IHD WORKING PAPER SERIES

WP 01/2014

INDIA'S SERVICES-LED GROWTH

Ajit K. Ghose

INSTITUTE FOR HUMAN DEVELOPMENT
www.ihdindia.org

WORKING PAPER NO.
WP 01/2014

INDIA'S SERVICES-LED GROWTH

Ajit K. Ghose

INSTITUTE FOR HUMAN DEVELOPMENT
NEW DELHI
2014

Published by:
INSTITUTE FOR HUMAN DEVELOPMENT
NIDM Building, IIPA Campus, IP Estate, New Delhi-110002
Phones: +91-11-2335 8166/ 2332 1610 • Fax: +91-11-2376 5410
E-mail: mail@ihdindia.org • Website: www.ihdindia.org

ISBN: 978-81-88315-37-6

Subscription Amount: ₹ 50/- / US $ 10

INDIA'S SERVICES-LED GROWTH

Ajit K. Ghose[1]

The Indian economy's transition to a high-growth path in the 1990s is widely believed to have been triggered by accelerated growth of services. And the acceleration in the growth of services has seemingly been fostered by globalisation. These developments, when viewed in a perspective of international experience, appear quite extraordinary. In today's developed economies, manufacturing led the growth process in early stages of development and services took over the lead role only after a fairly high level of development had been reached.[3] The same pattern has also been observed in the East Asian "tiger" economies and in China in more recent periods. In these Asian economies, moreover, openness to trade stimulated growth by stimulating growth of manufacturing and not growth of services.[2] India's recent experience appears to defy these patterns. Here services-led growth has come at an early stage of development and increased openness appears to have stimulated growth of services rather than growth of manufacturing.

Some would argue that the "stylised fact" about the role of services in economic growth is actually less than well established. Several studies claimed that, across countries, no significant relationship between the share of services in GDP and per capita GDP could be found.[4] Several others, however, did find a significant positive relationship between those variables.[5] A recent study seeks to reconcile these contradictory findings by proposing the idea of "two waves of service-sector growth", a first wave coming at an early stage of development and a second wave at a relatively advanced stage of development.[6]

The steady growth of the share of manufacturing in output with per capita income, on the other hand, is a very well-established stylised fact. Against this backdrop, it has been argued that services have now acquired many of the characteristics of manufacturing ('learning by doing' effects at enterprise level, spill over effects at macroeconomic level and international tradability) so that it can serve as a lead sector in economic growth just as well as manufacturing.[7] Thus services-led growth in early stages of development may well be a new pattern that will be prominent in the new century and India's experience is perhaps

1. Honorary Professor, Institute for Human Development, New Delhi. The author is grateful to Abhishek Kumar who provided invaluable research assistance. An earlier version of the paper was presented in a Workshop on Employment and Labour held at the Indira Gandhi Institute for Development Research (Mumbai, India) and the author benefitted from comments by the participants. The author alone is responsible for the views and any remaining errors.

2. The general patterns of structural change were first derived by Kuznets (1957) and subsequently confirmed by the more comprehensive analysis of Chenery (1960), Kuznets (1971) and Chenery and Syrquin (1975). Kaldor (1966) used insights from Young (1928) and Arrow (1962) to develop a general explanation for the observed tendency of the manufacturing sector to play the lead role at early stages.
3. There is a large literature on growth and structural change in East Asian economies. See, for example, World Bank (1993); Amsden (1989); Chen (1979); Kwon (1990); Galenson (1979) and Brandt and Rawski (2008).
4. Among these are the well-known studies of Kuznets (1957) and Chenery (1960).
5. See, for example, Chenery and Syrquin (1975) and Kongsamut et al (2001).
6. See Eichengreen and Gupta (2013).
7. See Dasgupta and Singh (2005, 2006).

a precursor of other experiences to come. The validity or otherwise of this conjecture will not be known for quite some time to come. What we do know at this point of time is that India's experience of services-led growth stands out as quite exceptional.

The employment intensity of services in India also stands out as exceptional. We know from general experience that services tend to be highly employment-intensive. So the services-led growth in India might have been expected to be rich in employment. It is widely believed, however, that growth of services in India has been skill-intensive rather than employment-intensive.

It is hardly surprising, then, that India's services-led growth has generated much questioning and concern. What explains the premature appearance of services-led growth? Why has the growth of services been relatively jobless? Is services-led growth really sustainable? And if the low employment intensity of growth of services persists, how will India's mass of surplus labour ever be moved to productive employment?

This paper takes a hard look at India's experience of services-led growth in an effort to answer these questions.

How Exceptional is India's Services-led Growth?

India's transition to high growth and the role of services[8] in it can be read from Figure 1, which graphically presents 5-year moving averages of annual growth rates of GDP and of services over the period 1951-2010.[9] The figure suggests two episodes of acceleration in GDP growth. The first acceleration occurs in the early 1980s and the second acceleration occurs toward the end of the 1990s.[10] Both of these accelerations in GDP growth appear to have been associated with accelerations in the growth of services. Thus it is not the case that India's services-led growth was triggered by the economic reforms of the early 1990s, which opened up India's hitherto quasi-closed economy to international trade and capital flows; the reforms at best strengthened a pre-existing tendency.

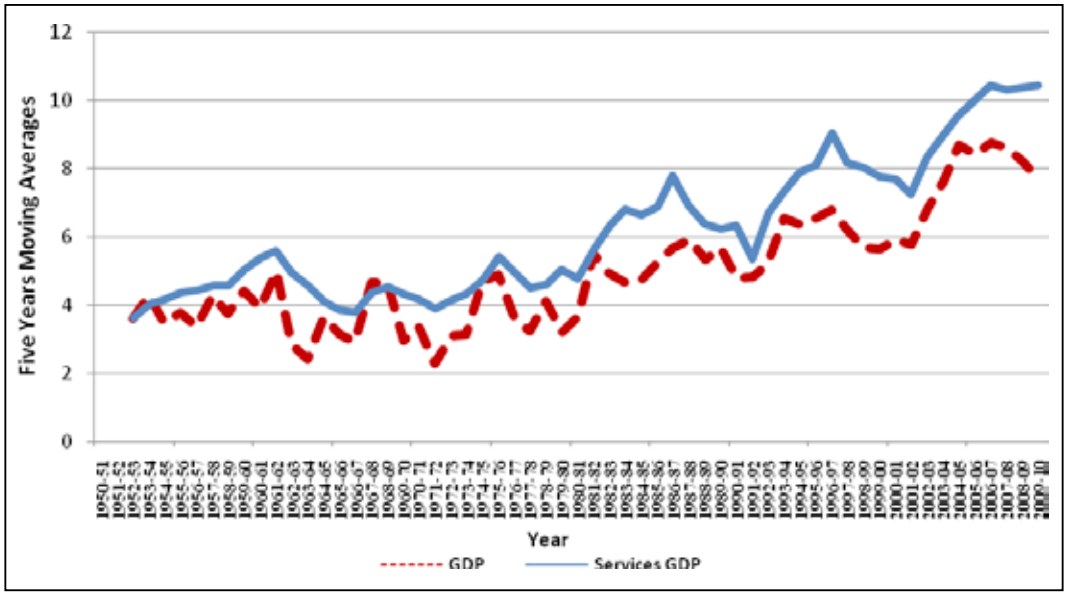
Indeed, if growth is characterised as services-led when the contribution of services to GDP growth is higher than that of any of the other sectors, India's growth has always been services-led (Table 1). It was only during 1951-82 – the period of the so-called "Hindu rate of growth" – that services grew at a slower rate than industry; throughout the post-1982 period, the growth of services was significantly faster than that of industry. But the share of services in GDP was already quite large (30 per cent) – much larger than that of industry (17

8. Here and throughout this paper, services exclude "electricity, gas and water" and "construction" (UN's ISIC treats these as services).

9. Statistical data generally refer to the financial year in India (which runs from April of year zero to March of year 1). The years, therefore, are recorded as 1950-51, 1951-52 and so on. Here we adopt the convention of referring to 1950-51 as 1951, 1951-52 as 1952 and so on.

10. Econometric exercises confirm the timing of the first growth acceleration in India. See, for example, De Long (2003), Wallack (2003), Rodrik and Subramanian (2005) and Balakrishnan and Parameswaran (2007). The timing of the second acceleration remains a matter of controversy. Balakrishnan (2010) finds the second growth acceleration to have occurred around 1992 but this is not widely accepted. Some have argued that growth in the 1990s was really no higher than that in the 1980s. See Kotwal, Ramswami and Wadhwa (2011), for example. On the other hand, that growth in the 2000s was higher than in the 1990s is not in dispute.

