

China's software struggle: five lessons from the Indian experience



China's remarkable state-led growth and rapid industrial development continues to beguile and amaze. It has brought plaudits from across the world and has even spawned a new development model – the Beijing Consensus. But away from the headlines there is one industry in which state intervention appears to be having little or no effect. An internationally competitive software services industry centered on large, domestic firms – prioritized by the Chinese Communist Party since 2000 and targeted accordingly – remains elusive. India's success in the same industry, however, provides several pointers for Chinese policymakers as to how their current software struggle could be overcome.

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DRAWING ON EVIDENCE from the successful development of the software services industry in India, this article identifies five policy lessons that may hold the key to China eventually succeeding in its bid to become a software services superpower.

Lesson 1: FDI is an outcome, not initiator, of software success

At the centre of Beijing's software strategy is Foreign Direct Investment (FDI) in software services and also IT-enabled services (ITES), such as call-centers. The Chinese government believes such FDI will act as a catalyst for the growth of a wider and more advanced software services industry. Accordingly, it has sought to attract this FDI via the construction of an array of cyber-parks, replete with advanced telecommunications infrastructure and an array of subsidies and tax breaks for would-be exporters of software services and ITES.

The rationale for this strategy is the belief that IT-related FDI in cyber-parks ignited the rapid growth of the Indian software services industry. The belief is based on a 2001 report from the World Bank-affiliated International Finance Corporation titled *Leapfrogging? India's Information Technology Industry and the Internet*. The report, which has influenced IT policies from Beijing to Nairobi, asserts that "software exports, the earliest harbinger of a more widespread IT expansion, began only in 1985 when Texas Instruments established its subsidiary in Bangalore."¹

The problem is that this claim is erroneous. Software exports from India by local firms began in 1974, over a decade before Texas Instruments' Bangalore subsidiary was established, and facilitated by the Indian state's 1972 Software Export Scheme. Moreover, while Texas Instruments was certainly the first foreign transnational

corporation (TNC) to establish a software development centre in the country, IT-related FDI only began arriving in India *en masse* from 2000 onwards, once the success of Indian software firms had unequivocally demonstrated the viability of the country as an export platform for software services. As IT-related FDI was an outcome of India's software success, and not its initiator, Chinese policymakers need to re-evaluate the importance they give it.

Lesson 2: The domestic market is the spring board to export success

As the software services market in China is nascent, while the global software and ITES market is huge, exports have been seen to offer a more tantalizing and easier trajectory to growth. However, this policy position ignores the fact that an important precondition for the export success of Indian software firms was their earlier experience of serving the domestic market. The first Indian firm to export software services, Tata Consultancy Services (TCS), won its initial 1974 software export contract with the Institutional Group and Data Company, on the back of its experience of software provision for 15 Indian banks. Similarly, Computer Maintenance Corporation (CMC) won highly lucrative contracts with the London Underground and various P&O ports around the world on the basis of its earlier experience in major infrastructure-related software projects in India. Moreover, TCS and CMC are not anomalies. All other major Indian software firms also benefited from experience derived from domestic software service provision in some way or other. Beijing therefore needs to consider how China's internal market can be better utilized to enhance the competitiveness of local firms.

Lesson 3: Call-centers don't lead to higher-end software service exports

In terms of subsidies and tax breaks, the Chinese state has shown no distinction between call-centers serving Western customers and firms engaged in the export of software services. This is despite the former being little more than a glorified production line (white-collar sweatshops) and the latter being a higher value-added sector. The reason for this lack of discrimination is the assumption – based on Beijing's understanding of the Indian experience – that call-centers and other ITES provide the first step on a ladder to more advanced software service exports.

Again, this assumption bears no resemblance to how the software services industry developed in India. First, ITES exports via call-centers began at the turn of the century, more than 25 years after TCS first exported software from the country. Therefore call-centers, such as General Electric's New Delhi call-center, and Indian customer service companies such as Daksh, EXL and Spectramind who provided third party services for firms such as Amazon and Citibank, could not have been the first step in a transition to a software services industry. Moreover, these call-centers have not evolved into higher-end software services. The Indian third party customer service providers, for example, never developed into software service firms. Rather, most were acquired by software service firms, as such firms sought to integrate call-centers within their widening services portfolio.² And as overseas firms have shown a marked preference to keep higher-end services in their country of origin, the India-based TNC call-centers have also not witnessed any upgrading in the services they export. Thus, given that call-centers serving Western customers are unlikely to develop into units engaged in higher-end software service exports, Chinese policymakers need to reconsider whether such firms should still be entitled to the same benefits as companies engaged in the export of software services.

