasticity's between the pre-Reform period (1983-84 to 1987-88) and the post-Reform period (1993-94 to 1999-2000) in different sectors of the Indian economy. The table indicates a sharp fall in the overall employment elasticity of aggregate output in the country from 0.6 to 0.16 between the two periods. Significantly, the Table suggests that there has been a sizeable reduction in employment elasticity in agriculture

manufacturing and construction. However, Table 5 also indicates that there are a number of service industries including finance, insurance, real estate and business services which have recorded a trend increase in employment elasticity in the post-Reform period.

Table `6 indicates that it is not only the IT sector in services which has experienced fast growth in the last decade, but almost all service sub sectors have grown faster than GDP, the fastest growth being recorded in business services, communication, banking services, hotels and restaurants and community services. Other services such as public administration, defense, real estate, storage, transport and personal services did not register any acceleration in growth in the 1990s (Gordon and Gupta, 2004).

Turning to the IT sector itself, although the sector has grown at a very faster rate, its quantitative significance in the overall picture of the economy is rather limited. The sector accounts at present for less than 1% of GDP; it employs less than one million people in a total labour force of 450 million. The IT sector makes however a very important contribution to the balance of payments, as will be explained below.

It will be appreciated that despite its fast growth and hence the IT sector's potential for creating jobs, it will be able to employ directly only educated people. Joshi (2004) notes that only 5% of India's relevant age group receives college education. The employment needs of the un-educated masses are unlikely to be met by IT industry. To put things in perspective, it may also be noted that in 1999-2000 only, 8% of the Indian labour force was employed in the organized sector and 92% was absorbed by the informal un-organised sector. There is also evidence that a large proportion of urban informal sector workers are engaged in tertiary activities especially in large cities.

Table 1: Growth of GDP and Major Sectors in India: 1950-51 to 2003-04

(Average annual growth, per cent per annum)

	1951-52 to 1980-81	1981-82 to 1990-91	1982-93 to 1996-97	1997-98 to 2001-02	2002-03[a]	2003-04[b]
GDP	3.6	5.6	6.7	5.5	4.0	8.1
Agriculture	2.5	3.6	4.7	1.9	-5.2	9.1
Industry	5.3	7.1	7.6	4.5	6.4	6.5
Services	4.5	6.7	7.6	8.1	7.1	8.4

Note: a: Quick Estimates; b: Advance Estimates.

Sources: CSO; Economic Survey 2003-04.

Reproduced from Acharya (2004)

Table 2: Sectoral distribution of GDP: 1960, 1980 and 2000

Selected Asian and Latin American Counties

(value added as percentage of GDP)

	Agricultural			Industry			Services		
	1960	1980	2000	1960	1980	2000	1960	1980	2000
Asia									
China	..	31	16	..	47	49	..	22	34
India	50	37	27	20	26	27	30	37	46
Indonesia	54	26	17	14	42	47	32	32	36
Korea	37	16	5	20	41	44	43	43	51
Malaysia	37	24	12	18	37	40	45	39	48
Pakistan	46	31	26	16	25	23	38	44	50
Philippines	26	23	17	28	37	30	46	40	53
Sri Lanka	32	28	21	20	30	27	48	42	52
Thailand	40	25	10	19	29	40	41	46	49
Median	**38.5**	**26**	**17**	**19.5**	**37**	**40**	**42**	**40**	**49**
Latin America									
Argentina	16	..	5	38	..	28	46	..	68
Bolivia	26	18	18	25	29	34	49	53	48
Brazil	16	10	9	35	37	32	49	53	59
Chile	10	7	8	51	37	34	39	56	57
Colombia	34	28	15	26	30	29	40	42	56
Ecuador	29	13	11	19	38	25	48	49	64
Mexico	16	10	4	29	38	28	55	52	67
Peru	18	8	8	33	45	38	49	47	55
Venezuela	6	6	5	22	47	47	72	47	47
Median	**16**	**10**	**8**	**29**	**37.5**	**32**	**49**	**50.5**	**57**

Source: World Development Report (1982) and (2002)

Table 3: Growth of Employment by Sectors in India 1983-2000
Selected periods

Industry	Employed Workers (Millions)			Annual Growth Rates Per Cent	
	1983	1993-94	1999-2000	1993-94 (Pre-Reform Period)	1994-2000 (Post-Reform Period)
Primary	208.99 (69)	245.16 (65.5)	239.83 (60.4)	1.6	-0.34
Secondary	41.66 (13.8)	55.53 (14.8)	66.91 (16.8)	2.91	3.14
Tertiary	52.11 (17.2)	73.76 (19.7)	90.26 (22.7)	3.53	2.42
Total Employment.	100	100	100	2.04	0.98

Source: Adapted from Joshi (2004).