Figure 1: 5-year Moving Averages of Annual Growth Rates of GDP and Services



per cent) - in 1951 so that the contribution of services to even the "Hindu rate of growth" was larger than that of any of the other sectors. What is distinctive about the post-1982 period is that the contribution of services to GDP growth was larger than the contributions of the other sectors put together.[11]

Table 1: Pattern of Growth

Sectors	*Average annual rate of growth (%)*			*Contribution (%) of sectors to GDP growth*		
	1951-82	*1983-99*	*2000-10*	*1951-82*	*1983-99*	*2000-10*
Agriculture	2.1	3.1	2.6	26.4	17.1	6.9
Manufacturing	5.1	5.9	7.9	17.0	16.5	16.9
Construction	4.9	5.0	9.5	9.0	6.3	9.6
Other industries	5.7	6.7	5.0	5.3	6.4	3.3
Services	4.4	6.6	8.6	42.3	53.7	63.3
GDP	3.5	5.4	7.2			

Note: Other industries include "mining and quarrying" and "electricity, gas and water".
Source: Author's estimates based on national accounts statistics from Central Statistical Organisation, Government of India.

How unusual or exceptional is this pattern of growth of the post-1982 period in India? To answer this question, we need to situate India's experience in the context of the experience of developing countries as a group.

In a first exercise, we look at the cross-sectional relationship between the share of services in GDP and the level of development (represented by per capita GDP in constant 2005 PPP Dollars) in samples of developing countries (excluding India) in three periods:

11. There is evidence to suggest that, in India, growth of services has a positive effect on growth of industry but growth of industry has no effect on growth of services. This seems to hold for the entire period since 1951. See Balakrishnan and Parameswaran (2007). This also says that economic growth in India has always been services-led.

2000, 2005 and 2009.[12] A simple linear regression equation, when fitted to the data for each of the three periods, yields results that are presented in Appendix Table A1. These results are then used, together with the actual values of the independent variables for India in the three periods, to derive the predicted values for the share of services in GDP for India. We then compare these predicted values with the actual values (Table 2). It turns out that the share of services in GDP in India is pretty much in line with what the international experience would lead us to expect.[13]

Table 2: Share of Services in GDP, India, Predicted and Actual Values (percentages)

	2000	*2005*	*2010*
Predicted value	52.6	53.9	56.4
Actual value	50.1	53.0	54.7

Note: Estimates of shares are based on data in current prices.

Source: Author's estimates based on data in Appendix Table A1and national accounts statistics from Central Statistical Organisation, Government of India

What is striking about India's growth experience is rather the exceptionally low share of industry in GDP. Cross-country comparisons show the share of industry in GDP in India to be significantly lower than what would be expected, given the share of services in GDP (Table 3). Thus while the share of services in GDP is not high in relation to per capita GDP, it is too high in relation to the share of industry in GDP. Essentially, given its level of development, agriculture in India is more important than it ought to be, industry is less important than it ought to be and services are about as important as they ought to be. India's services-led growth appears premature when viewed in this broader perspective.

Table 3: Share of Industry in GDP, India, Predicted and Actual Values (percentages)

	2000	*2005*	*2010*
Predicted value	32.6	32.4	32.8
Actual value	25.1	27.9	28.3

Note: Industry includes "mining and quarrying", "manufacturing", "construction" and "electricity, gas and water". Estimates of shares are based on data in current prices.

Source: Author's estimates based on data in Appendix Table A2 and national accounts statistics from Central Statistical Organisation, Government of India.

The premature nature of services-led growth in India comes into particularly sharp focus when India's growth pattern is compared to that of three selected comparator countries: China, Indonesia and Thailand (Table 4). Both China and Thailand had industry-led growth throughout the 30-year period 1980-2010. In the case of Indonesia, the economic crisis of 1997 appears to have changed the character of the growth process; its growth was industry-led in the pre-crisis period but services-led in the post-crisis period. Even in Indonesia, however, the contribution of industry to growth was important just as the contribution of services to growth was important in China and Thailand. In all three countries, the shares of both industry and services in GDP were high and growing together (Appendix Table A4). The peculiarity of India's experience, it emerges once again, lies in the 'marginalisation'

12.Detailed lists of countries included in the samples are presented in Appendix B.

13.A similar finding is reported in Gordon and Gupta (2004) and Eichengreen and Gupta (2011).

of industry, particularly of manufacturing, in the growth process by the rise of services (compare Tables 1 and 4).

Table 4: Pattern of Growth: China, Indonesia and Thailand

	Contribution (%) of sectors to GDP growth		
	1980-95	*1996-2010*	*2000-10*
CHINA			
Agriculture	14.4	5.5	4.9
Industry	46.2	51.6	52.2
Manufacturing	32.3	34.1	33.6
Services	39.9	42.9	42.9
INDONESIA			
Agriculture	10.1	10.4	9.4
Industry	49.2	35	34
Manufacturing	32.2	25.8	23.1
Services	40.7	54.6	56.6
THAILAND			
Agriculture	5.1	6.2	4.7
Industry	48.2	57.5	55.7
Manufacturing	36.7	51.3	47.9
Services	46.7	36.3	39.6

Source: Author's estimates based on data from World Bank, World Development Indicators

Another aspect of India's growth experience is the exceptionally low employment intensity of services. Simple regression exercises show that, in general, the share of services in total employment in a developing economy tends to equal the share of services in GDP (Appendix Table A3). And the same pattern is observed in developed economies as well (Appendix Table A5). In India, however, the share of services in employment has been and remains far lower than the share in GDP (Table 5).

Table 5: Share of Services in Employment, India: Predicted and Actual Values (percentages)

	2000	*2005*	*2010*
Predicted value	52.6	51.9	53.8
Actual value	25.7	27.4	28.9

Note: The predicted values are simple averages of predicted upper and lower values, which are estimated by alternately including and excluding the intercepts. The reason for doing this is that the intercepts are statistically insignificant.

Source: Author's estimates based on (i) data in Table 7, (ii) data from World Bank, World Development Indicators, and (iii) data from Central Statistical Office (Government of India), National Sample Surveys of Employment and Unemployment, Various Rounds.

To sum up, if we confine attention to a single variable, namely, the share of services in GDP, India's economy does not look like a significant outlier in the community of developing economies. But it does look like a very significant outlier when we consider two additional variables: the share of industry in GDP and the share of services in total employment in the economy.[14] Given the share of services in GDP, the values of these two variables should have been much higher than what they are. India's services sector is over-developed in relation to its industrial sector. And the share of services in employment is exceptionally low in relation to the share in GDP. Thus India's services-led growth appears premature when viewed in a broad perspective. If we interpret the rapid growth

14.Some other studies have also reported similar findings. See, for example, Kochar et al (2006).

of services of the past as catch-up growth, we need to explain why there has been no catch-up growth in industry, where the scope for such growth was (and remains) much larger. It would also seem natural to think that services-led growth can no longer be sustained (since catch-up has already happened) and a phase of industry-led growth must now begin or else growth itself cannot be sustained. On the other hand, if we think of services as the new lead sector of economic growth in the twenty-first century, we need to understand the significance of the fact that this new lead sector appears to be failing to do what industry (the old lead sector) did, or indeed what services have traditionally done, in transforming employment conditions.

There is one other fact that also brings the exceptional nature of India's growth process into sharp focus. Since India's economy is dualistic in character, it is worth looking into the growth patterns in the two segments – organised and unorganised – separately.[15] The patterns, it turns out, have been remarkably similar; growth was services-led in both segments throughout the period 1981-2010 (Table 6). In the organised segment, the share of services in NDP steadily increased while that of industry steadily declined. In the unorganised segment, the share of services in NDP steadily increased while that of agriculture steadily declined. By 2010, services had become dominant even in the unorganised part of the economy.

Table 6: Services-led Growth in Organised and Unorganised Sectors

	Contribution (%) to NDP growth		*Share (%) of production sectors in NDP*		
	1981-2000	*2000-2010*	*1981*	*2000*	*2010*
Organised sector NDP					
Agriculture	2.7	1.0	11.1	5.6	3.0
Industry	38.3	35.8	44.4	36.2	34.8
Manufacturing	17.6	17.7	22.2	19.0	22.5
Services	59.0	63.2	44.5	58.2	62.2
Unorganised sector NDP					
Agriculture	30.7	12.0	50.2	39.0	26.5
Industry	15.1	20.8	16.1	15.1	17.7
Manufacturing	6.5	7.7	10.3	7.8	7.7
Services	54.2	67.3	33.7	45.9	55.8

Source: Author's estimates based on data on factor incomes from National Accounts Statistics

Growth of Services: Pace and Pattern

What have been driving the rather exceptional growth of services in India? A first fact to note is the broad-based nature of growth of services (Table 7). Quite clearly, all types of services recorded speedy growth and most recorded growth acceleration.

15. In India, the organized sector is defined to include all government, public sector and private corporate sector establishments, and all private non-corporate sector establishments with 10 or more employees. While the share of the organised sector in total NDP has been growing, it remained well below 50 percent even in 2010. This share was 35 per cent in 1981, 42 percent in 2000 and 45 per cent in 2010.

