

## India's Software and IT Services Sector: An Elite Enclave or a Boon to Development?

by Grace Kite, Department of Economics, SOAS

Debate has raged on the development impact of India's Software and Information Technology Services (SWIS) Sector since it began 30 years ago.

The reigning consensus argues that it has been an enclave sector, providing employment to elite, university-educated employees and serving primarily the interests of foreign firms. Thus, the strategic policy support that the sector has received from the government since the early 1990s is seen as misguided.

Stressing especially the sector's recent growth and interaction with the Indian economy, this Development Viewpoint debunks the consensus view (see Kite forthcoming [a]). It shows, for instance, that this sector's overall contribution to the Indian economy is now over twice as large as its share of GDP. This total includes its forward linkages to other firms and its overall demand stimulus.

Virtually non-existent in the early 1980s, the Software and IT Services Sector in India has grown rapidly. In the financial year 2010-11, it produced US\$ 60 billion of output, accounted for a fifth of the country's exports and employed 2.5 million employees. By far, it is the biggest developing-country exporter of software and IT services.

### The Consensus Gloom

Yet the prevailing literature on this sector has been profoundly pessimistic about its development impact. Generally, analysts have argued that it has contributed to economic dependency and reproduced and reinforced backwardness.

Among the primary claims are that it sells too much of its output to developed countries, has few forward linkages to Indian firms, uses few inputs from the domestic economy, neglects selling to domestic customers and has limited employment effects (e.g., see D'Costa 2003).

In this view, India's biggest loss is the foregone potential for improvement in output and productivity. If the sector sold more SWIS in the domestic economy, these improvements would accrue to India's firms. As it is, because of the sector's preoccupation with exporting to the rich world, these benefits go abroad.

An additional claim is that India has suffered a substantial opportunity cost from having its skilled (English-speaking and university-educated) workers producing mainly for foreign customers. Moreover, there has been a severe 'brain drain' of such workers once they have developed their skills in India. An estimated 10-15% of them leave each year to take up jobs in rich countries.

Overall, this is clearly a gloomy view of the sector's impact on India's economy. If true, it also calls into serious question the critical support that the Indian government has provided to the sector. Nevertheless, the government continues to provide SWIS with substantial support in various forms, from the provision of infrastructure to the exemption of taxes.

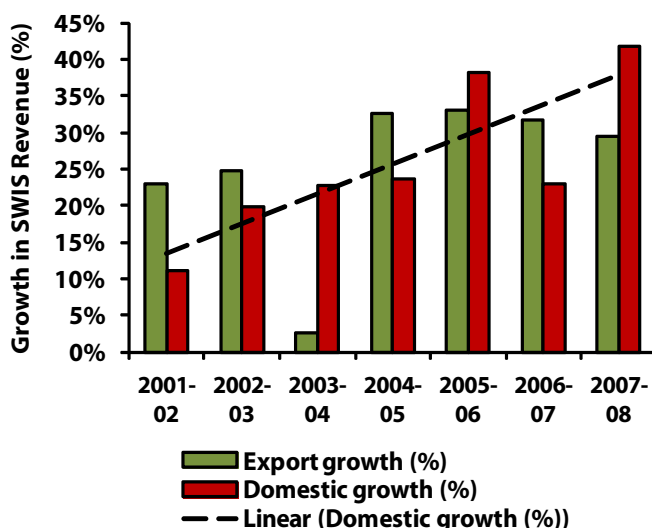
### Recent Domestic Successes

But does the prevailing gloom match the current impact of the sector? Extensive evidence on the sector's progress during the 2000s clearly contradicts the consensus view.

First, how has the domestic market for India's software and IT services fared? Over 20 years through 2010-11, domestic sales have registered a compound annual rate of growth of over 27%. And since 2005-6, their rate of growth has significantly accelerated, so that it now equals the rate of growth of the sector's export revenue. The increase in domestic revenue has averaged US\$ 1.7 billion per year since that structural turning point.

Figure 1 shows that between 2001-2 and 2007-8 the SWIS sector's sales performance in the domestic market dramatically improved, relative to both its own historical trend and that of export revenue. Hence, the impact of the sector's domestic forward linkages is now clearly discernible. This is the first compelling reason for greater optimism about the sector's development impact.

Figure 1: Growth in SWIS Revenue, 2001-2 to 2007-8



Sources: Kite, forthcoming [b]

A recent research paper (Kite forthcoming [b]) reinforces a more positive assessment. It examines the SWIS sector's effect on the output and productivity of the domestic sectors (such as financial services, communications and manufacturing) that buy its services. This paper estimates that between 2005 and 2008 the impact of the SWIS sector's domestic forward linkages contributed an average 1.3 percentage points per year to the country's total GDP growth. This represented, on average, about 15% of the total.

