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**A Comparison of the
Industrialization Paths for Asian
Services Outsourcing Industries,
and Implications for Poverty
Alleviation**

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Abstract

This paper examines three software and/or information technology enabled services (ITES) industries—two in the early stages of development (in the People's Republic of China [PRC] and the Philippines) and one mature one (in India). Being latecomers to offshoring work, the PRC and the Philippines have developed this industry in cooperation with multinational enterprises (MNEs). PRC firms have worked with and upgraded within MNEs' value chains within the PRC market, while the Philippines has relied on MNEs to come in and set up facilities, with domestic firms setting up facilities where lower (knowledge) barriers to entry prevail. The paper also explores the ITES industries' implications for economic growth and poverty reduction. ITES industries can contribute to overall economic growth and exports, but due to their small size, will generally tend to have more observable impacts on the cities in which they are located. From the limited case data available, it appears that the ITES industries impact on overall employment and other economic sectors to varying degrees, relative to other sectors. As these industries do not help the more impoverished or less educated, they cannot be said to be a solution for the less employable or impoverished, let alone to the problem of rural poverty.

JEL Classification: L52, L86, O14

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1. INTRODUCTION

This paper will introduce the different developmental experiences of the People's Republic of China (PRC), the Philippines, and India in software and services outsourcing, and will provide a discussion of their implications for economic growth and poverty reduction in these countries. The software industry has been considered in many quarters to be the vanguard of a global trend toward the outsourcing of services by developed regions and the development of new service sectors conducting that outsourcing work within developing regions. In this paper, software and information technology (IT)-enabled services (ITES) outsourcing industries will be referred to as IT services industries.

1.1 The Beginnings of Software Outsourcing

In a way, services outsourcing has been going on for decades. The outsourcing of services started domestically in the United States (US) with software; in particular when information systems were "outsourced" from large enterprises to "providers." Developing countries like India only got involved in this type of work later (in the 1980s), early on only augmenting the labor forces of US-based companies. Eventually, this "on-site" work was transferred off site (or "offshored") to India, as information technologies and infrastructure enabled the work to be done at a distance, and in lower-cost, remote locations.

In addition to India, a number of other countries show promise in being offshoring or outsourcing locations. While outsourcing usually denotes moving work from the firm to outside its boundaries, but not necessarily offshore, from this point on, outsourcing and offshoring will be used interchangeably to denote work that is moved offshore, if the outsourcing is clearly contextualized as being to offshore locations. These include the PRC, the Philippines, and, to some extent, Viet Nam and Sri Lanka (in Asia), as well as Brazil and Russia. The two Asian countries that have recently seen some successful developments in outsourcing are the PRC and the Philippines. However, as we will show, for the PRC the outsourcing generally follows the original US model—outsourcing of work from domestic (PRC) companies (called "clients") to other locally based (foreign and domestic) enterprises (called "providers"). Typically, outsourcing locations are developing countries with large surplus low-wage and high-quality labor pools. Pockets of outsourcing do exist even in higher wage countries such as Malaysia and Singapore.

In Section 2, the Indian, PRC, and Philippine cases will be examined. Given India's seeming dominance in IT, one issue of interest is how the other two countries "emerged," as well as how their paths varied from one another. The factors that caused this "emergence" of industry (as opposed to those factors that affect the growth and scaling of the industry) will also be identified. The Philippine and PRC experiences will be compared to that of India where possible in order to draw policy implications. Section 3 will examine the economic and equity implications of the ITES industries in these three countries, and discuss, among other elements, employment, linkages within the economy, and the implications for poverty reduction.

1.2 Major Dimensions of Industry

Table 1 illustrates the nature and relative strengths of all three selected countries' industries. While India's industry dwarfs those of both the PRC and the Philippines, the industry has a place in each country's development strategy, be it overweighted (as in the India) or part of a balanced portfolio of industries (as in the PRC). In 2006, the PRC's IT services' share of total exports was just 3.3%, as compared with India's 26.3% and the Philippines' 2.5% (Deutsche Bank Research 2009). The Philippine business services' (which includes IT services) share of gross domestic

product (GDP) rose from 1.5% in 2004 to 2.1% in 2008, while the Indian IT services equivalent went from 1.2% of GDP in 1998 to 5.8% in 2009; a nearly 500% increase in 11 years (National Association of Software and Service Companies [NASSCOM] 2009).¹

Table 1: Basic Characteristics of the ITES Sectors in India, the PRC, and the Philippines

	India	PRC	The Philippines
Sectoral focus	Balanced between software and BPO	Largely software services for MNEs in the PRC, some BPO (to Japan)	Largely call centers, some BPO and software
Ownership	Domestic firms	Domestic firms	Multinational firms
Market focus	English-speaking	Japan and Korea	English-speaking
Size (employees)	2.23 million (2008)	1.42 million (2009)	435,000 people (2008)
Revenue (2005/2006)	US\$13.5 billion (2005)	Software services outsourcing of US\$0.3 billion in 2 nd qtr, 2006 (out of total domestic IT market of US\$1.5 billion)	US\$2.4 billion (2005)
Revenue (2008)	US\$71.7 billion (2008)		US\$6.1 billion (2008)

BPO=business process outsourcing, IT=information technology, ITES=IT-enabled services, MNE=multinational enterprise, PRC=People's Republic of China, US\$=United States dollar.