Table 7: Pace and Pattern of Growth of Services

	Average annual growth rate (%)		*Contribution (%) to services growth*	
	1981-2000	*2000-2010*	*1981-2000*	*2000-2010*
Services	6.6	8.5		
Trade (wholesale + retail)	6.6	9.1	28.7	30.8
Hotels and restaurants	7.7	9.8	2.6	2.9
Transport and storage	8.1	8.5	11.1	10.3
Traditional services	7.0	9.0	42.4	44.0
Communication	11.7	9.7	3.6	3.3
Banking and insurance	8.5	7.7	13.8	10.7
Real estate, renting and business services	5.4	10.4	12.7	18.9
Modern services	7.0	9.3	30.1	32.9
Public administration and defence	5.7	7.2	11.5	11.0
Community, social and personal services	5.5	6.4	16.0	12.1
Social services	5.6	6.8	27.5	23.1

Source: Author's estimates based on data on factor incomes from National Accounts Statistics

For purposes of analysis, three basic groups of services can be defined: traditional services which include "wholesale and retail trade, "hotels and restaurants" and "transport and storage"; modern services which include "communication" (a category that includes telecom services), "financial services" and "real estate-renting-business services" (a category that includes software services); and social services which include "public administration and defence" and "community, social and personal services". The traditional and the social services are non-tradable while the modern services are internationally tradable. The traditional and the modern services are mostly in the private sector while the social services are mostly in the public sector. And as we shall see below, there are important differences in terms of employment structure between the traditional services on the one hand and the modern and the social services on the other.

It is quite remarkable that the growth of modern services was really no faster than that of traditional services in either of the two periods. And while most services recorded significant growth acceleration between the periods, the exceptions were "communication" and "financial services", both modern services, which recorded slight deceleration. As a group, modern services nevertheless recorded slight growth acceleration because of large acceleration in the growth of "real estate, renting and business services", which include software services. The overall growth of services in both periods is actually attributable more to the speedy growth of traditional services than to the equally speedy or slightly speedier growth of modern services.

This aggregate picture, however, does not tell us the full story and it is important to consider not just the growth of different types of services but also the growth of different types of services in each of the segments – organised and unorganised. The unorganised segment, though its importance has been declining over time, still accounts for more than 50 per cent of services output in the economy.[16] In both periods, the unorganised services grew only a little slower than the organised services (Table 8). The contribution of unorganised

services to overall services growth, while it declined between the periods, was still above 50 per cent during 2000-10.

Table 8: Growth of Organised and Unorganised Services

	Average annual rate of growth (%)		*Contribution (%) to services growth*	
	1981-2000	*2000-2010*	*1981-2000*	*2000-2010*
Services	6.6	8.5		
Organised services	7.0	9.1	40.6	46.9
Unorganised services	6.2	8.0	59.4	53.1

Source: Author's estimates based on data on factor incomes from National Income Statistics

In both sectors, all types of services recorded rapid growth in both periods and also recorded growth acceleration in the second period (Table 9). But there are important differences between the growth patterns in the two sectors as also between the two periods.

In the organised sector, during 1981-2000, social services (in large part, government services) were the most important contributor to the growth of services. This changed in the next period (2000-10) when modern services were the most important contributor. A more detailed scrutiny shows, however, that the growth acceleration in modern services is explained by the growth acceleration in "real estate, renting and business services"; "communication" and "financial services" had grown rapidly during 1981-2000, but their growth actually decelerated during 2000-2010. It should be said here that, in the context of the organised sector, "business services" (which include software services) constitute by far the largest component of "real estate, renting and business services".[17] One somewhat surprising fact is that traditional services in the organised segment not only recorded high growth during 1981-2000 but also recorded the largest acceleration in the next period. Organised "wholesale and retail trade" and organised "hotels and restaurants", in particular, recorded rapid growth in both periods.

In the unorganised segment, not too surprisingly, traditional services were by far the most important contributor to services growth. But modern services too grew rapidly in

Table 9: **Pace and Pattern of Growth of Organised and Unorganised Services**

	Average annual growth rate (%)		*Contribution (%) to services growth*	
	1981-2000	*2000-2010*	*1981-2000*	*2000-2010*
Organised services	7.0	9.1		
Traditional	7.3	11.9	18.8	26.5
Modern	8.8	10.2	37.0	38.8
Social	5.9	6.8	44.2	34.7
Unorganised services	6.2	8.0		
Traditional	7.0	8.1	64.2	62.0
Modern	5.5	8.2	23.8	26.7
Social	4.8	6.9	12.1	11.3

Source: Author's estimates based on data on factor incomes from National Income Statistics

16. The share of the unorganised segment in services output in the economy was 65.2 per cent in 1981, 59.3 per cent in 2000 and 53.3 per cent in 2010.

17. "Real estate and renting" services are mainly in the unorganised segment while "business services" are mainly in the organized segment.

the second period. This essentially reflected quite spectacular growth of "communication", which in turn reflected growth of mobile phone services. Social services in the context of the unorganised sector basically mean "personal" services (services of security guards, gardeners, cooks, cleaners, and so on), and these also increased quite rapidly in the second period.

It is quite clear that the rapid growth of services was driven very largely by the growth of non-traded services, and thus by growth of domestic demand, in both periods. Even during 2000-10, when the growth of services exports was truly impressive, this made a relatively small contribution to the growth of services output. The estimates presented in Table 10 directly show these features. The contribution of growth of services exports to growth of services output was just 6 per cent for the period 1981-2000, which increased to 13 per cent for the period 2000-10. It also emerges that intermediate demand (including splintering) for services from industry and agriculture has been small and declined between the periods.[18] The rapid growth of services was clearly sustained very largely by the growth of domestic final demand.

Table 10: Contribution of Different Sources of Demand to Growth of Services

	1981-2000	*2000-10*
Inputs into agriculture	1.2	0.7
Inputs into industry	8.9	7.8
Domestic final demand	84.0	78.0
Exports	5.9	13.4

Source: Appendix C.

The smallness of contribution of exports to growth of services should not come as a surprise. The share of services exports (in value added terms) in services output was minuscule in the 1980s and the 1990s and, despite impressive growth in the 2000s, still remains small. This share hovered around 3.0 per cent between 1981 and 1997. It started growing only after that, reached a peak of 12 per cent in 2009 and declined thereafter.[19] Moreover, services exports have been and remain heavily concentrated; software exports accounted for about 34 per cent of services exports in 2000 and 52 per cent in 2010. For most of the years between 2000 and 2010, trade in services other than software services was actually in deficit. In short, only the exports of software services really recorded impressive growth.[20] But these exports constituted less than 1 per cent of services output in 2000 and less than 6 per cent in 2010. So while exports played a big role in stimulating growth of IT services, their role in stimulating growth of the services sector as a whole was rather small.

One intriguing question that arises is: How is it that India, a low-income country with abundant supply of unskilled labour, has acquired comparative advantage in skill-intensive software services rather than in labour-intensive manufacturing? The short answer is that it is the comparative advantage of the organised sector (and not of the economy as a whole) that

18. Several other studies – Gordon and Gupta (2004), Singh (2006), Eichengreen and Gupta (2010) and Nayyar (2012) – have noted that the growth of intermediate demand for services from agriculture and industry was quite small.

19. In contrast, exports of manufactures (in value added terms) constituted 13.7 per cent of output of manufactures in 1981, and this percentage increased to 23.1 by 2010.

counts and this sector's comparative advantage in skill-intensive activities has been created by policies, past and present. Already in the 1950s, India had adopted a growth strategy that accorded priority to heavy industries and thereby to increasing the availability of high-skilled labour.[21] The education policy, therefore, had to be heavily biased toward tertiary education to the neglect of primary and secondary education. Thus while universal primary education received little more than lip service, resources were concentrated in establishing centres of excellence in tertiary education. The government, moreover, provided large subsidy per student in tertiary education. [22] These biases have persisted to this day. The result has been availability of relatively cheap skilled labour. On the other hand, labour regulations had the effect of making unskilled/low-skilled labour relatively expensive in the organised sector. We can add that physical capital, like human capital, has also been subsidised in a variety of ways. Thus the factor endowments in the organised sector are (and have been) very different from the factor endowments of the economy; while the latter suggest comparative advantage in labour-intensive activities, the former suggest comparative advantage in capital-and-skill-intensive activities. It is the organised sector that exports services and it is really no surprise that skill-intensive services are being exported. Even India's manufactured exports are capital-and-skill-intensive for similar reasons.[23]

But, as noted above, growth of skill-intensive services exports ultimately provide only a small part of the explanation for the growth of services. To understand India's "services revolution", therefore, we need to answer one basic question: How is it that domestic final demand for services recorded such rapid growth in a low-income economy like India? The available evidence suggests three proximate explanatory factors: rapid growth of public consumption expenditure reflected in the rapid expansion of public services; high (significantly greater than unity) household income elasticity of demand for services reflected in the rapidly rising share of services in private final consumption expenditure; and technological change involving both product innovations and price declines.