## Backward Linkages

What about the SWIS sector's backward linkages to other Indian firms? Estimates of this impact have usually included the effect of SWIS, IT enabled services and business process outsourcing (ITES-BPO) taken together. In 2005-6, the data suggest that 84% of their combined inputs were purchased domestically.

Taking the direct effect of such purchases plus the indirect impact of the demand generated thereby for other products in the economy, estimates suggest that for every rupee spent on inputs by the SWIS and ITES-BPO sectors in 2005-6, another 0.6 rupee was generated somewhere else in the Indian economy. These combined direct and indirect effects accounted for 2% of India's GDP.

What about the domestic effect of the consumer spending of SWIS workers? Estimates of this additional demand effect, both direct and indirect, have ranged between 0.6% of GDP (for 2005-6) to 0.75% of GDP (for 2008-9).

An additional effect of the SWIS sector worth considering is its overall employment impact, both directly and through backward linkages. Recent evidence on this impact suggests that it is misleading to assume that the sector has created only high-skilled jobs.

## The Employment Impact

Contrary to common expectations, credible research suggests that the SWIS sector does contribute to generating employment for low-skilled workers, particularly in catering, housekeeping, construction, security and transport (see NASSCOM and CRISIL 2007). In 2005-6, for example, it was estimated that the SWIS sector (together with ITES-BPO) contributed indirectly to the creation of 3.64 million non-IT jobs.

This total implies that for every worker employed directly in these IT sectors, jobs were created for an additional two workers in the Indian economy as a whole. The majority of these additional workers had much lower skill and education levels than those in the IT sectors.

The tight labour market for SWIS workers has also led to the rapid rise of educational institutions catering to the employment needs of this sector. India's colleges and universities now turn out 300,000 technical graduates a year, more than any other country in the world except for China. Hence, employment in the educational sector has been significantly expanded.

## Summarizing the Impact

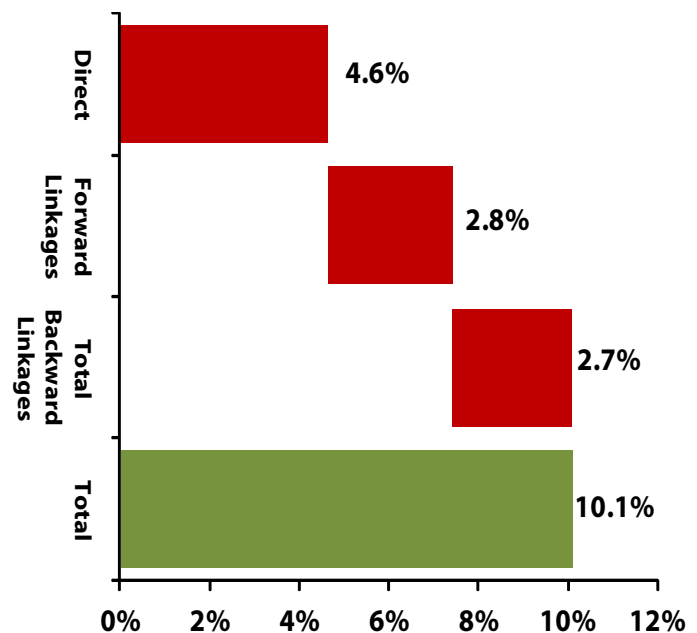
In sum, India's Software and IT Services Sector can no longer realistically be characterized as an isolated export enclave generating only negligible benefits throughout the entire economy.

This Development Viewpoint has documented that in addition to the increase in the sector's *direct* impact on India's economy, it also now generates substantial benefits through both forward and backward linkages.

Drawing on 2005-6 data, Figure 2 summarizes the total impact of the sector. It shows that the sector's direct impact contributed 4.6% of India's GDP. The impact of the sector's forward linkages contributed another 2.8% of GDP. And the effect of its backward linkages contributed an additional 2.7% of GDP.

In total then, India's Software and IT Services Sector accounted for 10.1% of India's GDP in 2005-6. Thus, its total impact was more than double the size of its own output (i.e., 4.6%).

**Figure 2: Conservative Estimate of the Total Contribution of the IT Sector to GDP in 2005-6**



Source: Kite, forthcoming [a]

There are good reasons to believe that these figures are significant under-estimates. The first reason is that the growth of the sector, as previously stressed, has been particularly rapid since 2005-6. Secondly, these estimates ignore the informal SWIS sector (namely, the effects of those firms not registered with the Indian government).

Lastly, these estimates do not account for *indirect* forward linkages, which are likely to be substantial. For example, if software and IT services help to improve health services or to enhance the provision of education, the indirect effects on labour productivity are likely to be significant.

Thus, in general, it is fair to state that 30 years after its inception, the Indian Software and IT Services Sector is a leading sector that is having a positive effect on the country's economic development.

The additional implication is that the government's industrial strategy of continuing to nurture this sector's growth up to this day has been amply justified. The public investment in this sector appears now to be paying back a handsome development dividend that continues to increase in importance.

## References:

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