Sources: PRC: Organisation for Economic Co-operation and Development (2007) (based on Analysys data), *People's Daily* (2010); India: National Association of Software and Service Companies (NASSCOM (2007a, 2009, 2010); Philippines: Congressional Planning and Budgeting Department (2009) (note: based on Business Processing Association of the Philippines data).

Table 1 also highlights the three dimensions that characterize an industrial model of development: ownership (of firms), sectoral orientation, and market focus.

Ownership: The first dimension is the ownership of firms, which conveys information about the competitive advantages and strategies of firms. A more important finding of this study is the observation that multinational enterprises (MNEs) play substantial but different roles in different countries' industries, as will be shown in the cases of the PRC and the Philippines. In the case of the PRC, while domestic firms are ostensibly trying to develop along the lines of India, MNEs also play a role in supporting the growth of domestic firms. In the case of the Philippines, it is primarily MNEs that are creating outsourcing facilities, while domestic firms have tended to be much more limited in number and capability.

Sectoral orientation: The second dimension is the nature of the industry's clients' sectors, for example, software services or ITES, which includes: (i) business process outsourcing (BPO) (which may involve work from an array of other sectors), (ii) call centers, and (iii) research and development (R&D) (or engineering) services. India started out primarily in software but has broadened its scope to include all manners of outsourcing, while the Philippines started out mainly in call centers, but is gradually broadening its capacity to encompass a somewhat more balanced industrial structure containing other ITES sectors and software. As with India, the PRC also started out in software outsourcing and is growing its business process work, but the PRC is doing so in a more limited way. Invariably, each country has broadened its sectoral composition to include outsourcing in multiple sectors.

Market focus: The third dimension has to do with market focus. India and the Philippines have focused primarily on exports. India is gradually developing a growing domestic sector, while the Philippines has had to contend with being a late mover. Understanding these differences will help

¹ The PRC's export of IT services was reported to account for about 1.2–1.4% of GDP in 2006, but the data for both India and the PRC were reported to be circumspect (Organisation for Economic Co-operation and Development 2006).

us understand how other countries, such as the PRC and the Philippines, can still succeed in these sectors.

1.3 Factors Explaining Why and Where Outsourcing Occurs

From a developmental policy perspective, as well as from the viewpoint of individual firms, the important issues are which factors dictate the formation of an outsourcing industry, and whether these factors and the “outsourcing model” they comprise vary from country to country. There is already a broad literature on MNE location behavior containing studies on the software industry. The breadth of possible explanatory factors and conditions include factor-based comparative advantage (or “factor advantages”), such as labor at the national and regional levels, as well as other firm-level sources of competitiveness and capability. The actions of government and foreign and domestic firms, as well as the relations between them, have also helped the growth of these industries.

Three main types of factors can be defined that influence the outsourcing industry’s pattern of development (including the location of the work and the emergence of domestic firms): (i) factor advantages, (ii) firm capabilities, and (iii) the business environment (including the role of government policy and business opportunities). These, respectively, (roughly) equate to the key elements behind various software industries’ development, as suggested by Arora and Gambardella (2006): (i) comparative advantage (or what we term factor advantages), (ii) firm competencies, and (iii) opportunities.

Factor advantages: This first type of factor, the advantage of labor supply conditions, has been clearly identified in studies of investment patterns as well as of industrial export competitiveness, including those that relate to software outsourcing investments (Arora et al. 2001; Arora and Gambardella 2006; Dossani and Kenney 2003; McKinsey Global Institute 2003). Together, many of these studies support the common hypothesis that resources, such as labor costs and supply, are critical to the choice of location that the work is to be outsourced to. This rationale for foreign investment could be termed “resource-seeking” behavior in the conventional international business vernacular, resulting in many MNEs entering lower-wage countries like the PRC, countries in South East Asia such as Malaysia, the Philippines and Singapore, and India. The outsourcing done by foreign MNEs’ shared services facilities accounts for on the order of about 10% of the Indian industry’s total, but is a much larger contributor to the Philippine IT industry’s growth.²

Firms’ capabilities: The second set of factors involves firms’ competencies and strategies. Using this as a lens, industrial development can be understood to be the result of how individual firms develop their capabilities. In India, the accounts of how early firms succeeded through the creation of dynamic capabilities are by now a part of the industry’s history (Athreye 2005). In fact, most studies on outsourcing tend to define the upgrading process as a simpler form of strategy that relates to how the process and knowledge capabilities of firms are increased. Many firms use the Software Engineering Institute’s Capability Maturity Model as a proxy for capability (see for example, Krishnan et al. [2000]).