As already noted above, expansion of government services was by far the most important contributor to the growth of organised services during 1981-2000 and remained an important contributor even during 2000-2010. Such expansion could only have resulted from rapid growth of public final consumption expenditure. In real terms, public final consumption expenditure grew at 5.8 per cent per annum during 1981-2000 and at 5.2 per cent per

20. India's software exports increased from US$ 4 million in 1980 to US$ 105 million in 1990, then to US$ 5287 million in 2000 and then to US$ 37300 million in 2010. See Dossani (2012) and Murthy (2012). The implied growth rate per annum was 38.6 per cent during 1980-1990, 48.0 per cent during 1990-2000 and 21.6 per cent during 2000-2010.
21. Kochar et al (2006) provide empirical evidence to show that India, in contrast to other developing countries, had actually specialized in capital-and-skill-intensive manufacturing industries. They also show that this feature has not been altered by the economic reforms implemented since the early 1990s.
22. For example, data from the World Bank (World Development Indicators) show that the ratio of public expenditure per student in tertiary education to that in primary education was 6.2 in India in 2006, 2.1 in Indonesia in 2007 and 1.6 in Thailand in 2004.
23. Veeramani (2011) provides evidence to show that India's manufactured exports have become increasingly capital-and-skill-intensive in the period since the mid-1990s. This also reflects the peculiar nature of factor endowments in India's organized sector.

annum during 2000-2010. Private final consumption expenditure (in real terms) also grew rapidly, particularly in the 2000s; the rate of growth was 4.3 per cent per annum during 1981-2000 and 6.4 per cent per annum during 2000-2010. At the same time, the share of services in private final consumption expenditure was steadily growing.[24] Thus private final consumption expenditure on services was growing at a significantly faster rate than private final consumption expenditure in the aggregate. Indeed, the evidence is that private final consumption expenditure on services was growing at a faster rate than GDP, which suggests the income elasticity of demand for services to have been greater than unity. And the available estimates of the income/expenditure elasticity of demand for services confirm this.[25]

Given India's level of development, the observed greater than unity income/expenditure elasticity of demand for services comes as a surprise and requires explanation. Two basic developments seem to underlie the phenomenon. First, the "electronics revolution" has produced new products whose availability has had the effect of altering the expenditure pattern of all income groups in favour of services. The availability of mobile telephones, for example, has obviously had the effect of creating/expanding demand for communication services even among the poor. Besides, rapid technological change resulted in declining prices; between 1997 and 2010, the deflator for communication services declined by more than 12 per cent per annum while the deflators for all other services were rising. Such price declines added further stimulus to demand growth. Communication services, as noted above, recorded spectacularly rapid growth in the unorganised sector during 2000-10. Something similar can be said of transport services, the demand for which is higher for every income group today than it was in the 1970s. On the one hand, spatial movements of people and goods have increased rapidly with economic growth. On the other hand, technological change has greatly expanded the availability (and sometimes cost) of transport (particularly air and land transport) services.

Second, income inequality has been growing and this too has had the effect of shifting the average expenditure pattern in favour of services. We cannot directly observe the trend in income inequality for lack of data; household surveys in India focus on consumption expenditure and not on income. Studies of distribution of household consumption expenditure do suggest significant growth of inequality.[26] We know, moreover, that consumer expenditure surveys generally fail to adequately cover the top expenditure groups and hence underestimate both the extent and growth of expenditure inequality. And it is legitimate to assume that the growth of household income inequality was significantly larger than that of household consumption inequality. In short, growth of income inequality is likely to have been larger than what we can observe from the available statistical data. An important point to note here is that while the growth of inequality has aided growth of services, the growth of services has also contributed to growth of inequality.[27] The services-led growth has been feeding on itself to a certain extent.

24. Nayyar (2012) estimates this share to have been 16.8% in 1981, 20.9% in 1991, 27.2% in 2000 and 44.3% in 2009.
25. Rakshit (2007) uses national accounts statistics to estimate the household income elasticity of demand for services to have been 1.5 for the period 1998-2005. Nayyar (2012) uses data on consumer expenditure generated by the National Sample Surveys to estimate household expenditure elasticity of demand for services, which turns out to be significantly greater than unity.

Then there is the fact that government policies have often systematically privileged services vis-à-vis manufacturing. For one thing, services have been extremely lightly taxed while manufacturing has been heavily taxed.[28] For another, rules relating to entry of FDI have been significantly less restrictive for services than for manufacturing and FDI inflows have been moving away from manufacturing towards services.[29] Moreover, policies have paid scant attention to development of physical infrastructure, which are far more important for production and export of manufactures than for production and export of services.[30] Thus government policies, particularly in the post-reform period, seriously discriminated in favour of services and against manufacturing; they helped build the competitive strength of skill-intensive services on the one hand and eroded the competitive strength of manufacturing in general on the other.[31]

Services-led Growth and Employment

When viewed in a perspective of international experience, services in India appear not to be employment-intensive (employment per unit of output is relatively low) and the employment intensity of growth[32] of services also appears to have been low, particularly in the period of high growth (2000-10). But, when viewed in the context of the Indian economy, growth of services actually appears to have been relatively employment-intensive (Table 11). Employment in services grew significantly faster than employment in manufacturing. To an extent, this was because services output grew significantly faster than manufacturing output. But the employment intensity of growth of manufacturing was also much lower than that of services growth in the second period (2000-10). The faster employment growth, combined with the larger initial share of services in total employment in the economy, meant that the contribution of services to overall employment growth was much larger than that of manufacturing.

26. See, for example, ADB (2012).
27. In general, if the growth of incomes is higher for the high-income, high-skilled persons, then the domestic demand will also be skewed in favour of goods and services produced by high-skilled labour. For concrete evidence, see Azam (2009) and Mehta et al (2013).
28. Hansda (2002) shows that while the share of services in GDP crossed 50 per cent in the 1990s, services accounted for only about 10 per cent of the government's tax revenue.
29. See Rakshit (2007), Banga (2005) and Chanda (2012).
30. See Rakshit (2007).
31. Estimates of RCA (Revealed Comparative Advantage), derived from World Bank data, suggest that India has always (i.e., throughout the period 1980-2010) had comparative advantage in services and no comparative advantage in manufactures. However, till 1993, the RCA of manufactures was increasing while that for services was declining; the two were in fact equal (0.99) in 1993. There was a reversal of trends after 1993; the RCA of manufactures steadily declined and that for services steadily increased. However, the growth of RCA of services seems to have been due entirely to growth of RCA in "software services". In fact, as Chanda (2012) shows, India's comparative advantage is exclusively in "software services". Balakrishnan (2006) discusses how state policies helped build this comparative advantage.
32. We define this as the ratio of the rate of growth of employment to the rate of growth of output but do not call it employment elasticity for reasons that will shortly be made clear.

Table 11: Employment, 1983-2010

	Average annual rate of growth (%)		*Employment intensity of growth*		*Contribution (%) to employment growth*	
	1983-2000	*2000-10*	*1983-2000*	*2000-10*	*1983-2000*	*2000-10*
Economy	2.5	1.7	0.48	0.23		
Manufacturing	2.9	1.6	0.74	0.19	14.0	12.0
Services	3.6	2.9	0.51	0.31	34.0	47.0

Source: Author's estimates based on data from National Sample Survey of Employment and Unemployment (various Rounds) and National Accounts Statistics.

Employment, in Table 11, refers to the number of persons in age-group (15-59) who are engaged in economically gainful activities for the major part of the reference year (employed in usual principal capacity (UPS) in the terminology used in Indian surveys). This measure of employment, which we use in the rest of the paper, focuses on the core workers in the economy. The employment conditions of these core workers have a determining influence on the extent of participation of children and old-age persons in the labour force. It must be recognised, however, that even the core workers do not all have full-time employment; many of them remain underemployed, i.e., unemployed for a minor part of the reference year.[33] It is for this reason that we have called the ratio of employment growth to output growth employment intensity of growth rather than employment elasticity. And it is for this reason that we need to do a more detailed analysis of the nature of employment growth so as to develop an adequate understanding of the employment effects of services-led growth. As it happens, for reasons of data availability, such analysis is possible only for the period 2000-10. Fortunately, this also is the period of rapid services-led growth.

The data in Table 12 show the different types of employment that are found in India's economy. Regular employment is employment in which wages are paid on a regular, periodic basis (on a monthly basis, for example). The regular employees fall into two sub-categories: regular-formal employees are those regular employees who have access to institutionalised social security (e.g., pension schemes) and the rest of the regular employees are regular-informal employees. Casual employees are those who are hired and paid on a daily basis. As it turns out, regular-formal employees, who exist only in the organised segment of the economy, also earn much higher wages than the regular-informal employees (Appendix Table A6). Casual employees, of course, not only face uncertainty of employment and underemployment but also earn substantially lower wages than the regular-informal employees. In terms of quality of employment, therefore, there is a clear ranking of wage employment: regular-formal employment is the best and casual employment is the worst; regular-informal employment falls in between. In so far as the level of skill can be measured by the level of education, it can also be said that regular-

33. Our definition minimizes but does not eliminate the possibility. If we included children, older persons and those who are employed in usual subsidiary capacity (i.e., who are in employment for only a minor part of the reference year), underemployment would have been much higher so that the number of persons in employment would have been a far less meaningful measure of employment.

formal employees are high-skilled, regular-informal employees are medium-skilled and casual employees are low-skilled.