Lesson 4: Conducive market conditions are key to any rapid transformation of software firms into major industry players

The Chinese state has focused on getting its internal conditions 'right' with the assumption this will lead seamlessly to the growth of large, internationally competitive Chinese software service firms. The Indian experience, however, suggests that facilitative market conditions also play a key role in any rapid transformation of small software firms into significant industry players.

Most importantly, major Indian software firms such as TCS, Infosys and Wipro could not have transformed from niche operations to industry leaders were it not for the spectacular growth of the US software services market in the 1980s and 1990s, due to both the PC revolution and the growing phenomenon of firms outsourcing their non-core operations. In addition, the provision of basic software services to medium-sized businesses was relatively new and commercial relationships had not yet been cemented. Moreover, this was a market segment generally neglected by the major software service firms. As such, the market was wide open and provided an easy entry point for small, ambitious but well-run software service firms.

Finally, Indian software firms faced little competition in tapping this rapidly expanding and relatively open market. Advances in telecommunications allowed – in theory – firms from all over the developing world to undercut Western rivals by providing services by remote delivery from their home country. However, due to the Indian government's pioneering initiatives in developing a software industry, the only firms in the developing world with the capabilities and contacts to effectively exploit this opportunity were from India. It was these highly conducive market conditions that provided the basis for the best-managed Indians software firms to rapidly expand and transform themselves into major international players. China's timetabling regarding the growth of large domestic software service firms must, therefore, take into account market conditions.³

Lesson 5: There are hidden, and counter-intuitive, costs that come with software services success

The Chinese state assumes that the development of a thriving software services industry will boost IT diffusion (understood as the uptake of information technology by firms, schools and other institutions). This view is, however, overly simplistic. In poor countries it is important to appreciate that software piracy is the chief mechanism by which IT diffusion occurs. Moreover, the uptake of IT increases productivity and competitiveness for domestic firms, making IT diffusion an important facilitator of development. And so, governments with developmental agendas have tended to turn a blind-eye to software piracy, which can be a significant impediment to attracting IT-related FDI, or even a hindrance to the development of a software industry in general. There is, therefore, policy tension between promoting the development of a software services industry on the one hand and facilitating IT diffusion and its developmental returns on the other.

In India, this tension was resolved in favor of further developing the software services industry. Thus, the Indian government in New Delhi and the state governments with major IT hubs (e.g., Karnataka and Andhra Pradesh) have clamped down on software piracy with deleterious effects on IT diffusion. The software services industry in India was thus booming, but the country's international ranking in IT diffusion was plummeting.⁴ And within India, states with major Indian software hubs have seen their IT diffusion rankings fall *vis-a-vis* other Indian states with no software hubs.⁵ As such, Chinese policymakers need to acknowledge that success in software services can come at the expense of IT diffusion and the government needs to have an open and honest debate regarding the potential trade-offs involved in becoming a software services superpower.

From lessons to plans – a conclusion of sorts

For China to replicate Indian success, and also avoid or limit the costs that have come with it, a much closer reading of the Indian experience in software services is required. Only by understanding the historical, institutional and technological conditions by which the software services industry developed in India, can the appropriate lessons be drawn and a policy framework, specifically suited to the Chinese context, be devised.

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Notes

- 1 Robert Miller. 2001. *Leapfrogging? India's Information Technology Industry and the Internet*. Washington D.C.: International Finance Corporation, p.15.
- 2 For example, Spectramind was acquired by Wipro in 2002 with Daksh being purchased by IBM two years later.
- 3 These conditions have long since dissipated. The market has matured and major software service firms have started to concentrate on the lower-end market and have developed close relationships with clients. Moreover, as a result of the success of the Indian software services industry, there are now a myriad of developing country firms competing for contracts and destinations clamoring for investment.
- 4 United Nations Commission for Trade and Development (UNCTAD), <http://tinyurl.com/bnjzpef> (accessed 1 December 2012).
- 5 Bhubunandini Das. 2010. 'Across Indian States: Diffusion and Determinants of Information and Communications Technology,' PhD Workshop, Chennai, 19 March, <http://tinyurl.com/bszjakj> (accessed 1 December 2012).