Business environment: This brings us to the third type of factor: the business environment (specifically, the business opportunities presented to firms). It is worth pointing out that India’s early start gave its firms an unparalleled “blue sky” (i.e., virgin and unrestricted) opportunity for developing their capabilities, and therefore, India’s ITES industry as a whole. While outsourcing opportunities continue to grow, India’s advantages are by now, according to some observers,

² Authors’ estimate based on interviews and statistics from India’s National Association of Software Services Companies (NASSCOM) (<http://www.nasscom.com>).

“locked in” by virtue of its firms’ scale and depth of capability. We will illustrate how more countries are taking advantage of opportunities.

A second aspect of the business environment that may impact outsourcing patterns is the government (though it is more known for fostering new heavy industries and the electronics industry). The literature that has a bearing on this factor is what might be termed the literature on political economy. There has historically been a very rich literature on the East Asian electronics sectors (for example, Amsden [1989] and Hobday [1995]). The government’s impact on the pattern of industrialization in software was shown in early studies of India by Heeks (1996), and studies of India and Brazil by Evans (1995). The conventional wisdom, highlighted by studies of the Indian software industry, is that the government had less of a direct role to play. While the role of the government is significant in infrastructure and education, it is not perhaps as integral to firm formation for services outsourcing as it was in the electronics sectors of newly industrialized countries such as Taipei, China and Singapore.

A third aspect of the business environment could be the industry level, in terms of what a lead MNE firm or cluster might provide to other “follower” MNEs looking to enter a particular country. The account of how Texas Instruments opened the door to direct MNE software sector investment in India suggests that this kind of leadership or demonstration effect exists (Patibandla and Peterson 2002). This is further illustrated by what recent firms like General Electric, did for R&D services (Tschang, Amsden, and Sadagopan 2003). This is not always the case where strong domestic firms exist. For instance, more recently, domestic firms did much to promote the BPO sector (Dossani and Kenney 2003). This paper will not focus on clusters or the government, however, as the cases are explored, it will be useful to examine whether these three sets of factors help to frame the factors highlighted in the following sections as being responsible for industrial success.

2. OUTSOURCING IN THE PRC AND THE PHILIPPINES, AND A COMPARISON WITH INDIA

This section of the paper focuses on the process by which new industries emerge. The question of how countries other than India are succeeding in developing outsourcing industries will be addressed. In the two cases being explored (the PRC and the Philippines), this is done through the involvement of MNEs. By focusing on the firm level, a more complete explanation of how industrialization occurs than is possible by looking only at what happens at the national or industry level can be provided. Individual firms’ experiences might actually be highly differentiated from one another, even when they seemingly enter the same sectors, since they may focus on different parts of the value chain within a given sector (Athreye 2006). And yet, there is some manner of convergence among the firms. Furthermore, identifying ownership patterns illustrates how countries may take different paths to development. In the case of countries with sectors disadvantaged by limited resources and size, the composition of their industries tend to be more MNE-led (as has been the case in the Philippines). In the case of India, and to some extent the PRC, the focus has been on domestic firms, though MNEs have played a role separate from domestic firms in India, and have played a formative role as clients for the PRC’s domestic firms. Thus, MNEs can shape different countries’ outsourcing industries in at least two different ways.³

³ While it will be challenging to integrate the diversity of factors outlined above into a single integrated theory, common factors can be highlighted in an effort to create an “eclectic-type” framework not unlike Dunning’s (1988) ownership, location, internalization (or better known as OLI) framework for international business strategy.

2.1 Why Examine the PRC and the Philippines?

While many countries by now possess at least a few firms that perform software or BPO outsourcing, the PRC and the Philippines are often mentioned as potential contenders to India in this arena, and both countries have the human resources, numbers of firms, and growth rates to potentially contend with India, at least in certain IT industry sectors. What will be examined in this paper is to what degree each country's model of service industry development has varied from that of India's, both in terms of how the industries have developed, and the nature of their ownership and other structures (e.g., the relationships between the different types of firms).

The PRC represents a different aspect of industrial development from India's, shaped largely by its domestic market-focused industry. By virtue of its huge domestic market and skills base, the PRC has the greatest chance of developing a software industry that has the two legs—domestic and foreign—proposed by Schware (1992) as a possible balanced strategy. The PRC's government has a strong technology policy, which includes software industry development. The PRC is known for its software expertise in terms of individual skills and abundance of manpower, and its domestic market for IT “substitutes” for exports as an opportunity. The PRC has designs on exports as well. The Philippines is developing strengths in both BPO and call centers. Most of these centers are MNE-owned, and there is seemingly little government intervention. Even early on, the Philippines ranked sixth out of 25 countries in a study on its attractiveness as an offshoring location (A.T. Kearney, 2004).