The average self-employed earns higher incomes than even the average regular-informal employee. The income of the self-employed, however, includes rent and profit. More importantly, the self-employed constitute a heterogeneous category that includes high-income professionals (e.g., lawyers and doctors), prosperous small entrepreneurs as also a sizeable class of poor struggling to survive. This can be seen from the fact that the incidence of poverty among the self-employed is quite high; it is lower than that among the casual labourers but higher than that among the regular-formal and regular-informal employees (Appendix Table A6). The average level of education of the self-employed is also higher than that of the casual employees but lower than the other two categories of employees.

Table 12: Structure of Employment, 2010

	Organised segment share (%)	*Percentage distribution of total employment by status*			
		Regular formal	*Regular informal*	*Casual*	*Self employed*
Economy	15.0	8.0	10.9	34.2	46.9
Manufacturing	31.5	11.4	25.1	19.0	44.5
Services	30.0	20.9	23.9	8.1	47.1
Traditional services	9.6	4.2	20.2	10.0	65.6
Modern services	52.6	37.5	28.2	2.6	31.7
Social services	59.3	45.5	29.3	6.5	18.7

Source: Author's estimates based on unit-level data from National Sample Survey of Employment and Unemployment, 2009-10 (66th Round).

The data in Table 12, we can now say, show that employment in services, on average, is of better quality than employment in manufacturing. Of course, dualism is as prominent in services as in manufacturing, a large majority of the workers being outside the organised segment and in self-employment in both sectors. Also, in both organised manufacturing and organised services, there obviously is significant informal employment since the share of the organised sector in total employment is significantly larger than the share of regular-formal employment in total employment. But the share of regular-formal employment in total employment is much higher (70 per cent in 2010) in organised services than in organised manufacturing (36 per cent in 2010).

As already noted above, services divide rather neatly into traditional, modern and social services.[34] Traditional services are mostly produced in the unorganised sector and mainly by self-employed workers. Modern and social services are produced mostly in the organised sector and mainly by regular employees. Also, traditional services employ mostly low-skilled workers while modern and social services employ mostly high-skilled workers. Naturally, labour productivity in traditional services is much lower than that in modern services; in 2010, modern services accounted for less than 11 per cent of total services employment and 38 per cent of services output, while traditional services accounted for 58 per cent of services employment and 40 per cent of services output.[35]

Overall, services clearly provide better-quality employment than manufacturing. The evidence on wages and earnings from employment (Table 13) adds strength to this conclusion. This evidence shows that labour-income for each category of employed is higher in services than in manufacturing. It also shows that, labour-income is generally higher in modern services than in traditional and social services (except for casual employees).

Table 13: Wage and Income from Employment, 2010

	Manufacturing	*Services*	*Traditonal services*	*Modern services*	*Social services*
Wage per day (current Rupees)					
Regular-formal employees	461	538	509	656	511
Regular-informal employees	158	178	161	291	155
Casual employees	107	109	120	100	78
Mixed income per annum (current Rs.)					
Self-employed	88015	223504	199093	409582	184223

Source: Author's estimates based on unit-level data from the 66th Round of National Sample Survey of Employment and Unemployment

It is worth noting here that services on the whole employ proportionately more high-skilled workers while manufacturing employs proportionately more low-skilled workers. Thus faster growth of services means faster growth of regular-formal employment but also faster expansion of employment opportunities for high-skilled workers. Faster growth of manufacturing, on the other hand, means faster growth of casual employment but also faster expansion of employment opportunities for low-skilled workers. As for expansion of self-employment, growth of manufacturing and growth of services seem to have similar effects.

During 2000-10, the rapid services-led growth was associated with significant improvement in employment conditions in the economy (Table 14). Employment in the organised sector as also regular-formal employment grew at faster rates than overall employment in the economy. So there was transfer of workers from lower-quality employment to higher-quality employment. This improvement was brought about very largely by the growth of services, which produced rapid growth of organised sector employment as also of regular-formal employment. Growth of manufacturing, in contrast, actually made a negative contribution to improvement in employment conditions in the economy. There was rapid decline of regular-formal employment in manufacturing and slow growth of employment in organised manufacturing. Thus even the rather small growth of manufacturing employment reflected growth of regular-informal, casual and self- employment in unorganised manufacturing. Services, therefore, not only generated much more employment than manufacturing but also generated better-quality employment.

At the same time, it is also true that services created far fewer jobs for low-skilled workers than manufacturing. Of the 28.5 million additional employment created in services,

34. Ideally, real estate and renting services should have been included in traditional services, while business services should have been included in modern services. But we faced practical difficulties in separating these.

35. In the case of organised social services, wages and salaries account for a very large part (around 90 per cent) of the output so that comparisons of labour productivity in social services with that in traditional and modern services are not particularly meaningful.

6.7 million (23.5 per cent) were for high-skilled workers while only 0.1 million (0.4 per cent) were for the low-skilled. In contrast, of the 7.1 million additional employment created in manufacturing, 1.9 million (27 per cent) were for low-skilled workers (employment of the high-skilled, of course, actually declined by 1.4 million). Interestingly, both manufacturing and services created jobs for the medium-skilled (who are mainly in regular-informal employment).

Table 14: Pattern of Employment Growth, 2000-10

	Average annual rate of growth (%)		
	Economy	*Manufacturing*	*Services*
Organised segment	4.6	1.8	3.6
Unorganised segment	1.3	1.6	2.6
Regular-formal	3.4	-2.3	3.4
Regular-informal	2.4	2.8	3.0
Casual	1.5	2.4	0.1
Self employed	1.5	2.0	3.2
Total	1.7	1.6	2.9

Source: Author's estimates based on unit-level data from 66th Round of National Sample Survey of Employment and Unemployment

The growth of services employment, however, left the dualistic character of the services sector largely unaffected. Indeed, it can be said that dualism actually got sharpened since labour productivity grew considerably faster in modern services than in traditional services. Between 2000 and 2010, the share of traditional services in total services employment remained constant while the share in total services output declined by two percentage points; in the case of modern services, the share in employment increased by about four percentage points while the share in output increased by thirteen percentage points (Appendix Table A7).

To complete the analysis, we consider the evidence on growth of labour-incomes (Table 15). The most remarkable fact that emerges from this evidence is that, despite the differences in the pattern of employment growth between manufacturing and services, the pattern of growth of labour-incomes has actually been very similar. This means that the conclusion about the pattern of employment growth remains unaffected by the pattern of growth of labour-incomes; services-led growth did lead to significant improvement in employment conditions in the country. That said, two interesting aspects of the pattern of growth of labour-incomes are worth noting. First, while wage growth for the high skilled (regular-formal employees) was significantly faster than that for the low-skilled (casual employees), wage growth for the medium-skilled (regular-informal employees) was zero or negative except in modern services. There is something of a puzzle here; the services-led growth created many more jobs for the medium-skilled than for the low-skilled, and yet the low-skilled gained much more in terms of wage growth.[36] Second, income growth for the self-employed was significantly faster than wage growth for the regular-formal employees in both manufacturing and services. Our hunch is that small and micro enterprises prospered in manufacturing while both small entrepreneurs and professionals prospered in services. And it is the growth of labour-incomes in self-employment that holds the key to an understanding of the growth of casual wage.[37]

Table 15: Growth of Real Wage and Real Income from Employment, 2000-10

	Average annual rate of growth (%)				
	Manufacturing	*Services*	*Traditonal services*	*Modern services*	*Social services*
Wage per day (2000 Rs.)					
Regular-formal employees	3.0	3.0	3.3	2.9	2.7
Regular-informal employees	0.3	0.1	0	1.6	-2.6
Casual employees	1.6	2.2	2.3	1.1	1.0
Mixed income per annum (2000 Rs.)					
Self-employed	4.1	5.3	4.2	9.3	4.5

Source: Author's estimates based on unit-level data from the 66th Round of National Sample Survey of Employment and Unemployment

Conclusions

India has had services-led growth in the entire post-1980 period. Economic reforms of the early 1990s did not usher in services-led growth; they merely strengthened it. At independence, India had inherited a services-heavy economy created by the British colonial administration (see Appendix Table A8). The growth strategy that India adopted in the 1950s then laid the foundation for premature services-led growth. For it accorded strategic priority to tertiary education, cheap capital and the public sector. Labour regulations designed to create decent conditions of work in the organised part of the economy (then dominated by the public sector) also contributed by making the relative price of low-skilled labour vis-à-vis high-skilled labour (which was relatively cheap because its production was heavily subsidised) high. The organised sector of the economy steadily acquired comparative advantage in the production of capital-and-skill-intensive products. To add to this, certain later policies favoured services and disadvantaged manufacturing. Compared to manufacturing, services have been lightly taxed. Inadequate attention to development of physical infrastructure constrained manufacturing far more than services. And since the reforms of the early 1990s, trade and foreign investment regimes for services have been more liberal than those for manufacturing. In short, India's premature services-led growth has very much been a product of policies.