Table 4: Employment in Manufacturing (% of total)

Region	1960	1970	1980	1990	1998
Sub-Saharan Africa	4.4	4.8	6.2	5.5	5.5
Latin America	15.4	16.3	16.5	16.8	14.2
Southern Cone and Brazil	17.4	17.2	16.2	**16.6**	**11.8**
West Asia and North Africa	7.9	10.7	12.9	15.1	15.3
South Asia	8.7	9.2	10.7	13.0	13.9
East Asia (minus China and Japan)	10.0	10.4	15.8	16.6	14.9
China	10.9	11.5	10.3	13.5	12.3
Third World	10.2	10.8	11.5	13.6	12.5
First World	26.5	**26.8**	**24.1**	**20.1**	**17.3**

. Source: Calculations made using statistics from the ILO Databank. Regional averages are weighted by economically active population. Re-produced from Palma, 2004.

Table 5: Sectoral Employment Elasticities in India on Current Daily Status (CDS) Basis

Sector	1983-84 to 1987-88 (Pre-Reform)	1993-94 to 1999-2000 (Post Reform)
Agriculture	0.87	0.01
Mining and quarrying	1.25	-0.41
Manufacturing	0.59	0.33
Electricity, gas and Water supply	0.3	-0.52
Construction	2.81	0.82
Trade, hotels and restaurants	0.87	0.62
Transport, storage and Communication	0.47	0.63
Finance, insurance, real estate And business services	0.49	0.64
Community, social and Personal services	0.52	-0.25
All	0.62	0.16

Source: Report of Special Group on Targetting Ten Million
Employment Opportunities Per Year over Tenth Five Year Plan,
Planning Commission, May, 2002, p.158.
Reproduced from Seema Joshi (2004)

Table 6: Growth Rates and Sectoral Shares

Sector	Activities Included	Avg.Growth in 50s-70s (Share in GDP in 1980)	Avg.Growth in 80s (Share in GDP in 1990)	Avg.Growth in 90s (Share in GDP in 2000)
Trade, hotels and restaurant				
Trade (distribution Services)	Wholesale and retail trade in Commodities both produced at home (including exports) and imported, purchase and selling agents, brokers and auctioneers.	4.8 (11.7)	5.9 (11.9)	7.3 13.7
Hotels & Restaurants	Services rendered by hotels and other lodging places, restaurants, cafes and other eating and drinking places.	4.8 (0.7)	6.5 (0.7)	9.3 (1.0)
Transport, storage and communication+				
Railways		4.2 (1.5)	4.5 (1.4)	3.6 (1.1)
Transport by other Means	Road, water, air transport, *services, incidental to transport*	6.3 (3.6)	6.3 (3.8)	6.9 (4.3)
Storage		5.5 (0.1)	2.7 (0.1)	2 (0.1)
Communication	Postal, money orders, , telephones overseas communication services, miscellaneous	6.7 (1.0)	6.1 (1.0)	13.6 (2.0)
Financing, insurance, real estate and Business services				
Banking	Banks, banking department of RBI, post office saving bank, nonbank financial institution, cooperative credit societies, employees provident fund.	7.2 (1.9)	11.9 (3.4)	12.7 (6.3)
Insurance	Life, postal life, nonlife	7.1 (0.5)	10.9 (0.8)	6.7 (0.7)
Dwellings, real estate.		2.6 (4.0)	7.7 (4.8)	5.0 (4.5)
Business services		4.2 (0.2)	13.5 (0.3)	19.8 (1.1)
Legal services		2.6 (0.0)	8.6 (0.0)	5.8 (0.0)
Community, social and personal services				
Public administration, defense		6.1 (5.3)	7.0 (6.0)	6.0 (6.1)
Personal services	Domestic, laundry, beauty shops, tailoring, others	1.7 (1.6)	2.4 (1.1)	5.0 (1.1)
Community Services	Education, research,, medical, health, religious and other community	4.8 (4.0)	6.5 (4.3)	8.4 (5.5)
Other services	Recreation, entertainment, , TV broadcast, sanitary services.	3.4 (1.1)	5.3 (1.0)	7.1 (0.7)

Source: CSO. Re-produced from Gordon and Gupta, 2004

IV. Structural approach to economic growth: Analytical considerations

In modern economics, Kaldor (1966,67,68) is the leading exponent of the structural theory of economic growth and of the view that manufacturing is the main engine of growth. He provided the theoretical rationale for the patterns of structural change that Kuznets had discovered for advanced countries during their process of economic development. The same pattern was confirmed subsequently in cross-sectional regression analyses by Chenery and Syrquin for a much larger sample of both developing and developed countries. Kaldor argued that the classical division of economic activities into agriculture, industry and services was central to understanding the growth process in the modern economy, developed or developing. Each of the theme sectors had distinct characteristics; the dynamic interaction among these determined the time path and the nature of economic growth.[vi]