The PRC's college workforce is large by almost any measure, with plans for 200,000 software graduates alone each year, according to reports in 2005. A news report noted that the outsourcing industry recruited 690,000 employees in 2009 (*People's Daily* 2010). The Philippines, one of the largest English-speaking countries in the world, had 387,000 university graduates in 2003/4, of which 86,000 were IT, math and engineering-related, and 101,000 were business and commerce related (International Labour Organization 2009). In this broad sense, the PRC is unlike most other countries due to its huge domestic demand and Chinese language orientation, while the Philippines is similar to many other countries besides India in its initially possessing pockets of strength in BPO and call centers.

Patterns of Growth in the PRC and Philippine Outsourcing Industries

Industry emergence revolves around the factors that drive industry location behavior and growth. In the case of the PRC, the firms studied were largely domestic firms, so the focus was somewhat on the origins of the firms and how they have upgraded themselves technologically through their work with MNEs. In the case of the Philippines, because the MNEs themselves are directly setting up shared services facilities, the focus was on the decision-making processes involved in choosing the facility location (and the factors influencing them).

Approach

This section of the paper focuses primarily on software services firms in the PRC, and BPO and other ITES firms in the Philippines. Appendix 1 shows a broad outline of the sample of firms from both countries (pseudonyms have been used to mask the actual names of firms). In the rest of this paper, a combination of observations will be reported, based on personal interviews conducted with companies in the PRC, the Philippines, and India, as well as secondary data. Given that the goal is to outline a model that can be compared with that of India, the following section will begin with a summary of the Indian case.

2.2 India

The Indian software industry now commands a large proportion of the world's attention, and many Fortune 500 companies are clients of Indian software firms. India's head start, and in particular its firms' strengths and scale, place it far ahead of most other countries' firms in terms of their ability to perform outsourced tasks on everything from software to BPO (including accounting and financial functions) to call center work. India is by now the undisputed leader in both the software services and ITES sectors (which include call centers and BPO). While the growth of software services took place first, it was the BPO and call center work that broadly cemented India's place in the newly industrializing world. While the R&D services sector has existed since the beginning, it has been slower to take off and has only become significant in recent years.

As the primary beneficiaries of the global software-related outsourcing trend, India's software and ITES sectors have been growing rapidly. In 2005, the growth rate was 32%, which reflects not only a scaling up of capability, but also a deepening of capability and increased value added. Software and services grew by 27% in 2005, reflecting the maturing (i.e., filling out of work opportunities) of the sector, while "ITES-BPO" grew by 49% (reflecting the enormous opportunities in the sector), and the domestic market grew by 25%. Software services exports were US\$12 billion in 2005, ITES-BPO exports were US\$5.2 billion, and the domestic market was worth US\$4.8 billion.⁴ At the same time, India's software firms and their processes continue to mature. By the mid-2000s, well over 50 firms had attained Capability Maturity Model level five, the highest level of process certification. The total ITES-BPO industry was estimated to have reached US\$71.7 billion in 2008, and was estimated to account for 5.8% of India's GDP. Software and services export revenues accounted for about US\$47 billion of this, and have grown at about 16–17% over the past year (NASSCOM 2009). As noted in Table 1, direct employment for the industry was nearly 2.23 million employees in 2008.

The growth of outsourcing in India has been said to be the result of the three factors identified by Arora and Gambardella (2006): (i) the availability of a skilled labor force (as is well known by now), (ii) the origin and growth of domestic firms and their capabilities (Athreye 2006), and (iii) the ever growing need for outsourcing, including in relation to the problems that clients encountered with the year 2000 transition in computing dates (known as the "Y2K" problem). In particular, it has been noted that the story of "the software industry (in several emerging markets)...is far more the story of successful firms than of successful regions" (Arora and Gambardella 2006:292). Other factors also play a smaller but not necessarily less important role. For instance, members of the "Indian diaspora" working for potential client firms in the US helped to create reputational effects with those potential clients and helped Indian firms to secure work with those clients (Kapur and McHale 2006).

There continue to be debates about the software and services sectors, for instance, about whether the rise of call centers is as sustainable as the "technical" work that accompanies software, and about social issues with regards to having young people work night shifts in effectively lower-skilled (than their qualifications) jobs. However, based on the limited number of countries that have large English-speaking populations, it appears that a large proportion of the work is in India to stay.