But this is a supply-side story and we need to add a demand-side story. Contrary to a widely held perception, growth of services was driven primarily by growth of domestic final demand and not by growth of exports. During 1981-2000, services exports were of marginal significance. Even during 2000-10, when services exports boomed, their contribution to overall growth of services was far less important than the contribution of the growth of domestic demand. The surprise here is India's specialisation in skill-intensive services (essentially software services). The explanation is that the organised part of India's economy actually

36. It has been argued that while services expanded jobs for the high-skilled faster than jobs for the medium-skilled, the supply of high-skilled workers increased at a slower rate than the supply of medium-skilled workers [Azam (2009); Mehta et al (2013)]. This seems a plausible explanation for the stagnation of wages for the regular-informal employees who are medium-skilled. However, it is not quite consistent with the fact that the wage of regular-informal employees did increase in modern services. Also, we need a separate explanation for the observed growth of wages for low-skilled workers.

37. Ghose (2012) discusses the link between the income of the self-employed and the wage of casual labour.

has comparative advantage in capital-and-skill-intensive products. Even India's manufactured exports are capital-and-skill-intensive. The rapid growth of domestic demand is explained partly by the rapid growth of final consumption expenditure, both public and private, and partly by a greater-than-unity income elasticity of private demand for services. Growth of public consumption was in fact more important than growth of private consumption during 1981-2000 while it was the other way round during 2000-10. The surprise here is the observed greater-than-unity income elasticity of private demand for services. Two particular developments explain this. The "electronics revolution", by producing new and relatively cheap products, has caused a shift in the expenditure pattern of all income groups in favour of services. And income inequality has also been growing.

Contrary to another widely-held perception, India's services-led growth has not been "jobless". It has in fact been associated with substantial improvement in employment conditions in the economy. The share of the organised sector in total employment has increased substantially as has the share of regular-formal employment. Real wages of both regular-formal and casual employees have also increased though the former have gained much more than the latter. And while self-employment has remained the dominant form of employment in the economy, real incomes of the self-employed have shown significant growth.

What nevertheless remains true is that the share of services in total employment is much too low in relation to their share in GDP. Here is a colonial legacy that more than sixty years of development has not undone. In independent India, the change in GDP share of services has been roughly the same in terms of percentage points as the change in employment share (Appendix Table A8). But the large gap between the two shares, inherited from the past, has survived.

Compared to manufacturing, services have not just generated employment at a faster pace but have also generated better-quality employment. So it cannot be argued that manufacturing-led growth would have done more to improve overall employment conditions than services-led growth. However, while services generated employment opportunities mainly for the high-skilled, manufacturing generated employment opportunities mainly for the low-skilled. What can be said, therefore, is that manufacturing-led growth would have done more to shift labour out of agriculture and to thus reduce underemployment and poverty. Quite possibly, moreover, it would have prevented (or at least moderated) the rise in income inequality.

Will services-led growth be sustained even if the existing policy biases are maintained? Our analysis suggests the answer to be "yes but"; services-led growth can be sustained but only at a much lower level. The slowdown of growth in the developed world and the emergence of other players (such as China and the Philippines) in software services will make it difficult to sustain high growth of service exports. It is true that many services other than software services – medical, education, financial, travel, transportation, etc. – are being increasingly traded. But India's success has thus far been confined to exports of software services and it is not clear that ability to export other services can be easily and quickly developed. On the whole, there are good reasons to think that growth of services exports will slow down. The growth of domestic demand can also be expected to slow down. Except in the unlikely

event of another technological revolution, there will be no new shift in the pattern of private expenditure and the income elasticity of private demand for services will decline.

But, most importantly, rapid services-led growth will be made impossible by endemic balance-of-payments difficulties. A large mismatch between the structure of domestic absorption and that of domestic production has already emerged in India's economy. On very rough calculations, the share of goods in domestic absorption was 67 per cent in 2010 while the share of goods in domestic production was only 43 per cent.[38] This means that around 26 per cent of the domestic demand for goods (amounting to around 27 per cent of GDP) had to be met through import in that year. On the other hand, net exports of services in that year constituted just 3 per cent of GDP, i.e., could conceivably have financed imports worth 3 per cent of GDP. Since, with continued services-led growth, the gap between domestic absorption and domestic production of goods must be expected to widen, it is hard to see how the resources required to fill the gap in domestic absorption of goods through imports would be found.

Our conclusion is that sustaining rapid economic growth would require a transition from services-led growth to manufacturing-led growth. This would not mean stagnation of services just as services-led growth thus far has not meant stagnation of manufacturing. It would mean significant acceleration in manufacturing growth and perhaps some deceleration in services growth. Policy reforms will be required to facilitate this transition. Particular emphasis would have to be placed on building of physical infrastructure. Subsidies on physical and human capital would need to be reduced and labour regulations would need to be reformed so that the relative price of low-skilled labour vis-à-vis capital and high-skilled labour is lowered. And the existing biases in tax, trade and foreign investment regimes that disadvantage manufacturing vis-à-vis services would have to be removed.

On the basis of past evidence, it can be said that a transition to manufacturing-led growth would alter the pattern of employment growth. Growth of employment opportunities for the low-skilled would accelerate while growth of employment opportunities for the high-skilled would slow down. To put it differently, growth of regular-formal employment would slow down while growth of regular-informal and casual employment would accelerate. There would be faster shift of labour out of agriculture as a result. The consequent faster growth of labour productivity in agriculture would mean faster growth of wages of low-skilled labour in non-agriculture. And so long as services continue to grow at a decent rate, regular-formal employment should continue to grow faster than the labour force. Rapid manufacturing-led growth, therefore, should continue to improve overall employment conditions but in a healthier manner.

38. Domestic absorption is defined as the sum of private consumption, government consumption and fixed capital formation, all measured in constant prices. In 2010, the share of goods in private consumption was 55 per cent and the share of goods in government consumption was 38 per cent (the share of "compensation to employees" in government consumption was 62 per cent so that the share of goods could be takes as 38 per cent). And the share of goods in fixed capital formation is taken to be 100 per cent.

References

ADB (2012), *Asian Development Outlook 2012*, Manila: Asian Development Bank (Chapter 2)

Amsden, A. H. (1989), *Asia's Next Giant: South Korea and Late Industrialization*, New York: Oxford University Press

Arrow, K. J. (1962), "The Economic Implications of Learning by Doing", *Review of Economic Studies*, 29(3): 155-173

Azam, M. (2009), "India's Increasing Skill Premium: Role of Demand and Supply", Discussion Paper no. 3968, IZA – Institute for the Study of Labour, Bonn

Balakrishnan, P. (2006), "Benign Neglect or Strategic Intent? Contested Lineage of Indian Software Industry", *Economic and Political Weekly*, 41(36): 3865-3872

Balakrishnan, P. and M. Parameswaran (2007), "Understanding Economic Growth in India: A Prerequisite", *Economic and Political Weekly*, 47(27/28): 2915-2922

Banga, R. (2005), "Critical Issues in India's Service-led Growth", ICRIER Working Paper no. 171

Basu, K. and A. Maertens eds. (2012), *The New Oxford Companion to Economics in India*, New Delhi: Oxford University Press

Brandt, L. and T. Rawski (2008), *China's Great Economic Transformation*, New York: Cambridge University Press

Chanda, R. (2012), "Services-led Growth" in K. Basu and A. Maertens (2012), pp. 624-632

Chen, E. K. Y. (1979), *Hypergrowth in Asian Economies: A Comparative Survey of Hong Kong, Japan, Korea, Singapore and Taiwan*, London: Macmillan

Chenery, H. B. (1960), "Patterns of Industrial Growth", *American Economic Review*, 50: 624-654

Chenery, H. B. and M. Syrquin (1975), *Patterns of Development, 1950-1970*, London: Oxford University Press

Das, A., R. Banga and D. Kumar (2011), "Global Economic Crisis: Impact and Restructuring of the Services Sector in India", Working Paper no 311, ADB Institute, Tokyo

Dasgupta, S. and A. Singh (2005), "Will Services be the New Engine of Indian Economic Growth?", *Development and Change*, 36(6): 1035-1058

Dasgupta, S. and A. Singh (2006), "Manufacturing, Services and Premature Deindustrialization in Developing Countries: A Kaldorian Analysis", Research Paper no. 2006/49, UNU-WIDER, Helsinki

De Long, J. B. (2003), "India since Independence: An Analytic Growth Narrative" in D. Rodrik, ed., *In Search of Prosperity: Analytic Narratives on Economic Growth*, Princeton and Oxford: Princeton University Press

Dossani, R. (2012), "IT-enabled Services" in Basu and Maertens (2012), pp. 424-427

Eichengreen, B. and P. Gupta (2011), "The Service Sector as India's Road to Economic Growth", Working Paper no. 16757, National Bureau of Economic Research, Cambridge, Mass.