In the Kaldorian analysis, which unlike growth accounting, pays attention to both demand and supply factors, agriculture is characterized by low income elasticity of demand for its products compared with manufacturing products which usually have a greater income elasticity of demand. The rate of growth of productivity is envisaged to be similar in agriculture and the industry because of the fact that the technical progress in agriculture tend to be both land saving and labour saving. However, the rate of growth of productivity is lower in services compared with manufacturing and agriculture. At high levels of per capita income, the income elasticity of demand for services tends to be greater than that for manufactures. However, to a greater or smaller extent, the latter effect may be nullified by the following consideration: because productivity rises faster in manufacturing than services, the terms of trade change in favour of services. The lower relative price of manufactures should lead to some increased demand which may or may not offset the advantages of services on account of their greater income elasticity of demand.[vii]

In the Kaldorian story, as the economy develops, there is a shift of labour force from agriculture to industry which leads to increased productivity in both sectors. This arises from the fact that unlike neoclassical economists, Kaldor does not assume efficient utilization of all resources. On the contrary, he envisages considerable disguised un-employment in agriculture, so that a shift of labour force from agriculture into industry not only leads to no reduction in output, but by reducing employment, it increases productivity in agriculture. It also simultaneously leads to increased production and productivity in industry. The latter is brought about in the Kaldorian scheme by the operation of the so-called Verdoorn's law which suggests that the growth of output in the manufacturing sector causally leads to the growth of productivity because of

both static and dynamic economies of scale. The latter arise primarily from the fact that there is learning by doing.

Manufacturing also has spill over effects on other sectors through technical progress and on account of Alyn Young's *macro economic* economies of scale. Another important way in which manufacturing benefits the whole economy is through its role in international trade and in balance of payments. This is because of the fact that much the larger part of international trade takes place in manufacturing products.

The above theoretical consideration with respect to manufacturing raises an important issue: most of these are arguably today equally applicable, if not more so to IT and other services due to the nature of current technical progress. IT is generally regarded by leading students of the subject as representing a new technological paradigm, which is on a par with the major technical discoveries of the last two centuries such as electricity and the steam engine. It has even stronger spill over effects than those of manufacturing.[viii] It not only leads to new demand for its service products, (internet connectivity in its various dimensions), but it can be used to enhance productivity not least in existing manufacturing, or spawn new products and processes incorporating IT. Similarly, IT, through its applications, is as tradable as manufactured goods and, as we shall see in Section VII, makes a sizeable contribution to the Indian balance of payments.

The theoretical ideas outlined above lead to specific empirical hypotheses which need to be tested if they are to serve as a guide to economic policy. This task will be taken up in the next section.

V. Empirical examination of structural hypotheses concerning economic growth

In this section, we will explore the validity of the so-called Kaldor's laws, which provide testable empirical hypotheses concerning the relationship between the growth of productivity, employment and production in different sectors of the economy. The hypotheses stem from the conceptual discussion outlined above concerning the claims of manufacturing to be regarded as the engine of growth.[ix] As indicated earlier empirical analyses has been carried out here at three levels in the following sequence:

     i)   Tests based on cross-sectional analysis of data from 30 developing countries over the period 1980-2000.

     ii)   Tests based on cross-sectional analysis of data for 29 Indian states during the 1990s.

     iii)   Tests based on data for un-organized and organized industrial sectors in the Indian states.

It must be emphasized that the results reported below are very much in the nature of work in progress and warrant only the drawing of some preliminary conclusions. Further work will be reported upon in due course.

The tests of Kaldor's laws have been performed here in terms of the relationships between growth rates of the relevant variables as well as the relationships between log levels of variables. The reason for doing the second analysis was essentially that the diagnostics for the equations on growth rates over time were not very satisfactory.[x] The equations in log levels, although still not fully satisfactory in terms of meeting all the assumptions of efficient unbiased estimation under OLS, are nevertheless, a considerable improvement over those of the exercise involving growth rates over time. It is also important to bear in mind that the testing of Kaldor's laws is best done at the cross-sectional level. A time series, or a panel data exercise, will not be helpful from an economic point of view as that would constitute perhaps more of a test of Okun's law than of Kaldor's laws, or conflate the two laws making it difficult to identify the operation of either.[xi] (Okun's law is concerned with the short-term cyclical relationship, based on quarterly or annual data, between macro-economic variables). Kaldor's laws describe the long-term relationships between growth of productivity, output and employment, and should, therefore, be considered at a cross-sectional level.