2.3 The PRC's Software and Software Outsourcing Industry

The PRC's current software industry must be considered as the two separate sets of firms, each with its own history: The first occurred earlier and involved domestic software firms directly

⁴ This is measured using NASSCOM's definition of ITES-BPO, which is narrower than the one used by the Philippine government, as the former's definition of ITES excludes software services and the latter's definition of ITES includes it.

servicing foreign MNE clients which were themselves providers of products and systems integration services for the domestic market. The second involved a new breed of outsourcing firms that specialized in outsourcing provisions for the foreign software MNEs that are themselves operating in the PRC's domestic market. As shown in Table 1, the overall PRC software industry is small as compared to Indian software exports. While the statistics on China's software activity vary, one consulting firm's report recently showed the amount of PRC software exporting activity to be relatively small, with software outsourcing exports of US\$600 million reported in 2004. This was forecasted to increase to US\$4.7 billion by 2009, representing a compounded annual growth rate of 51% (Niosi and Tschang 2009). Software exports as a proportion of total exports are also very small in comparison with India. Nevertheless, the differences between the PRC model and that of India's—in particular, the PRC's focus on the domestic economy—make it worthwhile highlighting.

The General Development of the PRC's Software Industry

The PRC's software industry was, in the early 2000s, considered by the central government to be so critical to industrial development that it, along with semiconductors, was promoted as one of two new lead sectors (Tschang and Xue 2005). Many software firms first attempted to work on either a product model involving some customized services, or on a systems integration model. However, for many companies, both models by now appear to have low margins and prospects for growth. The road for product companies has generally been hard due to a variety of reasons, including a lack of customer IT maturity, fragmented markets, and intense competition on the low end from low-cost domestic imitators and at the high end from well-funded foreign MNEs with advanced technology (Tschang and Xue 2005).^{5,6} It was partly because of this that the PRC's firms started to see outsourcing as a solution. According to an official from the Beijing Software Industry Productivity Center (BSIPC), the margins from outsourcing were in the 30% range for the better PRC firms (which mirrors margins from India), as opposed to in the less than 10% range for product and systems integration companies. Thus, the outsourcers have ostensibly avoided trying to make products or to undertake systems integration work.

2.3.1 The Emergence of Software and Services (and Emergence Factors)

A Japanese Stimulus for the Export Sector

Outsourcing in the form of exports of software services was already well underway in the PRC by 2001, but in the beginning, firms were mainly focused on the Japanese market (which continues to be a strong market) (Niosi and Tschang 2009). With the rise of PRC government interest in outsourcing in the early 2000s, further efforts were made to improve the capability of the workforce and firms. At that time, Beijing, Dalian, Shanghai, Shenyang, and Xi'an were among a number of cities attempting to outsource to the Japanese and US markets. In 2001, one of the

⁵ There have been some product companies strong enough to compete with foreign firms in the middle or near the high end of the domestic market, but these companies typically compete only in the domestic market, and some were able to survive because of government contracts. For certain types of software, such as enterprise software, the best PRC firms tend to service only small and medium enterprises, while for other types of software, such as personal computer-based software, the best PRC firms can compete with MNEs to some degree. However, other weaknesses in the firms or market can affect firms' performance (Tschang and Xue 2005). Piracy is one of the problems that afflict product firms. One well known product company that was interviewed in the course of this study (both in 2001 and 2006) noted recently that their well known product was so heavily pirated that it became a money loser, and that it was only the government stepping in to require that their software be used in procurement contracts that helped to save this line of business for them.

⁶ Another problem, facing the systems integration model, relates to it generally involving lower-skilled work, including installation of hardware and packaged software (made by other companies) and networking. One of the largest systems integrators that was interviewed earlier admitted that their profits were quite low. There have also been recent reports of other systems integrators suffering low margins (Tschang and Xue 2005). According to one interviewee, these companies may also have difficulty in trying to upgrade themselves along the value chain.

regional government's strategies in Xi'an and other cities was to provide Japanese language training, a skill that many Chinese were able to pick up due to compatibilities in the written language scripts.⁷ At that time, many firms were seeking to imitate the success of Neusoft, a Shenyang-based firm that had the strongest export performance in 2001 through 2005, achieved almost entirely by servicing the Japanese market. More recently, many software companies have begun focusing on BPO, specifically in the Japanese and Korean markets.

The Japanese market is of special importance for the PRC as an offshoring market. By 2006, the Japanese market accounted for 61% of the PRC's outsourcing revenue, versus the US market's 22% (Niosi and Tschang, 2009). Thus, while the bulk of the cases examined in this paper are concerned with firms that service the US MNEs in the domestic Chinese market, the size of the Japanese market, and its attraction for PRC firms that want to service foreign markets directly, make it worthwhile describing the Japanese offshoring model, at least in brief. At least two large firms (Sinocom and Neusoft) have a very significant presence in the Japanese software outsourcing market. Sinocom was originally a conventional systems integrator (along with many large firms that originally comprised the PRC's software industry), but according to the BSIPC, the company chose to cut all its business in the PRC in order to specialize in outsourcing to Japan. It became the largest outsourcing company in Beijing by 2005, with Japan comprising 90% of its market⁸. However, while companies like Sinocom are considered to be doing offshore work, they do not service the end user directly, but instead contract their work from Japanese systems integrators like Fujitsu or Hitachi who in turn service the Japanese end user client (Hitachi is also a strategic investor in Neusoft).