Eichengreen, B. and P. Gupta (2013), "The Two Waves of Services Sector Growth", *Oxford Economic Papers*, 65(1): 124-146

Galenson, W., ed. (1979), *Economic Growth and Structural Change in Taiwan*, Ithaca, NY: Cornell University Press

Ghose, A. K. (2012), "Employment: The Fault Line in India's Emerging Economy", *Comparative Economic Studies*, 54: 765-786

Hansda, S. K. (2002), "Services Sector in the Indian Growth Process: Myths and Realities", *The Journal of Income and Wealth*, 24(1/2): 80-94

Kaldor, N. (1966), *Causes of the Slow Rate of Economic Growth of the United Kingdom*, Cambridge: Cambridge University Press

Kochar, K., U. Kumar, R. Rajan, A. Subramanian and I. Tokatlidis (2006), "India's Pattern of Development: What Happened, What Follows?", *Journal of Monetary Economics*, 53: 981-1019

Kongsamut, P., S. Rebelo and D. Xie (2001), "Beyond Balanced Growth", *Review of Economic Studies*, 68(4): 869-882

Kotwal, A., B. Ramaswami and W. Wadhwa (2011), "Economic Liberalization and Indian Economic Growth: What's the Evidence?", *Journal of Economic Literature*, 49(4): 1152-1199

Kuznets, S. (1957), "Quantitative Aspects of the Economic Growth of Nations", *Economic Development and Cultural Change*, 5(4): 2-80

Kuznets, S. (1971), *Economic Growth of Nations: Total Output and Production Structure*, Cambridge, Mass.: Harvard University Press

Kwon, J. K., ed. (1990), *Korean Economic Development*, New York: Greenwood

Mehta, A., J. Phelipe, P. Quising and S. Camingue (2013), "Where have all the Educated Workers Gone? Services and Wage Inequality in Three Asian Economies", *Metroeconomica*, 64(3): 466-497

Murthy, N. R. N. (2012), "Software and Services Exports" in Basu and Maertens (2012), pp. 645-648

Nayyar, G. (2012), *The Services Sector in India's Development*, New Delhi: Cambridge University Press

Rakshit, M. (2007), "Services-led Growth: the Indian Experience", *Money and Finance* (ICRA Bulletin), February 2007

Rodrik, D. and A. Subramanian (2005), "From 'Hindu Growth' to Productivity Surge: The Mystery of the Indian Growth Transition", *IMF Staff Papers*, 52(2): 193-228

Sivasubramonian, S. (2000), *The National Income of India in the Twentieth Century*, New Delhi: Oxford University Press

Wallack, J. S. (2003), "Structural Breaks in Indian Macroeconomic Data", *Economic and Political Weekly*, 38(41): 4312-4315

World Bank (1993), *The East Asian Miracle*, New York: Oxford University Press

Young, A. (1928), "Increasing Returns and Economic Progress", *Economic Journal*, 38(152): 527-542

Veeramani, C. (2011), "Anatomy of India's Merchandise Export Growth, 1993/94 to 2010/11", *Economic and Political Weekly*, 47(1): 94-104

APPENDIX A: TABLES

A1: Share of services in GDP and level of development, regression results
(Dependent variable: % share of services in GDP)

Independent variable	*Regression coefficients*		
	2000	*2005*	*2010*
GDP per capita	0.204	0.171	0.199
Significance level	0.004	0.022	0.009
SX/X	0.249	0.254	0.244
Significance level	0.046	0.035	0.030
Constant	43.85	43.97	45.47
Significance level	0	0	0
R^2	0.303	0.219	0.290
n	35	36	33

Note: GDP per capta, measured in constant 2005 PPP Dollars, is indexed with the value for the Republic of Korea as 100; estimates of shares are based on data in current prices; SX/X is the share of services in exports.

Source: Author's estimates based on data from World Bank, World Development Indicators

A2: Services-industry relation, regression results
(Dependent variable: % share of industry in GDP)

Independent variable	*Regression coefficients*		
	2000	*2005*	*2010*
% share of services in GDP	-0.40	-0.51	-0.56
Significance level	0.005	0	0
Constant	52.91	60.15	63.74
Significance level	0	0	0
R^2	0.215	0.306	0.470
n	35	36	33

Source: Author's estimates based on data from World Bank, World Development Indicators

A3: Employment-output relation in services, regression results
(Dependent variable: % share of services in employment)

Independent variable	*Regression coefficients*		
	2000	*2005*	*2010*
% share of services in GDP	1.18	0.993	0.995
Significance level	0	0	0
Constant	-14.62	-3.62	-2.06
Significance level	0.207	0.785	0.886
R^2	0.550	0.339	0.397
n	31	36	27

Source: Author's estimates based on data from World Bank, World Development Indicators

A4: Shares (%) of sectors in GDP

	1980	*2000*	*2010*
China			
Agriculture	37.3	15.1	8.4
Industry	34.1	45.9	50.1
Manufacturing	25.8	32.1	32.9
Services	28.6	39.0	41.5
Indonesia			
Agriculture	25.1	15.6	13.2
Industry	37.4	45.9	41.1
Manufacturing	13.0	27.7	25.8
Services	37.5	38.5	45.7
Thailand			
Agriculture	19.9	10.3	8.3
Industry	30.1	44.4	48.7
Manufacturing	23.1	36.4	40.7
Services	50.0	45.3	43.0

Source: World Bank, World Development Indicators

A5: Share (%) of Services in GDP and in Employment, 2010

Countries	*Share (%) of services in GDP*	*Share (%) of services in Employment*
Austria	69.4	69.9
Belgium	77.6	75.3
Denmark	77.0	77.9
Finland	67.9	71.9
Germany	71.2	70.0
Japan	71.5	69.7
Netherlands	74.2	71.6
Sweden	71.8	77.7
United Kingdom	77.6	78.9
United States	78.8	81.2

Source: World Bank, World Development Indicators

A6: Wage-income per annum and wage per day, 2010 (Rupees)

	Average wage income per annum	*Average wage per day*	*Average mixed income per annum*	*Average years of education*	*Incidence of poverty (%)*
Employees					
Organised segment	201894	362		10.2	12.5
Unorganised segment	44359	107		5.3	35.4
Regular-formal		522		11.9	4.7
Regular-informal		174		8.5	17.2
Casual		96		3.7	47.5
Self-employed			133479	6.1	28.3

Source: Average wage-income per annum and average mixed income per annum are estimated by combining data on employment from the National Sample Survey of employment and Unemployment with data on factor incomes from the National Accounts Statistics. Average wage per day is estimated by using the data on daily-status employment from the National Sample Survey on Employment and Unemployment.

A7: Shares (%) in Services Employment/output

	Employment share		*Output share*	
	2000	*2010*	*2000*	*2010*
Traditional services	57.5	57.6	41.8	40.3
Modern services	6.8	10.5	24.3	37.6
Social services	35.7	31.9	33.9	22.1

Source: Author's estimates based on data from National Sample Survey of Employment and Unemployment and National Accounts Statistics

A8: Structure of Output and Employment (percentage distribution)

	1901	*1926*	*1946*	*2010*
GDP				
Agriculture	47.3	39.4	34.4	14.6
Industry	24.6	26.3	28.3	28.1
Services	28.1	34.3	37.3	57.3
Employment				
Agriculture	74.8	76.3	74.3	47.9
Industry	10.8	9.4	10.5	23.2
Services	14.4	14.3	15.2	28.9

Source: For the years 1900. 1925 and 1946, Sivasubramonian (2000), The National Income of India in the Twentieth Century, Oxford University Press, New Delhi; for the year 2010, author's estimates based on data from National Sample Survey of Employment and Unemployment (various rounds) and National Income Statistics

Appendix B: List of countries in the samples used for cross-country regressions

The core sample:

Argentina, Bangladesh, Botswana, Brazil, Chile, China, Costa Rica, Dominican Republic, Egypt. El Salvador, Honduras, Indonesia, Jordan, Korea (Republic), Malaysia, Mauritius, Mexico, Mongolia, Morocco, Nicaragua, Pakistan, Panama, Paraguay, Peru, Philippines, South Africa, Sri Lanka, Thailand

Additional countries in:

1. The sample for 2000: Colombia, Madagascar, Mali, Turkey
2. The sample for 2005: Colombia, Jamaica, Madagascar, Mali
3. The sample for 2010: Syria, Turkey, Uganda, Uruguay

Appendix C: Estimation of the contribution of domestic final demand to services growth

We start with the following identity:

$S = a.A + i.I + XS + CS$, where S, A and I are value added in Services, industry and agriculture, XS denotes value added in services exports, CS represents domestic consumption of services, a is services input per unit of value added in agriculture, and i is services input per unit of value added in industry.