Tables 7a, 7b and 7c present the results of the exercise carried out in log levels for a cross-section of thirty developing countries for 1980, 1990 and 2000 respectively[xii]. The results provide evidence which supports Kaldor's first law. In accordance with that law, Table 7a suggests that countries with above average manufacturing growth also have above average growth of total GDP. Not only are the 'R' squares very high for the manufacturing equations, the diagnostics (reported below each of the tables) are also reasonably satisfactory. The equations for agriculture and services in Tables 7a, 7b and 7c also indicate high correlation with GDP growth. However, the diagnostics for these two sectors are not as satisfactory as those for manufacturing. The equations for agriculture and services do not satisfy the Ramsey test for functional form for any of the years 1980, 1990 and 2000. The results for manufacturing suggest that the equations fail the Ramsey test only in 1980. The equations in terms of growth rates over the periods 1980-1990, and 1990-2000 fitted to the data for a subset of twenty countries indicated that the Ramsey test was not satisfied for either of the two periods for any of the three sectors. For reasons of space, corresponding tables for the latter exercise are not included.

The evidence concerning Kaldor's second and third laws is presented in Table 8. As indicated in the previous section, Kaldor believed that growth of manufacturing production is causally and positively related to the growth of manufacturing productivity because this sector is subject both to static and dynamic economies of scale. However, manufacturing also has spillover effects for the whole economy. This leads to the hypothesis that productivity growth in the economy, as a whole should vary positively with the expansion of the manufacturing sector. Kaldor's analysis also suggested that an economy's productivity growth should vary inversely with the growth of labour force not employed in manufacturing (because it is envisaged that outside manufacturing productivity growth is lower because of disguised unemployment, decreasing returns and other factors).

 The regression equation for which results are reported in Table 8 incorporates both the above effects. This evidence provides strong support for Kaldorian hypotheses concerning manufacturing as the engine of economic growth. The equation accounts for nearly 90% of the inter-country variation in productivity growth; the co-efficients are of the predicted sign and are statistically highly significant. The relevant diagnostics are also satisfactory. However, the results of Table 8 need to be supplemented by estimating similar equations for services and agriculture.

Tables 9 and 10 report on the analysis on Kaldor's laws carried out for a cross-section of Indian states for the period 1993-1994 to 1999-2000. This analysis is also presented separately for the organized and unorganized manufacturing sectors. Table 9 indicates that Kaldor's first law is certainly applicable to state-level Indian data for the six equations fitted (one for each of the three sectors and for each of the two time periods). All the equations indicate high correlation between sectoral and overall growth. However, only four of these equations relating to manufacturing and services respectively satisfactorily pass the various diagnostic tests. Importantly the estimated Beta co-efficients for manufacturing are less than 1 as Kaldor had suggested; those for services are however, greater than 1. Agricultural growth rates are also highly correlated with GDP growth, but the correlation is not as high as that for manufacturing and GDP growth. Moreover, the diagnostics tests are not satisfied in the case of agriculture.

Table 10 reports the results of the analysis carried out separately for data on the registered and unregistered manufacturing sector for which the Ministry of Industry provides the relevant data. Unregistered manufacturing does not necessarily include all informal sector manufacturing production. The latter is likely to include only the larger of the production units which do not require registration. Nevertheless, this data may give us some information about the comparative characteristics and behaviour of the formal and informal manufacturing sectors. The results in table 10 indicate that both registered and unregistered manufacturing are highly positively related to state-GDP growth. The Beta co-efficients for unregistered manufacturing are, if anything, greater than those for registered manufacturing. However, this result may not be reliable as the equations for registered manufacturing do not pass the various diagnostic tests. The equations for un-registered manufacturing do pass the diagnostic tests. In economic terms, it is interesting that there should be a highly positive co-relation between unregistered manufacturing growth and state-GDP growth for both 1993-94 and 1999-2000. To the extent that un-registered manufacturing is representative of the informal sector manufacturing economy, the evidence of table 10 suggests that this is not just a residual sector but in fact it may be capable of dynamic growth. This preliminary conclusion will need to be confirmed in further work.

Table 7a: OLS estimates of Growth rate of Total GDP for 30 Countries1980.

Independent Variables for Eqn 1. Log Agriculture VA.

Independent Variables for Eqn 2. Log Manufacture VA

Independent Variables for Eqn 3. Log Service VA.

Dependent Variable		1. Agriculture	2. Manufacture	3. Service
Log Total GDP	α_1	2.93 (3.94)*	3.087 (11.96)***	0.514 (1.86)
	Q	0.86 (13.77)***	0.847 (29.48)***	1.02 (34.21)***
	Adjusted R-square	0.86	.0.96	0.98
	F-statistics	868.97	3868.97	1170.10
	Number Of Observations.	30	30	30

Notes:

a) t-statistics in parenthesis.

b) Equations corrected for heteroscedasticity where necessary.

c) Equations satisfy normality criterion

d) None of the three equations satisfy the Ramsey test for functional form.