Western MNEs and “Domestic Market Outsourcing” in the PRC

Since 2001, and especially in recent years, another outsourcing trend has emerged in the PRC. In order to discuss this trend, it is necessary to understand the role of MNEs, particularly Western package software and software services MNEs, and the PRC's domestic market. This follows from the drive for MNEs to enter the booming PRC market. MNEs have already dominated the software sector in the PRC, including firms such as Microsoft, Oracle, and BEA, and software services and systems integration companies like IBM. According to the interviewee at the BSIPC, many of these foreign MNEs suffer from a locational disadvantage (e.g., in sourcing labor and accessing clients) when trying to service the PRC market, especially as it becomes fragmented when viewed across cities and sectors. Relationships are vital to conducting business in the PRC (Saxenian 2003). The difficulty of entering the PRC's market may be due to differences in standards, administrative rules, and programs that exist across regions and cities.⁹ In this environment, MNEs need to localize products and content. On the other hand, many PRC product and systems integration companies do not have the capability to offer higher-end services like systems consulting and design, but do have lower-level capabilities. Thus, a convenient marriage was created between MNEs and selected domestic firms that the former could outsource some of their basic work to.

⁷ The PRC's government has been quite strategic in its support of software enterprises (Tschang and Xue 2005), but much of this followed an R&D investments approach. With the growing success of exports, the government has also focused its efforts on promoting outsourcing. Along with its historical investments in research and education through its universities and the Chinese Academy of Sciences research institutes (both of which are sources of spin-off companies), in 2001, the PRC's national government announced plans to designate 35 universities as centers for software engineering programs. This would provide as many as 17,500 more graduates to the labor force each year.

⁸ Author's interview with BSIPC, 2005.

⁹ There are also at least three markets: corporate, government, and private. However, the governmental market is strongly bound by policy and regulations, and many software and systems contracts in the past supported domestic firms. Furthermore, some PRC corporate customers have, at least in the past, been difficult to sell services to. According to one software firm that was interviewed in 2001, many customers did not have strong IT capabilities, and could not see the value in IT, let alone understand how to integrate IT into their business functions.

Emergence of the New PRC Outsourcing Firms

In order to compare the PRC case with that of the Philippines, the factors that caused the emergence of the PRC software sourcing industry will first be examined. The origins of the (recently rapidly growing) domestic firms that service MNEs in the domestic economy are largely private, and none appear to have been government owned or to have involved government investments.¹⁰ As noted earlier, a key aspect of the recent PRC outsourcing pattern has been the way in which firms are connecting closely with foreign MNEs operating in the PRC. Most, if not all, of these PRC firms also aspire to get involved in the offshore services market to varying degrees.

Like many PRC outsourcing companies, the new breed of private software services firms, such as Beyondsoft, Worksoft, and ISoftStone in Beijing, started by doing localization and testing work for larger MNEs like Microsoft who were trying to enter the PRC. These three PRC companies are now among the largest firms serving the US MNEs in the PRC.

One central feature in this model is the knowledge that the Chinese firms gain from working with MNE clients. This is similar to the experience of Indian firms earlier in their development, and indeed of any outsourcer, be it in hardware or software. Such learning eventually helps the firms to advance up the value chain. Firms also note that MNEs can help them to build their management and technical capabilities, provide training, and transfer knowledge. Indian firms with a presence in the PRC, like Tata Consultancy Services and the educational provider NIIT, also bring management and educational approaches and know-how to the PRC, especially in the form of software process management skills and capabilities.

2.3.2 Factors Influencing Scaling Up and Upgrading

The rapidly growing PRC firms have had to engage in simultaneously upgrading their capability (to increase their value-added proposition) and scaling up by way of expanding their workforces and business coverage. This has occurred by various means. One strategy has been to use acquisitions to increase their capability and value proposition to clients—a strategy that is common to firms in both India and the PRC (Niosi and Tschang 2009), as well as to those in other countries. The factors that appear to impinge upon this upgrading can be loosely classified into three types: (i) internal organization factors, such as management and organization; (ii) soft skill factors; and (iii) geographic skill management factors.

It is worth noting that the emphasis on organizational capability varies somewhat from that seen in the conventional development pattern of East Asian manufacturing. In the latter, the upgrading is primarily technological, whereas in the case of software and other services, it involves technical as well as organizational capability. Not only do software firms have to develop internal training systems to help transfer knowledge from experienced people to new employees, they also have to develop systems to capture knowledge (i.e., knowledge management systems), as well as systems for collaboration and handling globally distributed work. In contrast to this, smaller and even medium-sized companies face another problem in that they do not have the scale to compete for larger clients, and as a result, cannot grow.