Then:

$\Delta S = \Delta (a.A) + \Delta (i.I) + \Delta XS + \Delta CS$, where Δ denotes change over a period,

$\Delta S/S = \Delta (a.A)/S + \Delta (i.I)/S + \Delta XS/S + \Delta CS/S$

$= a.(\Delta A/A).(A/S) + i.(\Delta I/I).(I/S) + (\Delta XS/XS).(XS/S) + (\Delta CS/CS).(CS/S)$

We interpret A/S, I/S, XS/S and CS/S as initial values for the period under study.

Now, for the period 2000-10, we use the input-output table for 2006-07 to derive the following values:

$a = 0.075$ and $i = 0.165$,

and use the input-output table for 1998-99 to derive the share of value added in a unit of services exports as 0.692.

From National Accounts Statistics, we get the following values for the period 2000-10:

$\Delta S/S = 1.251$ [data in constant prices],

$\Delta I/I = 1.095$, $I/S = 0.545$ [data in constant prices],

$\Delta A/A = 0.250$, $A/S = 0.477$ [data in constant prices],

$\Delta XS/XS = 3.287$, $XS*(0.692)/S = 0.051$ [data in current prices].

So,

$(\Delta CS/CS).(CS/S) = 1.251 - (0.075).(0.250).(0.477) - (0.165).(1.095).(0.545) - (3.287).(0.051)$

$= 1.251 - 0.009 - 0.098 - 0.168$

$= 0.976$

$1.251 = 0.009 + 0.098 + 0.168 + 0.976$

$100 = (0.719 + 7.834) + 13.429 + 78.817$

$= 8.553 + 13.429 + 78.018$

For the period 1981-2000, we consider the input-output tables for 1979-80, 1989-90, 1993-94 and 1998-99 and use the average values for a and i:

$a = 0.041$, $i = 0.181$,

and use the input-output table for 1989-90 to derive the share of value added in a unit of services exports = 0.760

$\Delta S/S = 2.673$

$\Delta I/I = 1.914$, $I/S = 0.687$

$\Delta A/A = 0.838$, $A/S = 0.953$

$\Delta XS/XS = 5.049$, $XS*(0.760)/S = 0.031$

So,

$(\Delta CS/CS).\ (CS/S) = 2.673 - (0.041).\ (0.838).\ (0.953) - (0.181).\ (1.914).\ (0.687) - (5.049).\ (0.031)$

$= 2.673 - 0.033 - 0.238 - 0.157$

$= 2.245$

$2.673 = 0.033 + 0.238 + 0.157 + 2.245$

$100 = (1.234 + 8.904) + 5.874 + 83.988$

$= 10.138 + 5.874 + 83.988$

IHD WORKING PAPER SERIES
(NEW SERIES)

No.	*Authors*	*Title*
WP 01/2014	Ajit K. Ghose	India's Services-Led Growth
WP 06/2013	Gerry Rodgers, Sunil K. Mishra and Alakh N. Sharma	Four Decades of Village Studies and Surveys in Bihar
WP 05/2013	Sumit Mazumdar Alakh N. Sharma	Poverty and Social Protection in Urban India : Targeting Efficiency and Poverty Impacts of the Targeted Public Distribution System
WP 04/2013	Dev Nathan, Govind Kelkar and Shivani Satija	Witches: Through Changing Contexts Women Remain the Target
WP 03/2013	Shivani Satija	Violence Against Women in Rural Bihar- A case of four villages
WP 02/2013	Sheila Bhalla	Behind the Post 'Challenge to The Functional Efficiency of India's Established Statistical Institutions
WP 01/2013	Preet Rustagi, Dev Nathan, Amrita Datta and Ann George	Women and Work in South Asia: Changes and Challenges
WP 05/2012	Amrita Datta, Gerry Rodgers, Janine Rodgers and B.K.N. Singh	A Tale of Two Villages: Contrasts in Development in Bihar
WP 04/12	Janine Rodgers	Labour Force Participation in Rural Bihar: A Thirty-year Perspective based on Village Surveys
WP 03/12	K.P. Kannan	How Inclusive is Inclusive Growth in India?
WP 02/12	Sheila Bhalla	Notes on Land, Long Run Food Security and the Agrarian Crisis in India
WP 01/2012	Gerry Rodgers	Understanding Unequal Economic and Social Outcomes in Rural Bihar: The Importance of Caste, Class and Landholding
WP 03/2011	Dev Nathan and Sandip Sarkar	Global Inequality, Rising Powers and Labour Standards
WP 02/2011	Preet Rustagi and Rajini Menon	Gender Asset Gaps and Land Rights in the Context of the Asia-Pacific Region
WP 01/2011	D. Narasimha Reddy	NREGS and Indian Agriculture: Opportunities and Challenges

WP 03/2010	Gerry Rodgers and Janine Rodgers	Inclusion or Exclusion on the Periphery? Rural Bihar in India's Economic Growth
WP 02/2010	R Radhakrishna, C Ravi and B Sambi Reddy	Can We Really Measure Poverty and Identify Poor When Poverty Encompasses Multiple Deprivations?
WP 01/2010	Alakh N. Sharma	Political Economy of Poverty in Bihar: Nature, Dimensions and Linkages
WP 03/2009	Dev Nathan and Govind Kelkar	Markets, Technology and Agency: Indigenous People and Change
WP 02/2009	Aseem Prakash	Towards Understanding the Nature of Indian State and the Role of Middle Class
WP 01/2009	C Upendranadh and Rukmini Tankha	Institutional and Governance Challenges in the Social Protection: Designing Implementation Models for the Right to Work Programme in India
WP 06/2008	Dipak Mazumdar and Sandip Sarkar	The Employment Problem in India and the Phenomenon of the Missing Middle
WP 05/2008	Aseem Prakash	Social Conflict, Development and NGOs: An Ethnographic Study
WP 04/2008	Balwant Singh Mehta and Kerren Sherry	Wages and Productivity of Child Labour: A Case Study of Zardosi Industry
WP 03/2008	Sheila Bhalla	Scarce Land: The Cases of All India and West Bengal
WP 02/2008	T.S. Papola and R.P. Mamgain	Market Access to Small Primary Producers: A Study of Vegetable Growers in the Supply Chain
WP 01/2008	Preet Rustagi	Rural Child Labour Markets in India: Nature of Child Work Participation and Role of the Family
WP 03/2007	Alakh N Sharma	Flexibility, Employment and Labour Market Reforms in India
WP 02/2007	Preet Rustagi	Rural Child Work, Labour and Daily Practices: A Time Use Survey-based Analysis
WP 01/2007	R.P. Mamgain	Growth, Poverty and Employment in Uttarakhand
WP 04/2006	Sheila Bhalla	Common Issues and Common Concerns in the SAARC Region: Employment Generation and Poverty Reduction

WP 03/2006	Rajendra P. Mamgain and Balwant Singh Mehta	Employment and Earnings in Uttaranchal: Trends and Policy Issues
WP 02/2006	Preet Rustagi	Women and Poverty: Rural-Urban Dimensions
WP 01/2006	Dipak Mazumdar and Sandip Sarkar	Growth of Employment and Earnings in the Tertiary Sector, 1983-2000
WP 05/2005	Sheila Bhalla	Recent Developments in the Unorganised Rural Non-Farm Sector
WP 04/2005	Preet Rustagi	Challenges for Economic Empowerment of Women In South Asia
WP 03/2005	Alakh N Sharma	Agrarian Relations and Socio-economic Change in Bihar
WP 02/2005	Preet Rustagi	The Deprived, Discriminated and Damned Girl Child: Story of Declining Child Sex Ratios in India
WP 01/2005	Dipak Mazumdar and Sandip Sarkar	Agricultural Productivity, Off-Farm Employment and Rural Poverty: An Analysis Based on NSS Regions

The Institute for Human Development (IHD), a leading centre for studies on labour markets, livelihoods and human development, aims to contribute to the building of a society that fosters and values an inclusive social, economic and political system, free from poverty and deprivations. Towards achieving its goal, it engages in analytical and policy research, teaching and training, academic and policy debates, networking with other institutions and stakeholders, and publication and dissemination of the results of its activities. The major themes of current work of IHD are: poverty, inequality and well-being; labour markets and employment; social protection; women and children; marginalized social and economic groups and lagging regions; and governance and institutions for human development.

Institute for Human Development
NIDM Building, IIPA Campus, IP Estate, New Delhi - 110002
Phones: + 91-11-23358166/23321610 • Fax: +91-11-23765410
Email: mail@ihdindia.org • Website: www.ihdindia.org