Notation in this and the following tables,

*   connotes significance at 10% level

**   connotes significance at 5% level

***   connotes significance at 1% level

Table 7b: OLS estimates of Growth rate of Total GDP for 30 Countries1990.

Independent Variables for Eqn 1. Log Agriculture VA.

Independent Variables for Eqn 2. Log Manufacture VA

Independent Variables for Eqn 3. Log Service VA.

Dependent Variable		Agriculture	Manufacture	Service
Log Total GDP	α_1	2.55 (2.528)*	2.55 (8.37)***	0.80 (4.77)*
	Q	0.90 (14.54)***	0.90 (28.43)***	0.99 (56.96)***
	Adjusted R-square	0.97	0.975	0.99
	F-statistics	808.85	806.05	3244.96
	Number Of Observations.	30	30	30

Notes:
- e) t-statistics in parenthesis.
- f) Equations corrected for heteroscedasticity where necessary.
- g) Equations satisfy normality criterion
- h) The equation for manufacturing satisfies the Ramsey test for functional form at the 10 percent level. The equations for agriculture and services do not satisfy the Ramsey test for functional form at the 10 percent level.

Table 7c: OLS estimates of Growth rate of Total GDP for 30 Countries 2000.

Independent Variables for Eqn 1. Log Agriculture VA.

Independent Variables for Eqn 2. Log Manufacture VA

Independent Variables for Eqn 3. Log Service VA.

Dependent Variable		Agriculture	Manufacture	Service
Log Total GDP	α_1	2.20 (4.26)*	2.90(8.38)***	2.1 (4.26)**
	Q	0.98 (16.49)***	0.867 (28.43)***	0.98 (16.49)***
	Adjusted R-square	0.90	0.971	0.90
	F-statistics	271.84	794.72	271.44
	Number Of Observations.	30	30	30

Notes:

  i) t-statistics in parenthesis.
  j) Equations corrected for heteroscedasticity where necessary.
  k) Equations satisfy normality criterion
  l) The equation for manufacturing satisfies the Ramsey test for functional form at the 10 percent level. The equations for agriculture and services do not satisfy the Ramsey test for functional form at the 10 percent level.

Table 8: OLS estimates of Growth rate of total productivity 30 Countries, 1980, 1990 and 2000

Eqn. : log (Productivity) = α + β_1 (log Manufacturing VA) + β_2 (log Non Manufacturing Employment) + e_i

Dependent variable: Log total Productivity

Independent Variables for equation: 1) Log Manufacture GDP.

2) Log Non manufacturing employment

	1980	1990	2000
Constant	9.69	9.13	9.5
	(35.23)***	(26.21)***	(30.67)***
Log Manufacturing GDP	0.70	0.81	.81
	(13.20)***	(17.03)***	(14.24)***
Log Non manufacturing Emp	- 0.85	- 0.89	- 0.92
	(- 18.72)***	(- 24.76)***	(- 18.09)***
Adjusted R-square	0.93	0.89	0.88
F-statistics	179.51	307.42	178.93
Number Of Observations.	22	28	30

Notes:

m) t-statistics in parenthesis.

n) Equations corrected for heteroscedasticity where necessary.

o) Equations satisfy normality criterion

p) The equation satisfies the Ramsey test for functional form.

Table 9. OLS estimates of Kaldor Law for Indian States, 1993/94 and 1999/2000.

Dependent variable for Eqn. 1, 2 and 3: Log State GDP in constant prices, 1993/94

Equation 1: Independent variable Log of State Agriculture GDP, 1993/94.

Equation 2: Independent variable Log of State Manufacturing GDP. 1993/94.

Equation 3: Independent variable Log of State Service GDP, 1993/94

Dependent variable for Eqn. 4, 5 and 6: Log State GDP in constant prices, 1999/2000

Equation 1: Independent variable Log of State Agriculture GDP, 1999/2000

Equation 2: Independent variable Log of State Manufacturing GDP. 1999/2000

Equation 3: Independent variable Log of State Service GDP, 1999/2000

	1993/94			1999/20000		
	Equn. 1. Agriculture	Equn. 2. Manufacture	Equn.3. Service	Equn. 4. Agriculture	Equn. 5. Manufacture	Equn.6. Service
α_1	4.09 (3.16)*	4.20 (6.92)**	-0.39 (-0.73)	4.76 (3.72)*	5.4 (8.72)**	0.19 (0.33)
q	0.76 (7.82)***	0.78 (16.88)***	1.1 (25.92)***	0.72 (7.7)**	0.69 (14.61)***	1.05 (23.57)***
Adjusted R-square	0.85	0.92	0.96	0.80	0.87	0.95
F-statistics	61.18	285.02	671.71	59.3	213.57	555.66
Number Of Observations.	29	29	29	29	29	29

Notes:

q) t-statistics in parenthesis.

r) Equations corrected for heteroscedasticity where necessary.

s) Equations satisfy normality criterion

t) The equations 2, 3, 5 and 6 satisfy the Ramsey test for functional form. These equations are on the manufacturing and services sector. Those on the agriculture sector do not satisfy the test for functional form.