Soft skills and cultural issues appear to be a factor of concern for a number of firms, especially when dealing with Western clients. Chinese language skills might not be suited to BPO in other languages, and even in software, where technical languages may be shared, there are cultural issues that come into play when attempting to integrate the work cultures of PRC and American firms. It is notable that even Microsoft encountered problems with its PRC operation when it tried

¹⁰ In contrast, Tschang and Xue (2005) estimated that as many as a third of the largest systems integrators, and some number of other firms with stronger capabilities (e.g., firms engaged in product development), appear to have government roots.

to merge its US culture with the local culture, and the company had to make multiple attempts before they managed to work through the differences in culture.

The third factor involves growing by managing the growth of facilities located in multiple labor markets—in this case, across cities. Many Beijing firms have built secondary outsourcing facilities outside of Beijing to tap into the local labor markets, which often have lower labor rates and turnover.

Government Policy

With the exception of educational programs and incentive schemes to influence where firms choose to locate, government policy has not been a major factor at the firm level, either in terms of strategy or the ability of firms to upgrade and/or increase their value added. The firms may have benefited from local government policies to improve software talent and language capability (e.g., Japanese), but the better firms did not gain from the central government's policies of targeting selected firms for benefits.

2.4 The Philippine IT Services Industry

The Philippine Outsourcing Industry: The Role of the Government

The Philippine government, specifically the Board of Investments (which plays a key role in foreign investments), has focused on promoting five ITES sectors: BPO (including engineering design), software, call centers, animation, and medical transcription. By the mid-2000s, there were already a number of hallmark foreign MNEs in each of the sectors, including Accenture for software services; Sykes, Convergys, and PeopleSupport for call centers; and Texaco and American International Group (AIG), which had shared services facilities for their internal BPO work. By 2008, the ITES sectors had an estimated output of US\$6.2 billion and employed 430,000 people (Congressional Planning and Budget Department 2009). Most of the ITES sectors have registered healthy, if not rapid, growth rates, with BPO as a whole growing 227% between 2004 and 2007. Call centers have been growing especially rapidly, with employment at many call centers (including foreign MNEs like Sykes, Convergys, and PeopleSupport) growing by rates of 100% or more between the early and mid-2000s.¹¹ The MNE impact is seen across all ITES sectors, but it is in call centers, and to an increasing extent, the BPO sector, that it is most keenly felt. The BPO sectors will be examined later in this study.

To give an idea of the Philippine “presence” in the ITES sectors, a list of 35 providers worldwide (these being ones that the Gartner Group had fielded the most enquiries on from 10,000 of their clients) was examined. Ten of the 13 call centers on the list had operations in the Philippines, while three of the 14 BPO providers (some of which had integrated IT and BPO operations) had operations in the country. The smaller number of BPO providers operating in the Philippines might have something to do with a large number of them being Indian IT firms, which tend to be India-facing in their growth paths. This also suggests that the type of work that the Philippines is known for is mainly related to call centers, and possibly, that BPO providers' operations (besides the Indian IT firms' operations) are more spread out worldwide (*Bloomberg Businessweek* 2006).

¹¹ Call centers are often set up and operated by international MNEs that specialize in the industry, and that have codified procedures for training and operations. The firms tend to focus more on the language skills and customer-facing skills of their employees, although some degree of domain knowledge is often involved (especially for technical support). As one interviewee pointed out, the view of Filipino skill advantages tends to be that of language and customer-facing mannerisms, versus Indian software process skills. However, the Filipinos do not have a complete advantage in language over India since the Philippines is also suffering a shortage of language skill qualified people, and since Indian call center operators can be trained for American accents (in order to service American clients).

Of the five ITES sectors in the Philippines, most of the significant firms are the foreign MNEs. This is particularly true in the BPO, software, and animation outsourcing sectors (with the exception of some local firms that have established call centers and BPO providers, such as Ayala, SPI, the Philippines Long Distance Telephone Company [that acquired SPI], and SVI (Software Ventures International) Connect). A foreign MNE's typical mode of operation is to operate a "shared services" facility that centralizes its (typically) back-office work in lower cost countries. For instance, Maersk, the Danish shipping firm, has located some of its shared services operations in Manila, in addition to other shared services operations in Costa Rica, Mumbai, and Guangzhou.

2.4.1 Emergence of the BPO Sector: Factors that Influence the Location Behavior of MNEs

MNEs have moved BPO-related services to the Philippines that span a variety of corporate functions, including accounting and finance (as well as IT), some of which were unique to the industry the firm was in, but which also involved the specific general corporate functions of finance and accounting. The Philippines had been observed to have a fairly broad educational system catering to not only the vocational fields, but also to areas such as the liberal arts and business. This educational spectrum does not appear to have been a disadvantage for meeting the ITES needs of MNEs and outsourcing providers.