Table 10. OLS estimates of Kaldor Law for Registered and Unregistered manufacturing for Indian States, 1993/94 and 1999/2000.

Dependent variable is log State GDP, 1993/94

Equation 1: Independent variable Log of State Registered Manufacturing GDP. 1993/94.

Equation 2: Independent variable Log of State Un- Registered Manufacturing GDP , 1993/94

Equation 3: Independent variable Log of State Registered Manufacturing GDP. 1999/2000.

Equation 4: Independent variable Log of State Un- Registered Manufacturing GDP , 1999/2000

	1993/94		1999/2000	
	Eqn. 4. Registered Manufacturing	Equn. 5. Un registered Manufacturing	Eqn. 6. Registered Manufacturing	Equn. 7 Un registered Manufacturing
α_1	6.38 (7.83)**	4.89 (8.11)***	7.71 (12.04)***	5.4 (8.72)***
q	0.64 (9.71)***	0.80 (16.51)***	0.54 (10.4)***	0.75 (14.61)***
Adjusted R-square	0.84	0.86	0.81	0.87
F-statistics	93.4	272.54	108.4	263.5
Number Of Observations.	29	29	29	29

Notes:

u) t-statistics in parenthesis.

v) Equations corrected for heteroscedasticity where necessary.

w) Equations satisfy normality criterion

x) The equations 4 and 6 satisfy do not the Ramsey test for functional form. These equations are on the registered manufacturing .

VI. Manufacturing, Services and The Balance of Payments

An important justification for giving manufacturing precedence over other sectors in the Kaldorian story arises from the balance of payments considerations, as was noted earlier. There are however reasons to believe that the balance of payments argument in general is not as strong as used to be the case. This is partly because there is a fast growth of international trade in services so that the advantages which manufacturing and agriculture have in this sphere is eroding and there are reasons to believe that it will erode further in the future.[xiii] The latter expectation is due to two factors. First, the current and next round of trade negotiations at the WTO will be concerned with services leading to their greater tradeability. Secondly and importantly, technical progress including the IT revolution have made it possible for the services to be provided from far away as in the case of outsourcing, call-centres and the back-office business services.[xiv] Ultimately, how important is the balance of payments argument on manufacturing versus services remains an empirical question.

The balance of payments data for India indicate that the share of manufacturing in either the trade or the current account balance does not show a consistent surplus or a consistent deficit. As Krugman (1994) has noted a country's (or for that matter a sector's) trade- surplus or trade-deficit is not very significant in economic terms unless more information is provided; by itself, it does not connote either economic failure or economic success. A deficit may arise simply from the fact that the country has been receiving foreign investment flows and is a good place to invest in. For a country in current account equilibrium, such FDI inflows would be normally reflected in a trade deficit but will not necessarily indicate any competitive failure. Similarly, a surplus on trade account may be due to low level of economic activity as was the case during 1975-80 when India was recording surpluses in its current account. Data also indicates that India's share of world manufacturing exports has not risen as much as India's share of world IT exports. Table 11 shows India's software exports constitute almost 20% of the country's visible exports. By 2008 this contribution is expected to rise to 30%. Therefore, from the perspective of the contribution to the balance of payments alone, it is not obvious if one should prefer manufacturing to services, since not only IT services provide a major contribution to the balance of payments, but also other credits, such as remittances which arise from the activities of migrants are also significant. However, whether or not the export of unskilled labour comprises a nation's competitive advantage, it certainly makes a more than proportionate contribution to GDP growth in a typical balance-of-payments constrained developing country.

However, because of the relatively low-level of India's per capita income, and high income elasticity of demand for manufactured products, the country can hardly afford to ignore the contribution which manufacturing has to make to meet domestic demand and to support the balance of payments. Given India's level of per capita income, the demand for manufactures is going to remain high for a long time. The country will have to do either efficient import substitution or export promotion or both for manufacturing as well as other sectors so as to be able to pay for the imports required at high rates of economic growth. For a big country like India, it needs to develop both an efficient manufacturing as well as service industry and agriculture so that it can meet the demands of its people for fast economic growth at a sustainable level of trade surplus or deficit.

Table 11 - India's Current Account Balance 2001 - 2004

Item	Rupees Crore			US $ Million		
	2003-04	2002-03	2001-02	2003-04	2002-03	2001-02
1	2	3	4	5	6	7
Current Account						
1. Exports, f.o.b.	2,88,769	2,54,022	2,14,351	62,952	52,512	44,915
2. Imports, c.i.f.	3,65,641	3,16,450	2,74,778	79,658	65,422	57,618
3. Trade Balance	-76,872	-62,428	-60,427	-16,706	-12,910	-12,703
4. Invisibles, Net	1,16,510	82,415	64,161	25,425	17,047	13,485
a) 'Non-Factor' Services	48,878	32,671	21,960	10,684	6,765	4,577
of which: Software Services Exports	55,986	46,427	36,036	12,200	9,600	7,556
b) Income	-21,676	-23,871	-17,467	-4,703	-4,935	-3,601
c) Private Transfers	86,764	71,642	57,821	18,885	14,807	12,125
d) Official Transfers	2,544	1,973	1,847	559	410	384
5. Current Account Balance	39,638	19,987	3,734	8,719	4,137	782

Source: Reserve Bank of India Annual Report August 2004

VII. Policy Implication

As noted earlier, the research reported in this paper is not yet complete. There are however, important policy issues in relation to which some preliminary conclusions can be drawn or one can offer some informed speculation. In view of the economic and the policy significance of the issues, we feel obliged to chance our arm and offer some reflections on the basis of what we have learnt so far.

To make the discussion more focused and concrete we shall discuss these policy issues in relation to the Indian economy, but we believe that they have wider application in many other low and middle-income economies. To begin with the Indian policy makers face two major strategic challenges. First, as noted earlier in relation to employment and work, India not only currently has large-scale under-employment and unemployment, it's labour force is growing at an average rate of 2% per annum. The task of ensuring that the new entrants to the labour force, as well as the existing unemployed and under-employed are able to have employment and work with *adequate remuneration and/or rising real wages* is immense. Second, In relation to international integration India should seek further integration with the world economy in such a way that it does not lead to employment losses, poor income distribution or increased poverty, but rather to greater employment and prosperity. A programme of globalisation which leads only to shopping malls and is perceived to generate visible income inequality is unlikely to be sustainable in a poor country which has robust democracy.

What are the policy implications of the main issues discussed in this paper in relation to the strategic objectives of the Indian policy makers outlined above? We comment here briefly on our tentative conclusions with respect to (a) jobless growth; (b) the informal sector and (c) the question of manufacturing versus services as engines of economic growth. In relation to (a), the phenomenon of jobless growth is currently afflicting not only developing countries but also developed countries such as the US. As Bailey and Lawrence (2004) point out the latest US economic recovery which began with the trough of the previous recession in the third quarter of 2001, has been more jobless than the supposedly jobless recovery of 1991. It took sometime before that recovery began to create the normal level of jobs. It looks like that the waiting period in the case of the current recovery may be even longer.

To speculate on the reasons for this phenomenon, it is not unreasonable to suggest that the main force at work in both developing countries (DCs) and advanced countries (ACs), is likely to be a greater intensity of competition at the

international as well as national levels. This has resulted in unprecedented productivity growth in the US over the last three years. Improved productivity growth has also been observed in DCs such as India. This improvement has however, come evidently at the expense of employment. It is possible in principle, that the greater intensity of competition has a once-for-all effect, and that the employment elasticity in DCs will soon return to their historic norms. This however, remains to be seen but it should be borne in mind that in the near future, the world will be experiencing even more intense competition as a result of the growing engagement of China and India in the world economy.

If the formal sector in the DCs in unlikely to create net new jobs without a much faster rate of growth, (which for many reasons may not be feasible in already fast-growing countries like India), the burden of providing employment and work will fall necessarily on the informal sector.[xv] This points to the important role which this sector will need to increasingly play in the low and middle income countries. In relation to India the informal sector constitutes bulk of the economy. White (2002) suggests on the basis of 1991 Census data that nearly 90% of the population lives in towns of under 200,000. A vast majority of people in this sector are involved in the production and consumption of agriculture and food-related goods and services. CMI (1997) estimated that people in the informal sector spend 90% of their incomes on the products of the informal economy, and only 10% on those of the corporate sector. White reports the following recent estimates of the aggregate size of the informal economy:

It accounts for 60% of Net Domestic Product,
68% of income
60% of savings
31% of agriculture exports
41% of manufacture exports

The main issue is how to make this sector dynamic. There is already some evidence in our data that, in the Indian case, the unregistered manufacturing sector or more likely parts of it are subject to increasing returns in the Kaldorian sense. In addition to various traditional supply-side measures (e.g. supply of finance, technical services), which may be taken to assist the sector, in our view the most important way in which the government can help is through maintaining as high a rate of growth of aggregate demand as possible, and as is compatible with the country's sustainable current account balance.[xvi] Faster growth of overall real demand in the economy will give greater opportunity for small firms in the sector to survive and to expand than would be the case in a static macro-economic environment.

Finally, in relation to manufacturing versus services our data indicates that both are closely related to the growth of GDP. In the structural analysis of economic growth, it is customary to argue that high R-square for services does not indicate a directly causal relationship, but rather it is derived from the close relationship between manufacturing and GDP growth. The implication is that the growth of services depends largely on the growth of manufacturing. However, this argument although it may be applicable for certain services such as retailing and transportation is not entirely obvious for many other services. Information Technology, in particular, can be regarded more as causing the expansion of manufacturing rather than the other way round.[xvii]

A policy implication of this evolution is that India should take advantage of its strength in IT and use it extensively in all areas of the economy in order to upgrade manufacturing, agriculture as well as services. As noted above, although manufacturing may not be the primary engine of growth, its significance can hardly be exaggerated in view of the high income-elasticity of demand for manufacturers at India's level of per capita income. In view of the huge policy challenges confronting the Indian economy, the country must create the institutions and the means to effectively introduce this technology into the rest of the economy. This is certainly one of the real strategic tasks facing the Indian policy makers during the next ten years.

Notes

[i] Some of these phenomena have been noted in developed countries as well. "Jobless growth", for example has been an important concern in the U.S. in the recent period (Bailey and Lawrence, 2004). However, the focus of this paper is on developing counties.

[ii] See Wilson and Purushothaman (2003)

[iii] Rodrik and Subramaniam's analysis ascribes faster economic growth not only directly to the faster expected expansion of the Indian labour force but also indirectly to the latter, through reduced dependency ratio and hence a larger savings rate. For a critical examination of this view, see Acharya (2004).

[iv] It has been pointed out by a referee that the experience of China was similar in the period of rapid manufacturing growth – industry as a share of GDP only rose by some 2.5 percentage points. The reason was that there was a shift within industry away from extractive industries towards manufacturing. This hypothesis has not been examined here in relation to India and other countries in Table 2.

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[vi] For a fuller discussion of these issues see Singh (1977, 1989); Howes and Singh (2000); Ros (2000); Rowthorn and Ramaswamy(1999)

[vii] Although some may regard this as a neoclassical argument, it is very much within the spirit of Kaldor's approach to economic growth. This took into account both the demand and supply side factors together with their interactions.

[viii] Some may object to this comparison of manufacturing with IT on the grounds that IT is not a generic product grouping. IT, however, produces both new products and processes. Nevertheless, from the Kaldorian perspective, what is important is whether IT, be it product, service or process, and manufacturing are subject to increasing or decreasing returns to scale, to dynamic economies of scale and to spill over effects for the rest of economy.

[ix] It is worth reiterating that Kaldor's propositions apply to manufacturing rather than to industry, although the availability of internationally comparable data on output and employment obliges us to use the productivity of industry in the analysis rather than that of manufacturing.

[x] It may be noted that, for the cross sectional data examined here, the results of analyses in terms of logs of the levels of variables involves percentage change in

variables, that is growth rates. It is simply that estimation of logarithmic equations is less susceptible to departures from the standard ordinary least squares (OLS) methodology.

[xi] Pieper (2003); Thirlwall (2002)

[xii] Strictly speaking, instead of examining the data for each of the years, 1980, 1990, and 2000, the data should have been averaged over the cycle so as to remove the influence of cyclical elements in the data. See further Cripps and Tarling (1973).

[xiii] However, as a referee has pointed out, it must be noted that this expansion is dominated by advanced countries. India is an outlier in this respect among developing countries, most of whom are in no position to increase their trade in services. Some would argue that services liberalization (GATS) is primarily intended to transfer strategically important service activities, including public services, in developing countries to advanced country producers.

[xiv] One must, however, note that these activities are typically highly competitive and footloose.

[xv] For developing countries that are internationally successful in exporting manufactured products, growth of manufacturing production and productivity has normally in the past (and arguably even today in China) been positively associated with the growth of manufacturing employment as well as overall employment. One can hypothesize that, with widespread liberalization and globalization as well as slower long term economic growth, has greatly increased the intensity of competition in developing as well as advanced country markets, leading to widespread casualization of labour and reduced demand for labour in the organized sector, even in fast growing and successful emerging economies such as that of India. This hypothesis calls for systematic investigation.

[xvi] This may require greater export orientation for many previously domestically-oriented manufacturing and service sectors. It may also require even greater import substitution than before in other sectors.

[xvii] Note that the argument in the text does not apply to all services, but only to those related to and or involving ITservices.

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