Whereas the PRC's software services industry has largely been focused on its own domestic market, the Philippines has had to compete with various countries—not the least of which being India—to host MNEs seeking a location for shared services BPO facilities. The factors contributing to an MNE's decision have been classified as follows:

Cost and skill factors: A variety of factors appear to influence outsourcing decisions, but while the initial decision to outsource is often made for cost reasons, the actual decision to locate in the Philippines is affected by a range of location-based factors, typically including costs, language capability, availability of skills, and infrastructure. Very often, and especially recently, firms conduct an internal feasibility study. The way in which the factors are related (e.g., by ranking) and the manner in which they are considered to interact vary from firm to firm, but they tend to revolve around a desire to concentrate back-office services in a small number of cheaper locations. For example, Procter and Gamble's human resources group in Manila is one of three shared service centers worldwide (the other two being in Costa Rica and Newcastle, UK).¹²

One large part of the Philippines' attractiveness to MNEs is the country's past investments in higher education and the resulting surplus pool of labor. This is particularly true in the case of business higher education, which is attractive to BPO firms. However, firms can hire human resources from a variety of other fields as well, including IT and the arts, and retrain them for lower-level work. Having said this, the government's ability to continue this type of investment has been severely limited by its low resources as well as the generally insufficient manpower in the government agencies overseeing the industry.

The Importance of History: Looking at the early MNEs that located in the Philippines, one common factor that emerges is that an early familiarity with the country helped to make the decision. An example is the case of an MNE with one of the first shared services facilities in the Philippines. The facility manager compared the Philippines with several other Asian countries on a variety of factors, and in the end, a combination of English-speaking skills and trained university graduates in the business disciplines mattered the most. However, the MNE itself had a long tenure in the Philippines, which helped make the country familiar and accessible to the MNE. In

¹² However, in 2004, Procter and Gamble took the even more extreme step of selling off these units. The Philippine unit containing much of the staff that provided employee services support (i.e., human resources services) was sold to IBM (with the other units being sold to other firms).

contrast, a highly competitive country was ruled out because the MNE had had a bad experience with the government's previous policies.

Soft Skills: Another important factor in which the Philippines is typically considered to have a strong advantage in is that of the softer skills, that is, the cultural orientation of the human resources. MNE chiefs have pointed out that national culture and the "service mentality" (as reflected in how employees deal with clients) is a positive aspect of the country. Another beneficial aspect of the Philippines is that its cultural orientation is similar to that of the US. In fact, one software outsourcing head noted that even in software, some clients would like to see customer orientation addressed first, and only later would focus on other metrics. A number of Filipino call center heads noted that they need their employees to provide more customer-friendly service, and that the "Western" attitude that Filipinos possess can be an advantage in attracting work. Finally, commonalities in language can help attract MNEs doing BPO and call center work.

It is important to note that the success of the Philippines in these dimensions was due as much to other candidate locations being less competitive on one or more factors (e.g., costs, hospitality or service culture, and infrastructure) as it was to the Philippines succeeding on these same factors. Furthermore, extenuating circumstances relating to a particular factor, or an unquantifiable factor like country risk, usually determines the location selection outcome.

Hedging Risk: Finally, officials from other MNEs interviewed in this study and elsewhere have noted that part of their strategy is to hedge their political and country risks by locating facilities in both India and the Philippines.

Comparing Factors Dictating Industrial Emergence in the Philippines with those in the PRC

What is interesting is the comparison of this set of factors to the ones seen in the PRC case. In the case of the PRC, the industry emerged through MNEs already active in the PRC's market (or ones looking to enter) that were interested in working with local providers for their own needs. In the case of the Philippines, the MNE is the central decision maker in choosing a location from among several or more options, and as such, is much more concerned with a variety of country level factors, including the MNE's past experience with the country and/or potential location, and the pool of skills. The usual issues of knowledge transfer and even acquisition (which are more of an issue if the services provider is a local firm, as is the case in the PRC) are less central. This is because MNEs already possess the knowledge and ability to transfer work and organizational capability worldwide—something that they do on a regular basis as part of their business.

2.4.2 Domestic Firms in the BPO and Software Sectors

It is worth pointing out the experience of domestic providers in the Philippines for the contrast that it provides to that of the MNE providers. An examination of the Philippine software sector and its relative weakness illustrates a contrast with India's. A combination of a lack of skills, of strong firms, and of India's head start makes it difficult for latecomer firms to succeed. There are a number of software firms in the Philippines (even hundreds by one estimate), but most are small, and only a handful are of reasonable size (i.e., above a hundred employees). The absence of large, capable IT firms in the Philippines may be due to a variety of factors, not the least of which is a problem of financing. According to interviews with the president of one larger software services provider, the ability of the firm to grow has been limited by a lack of financing and its lack of competitiveness against already strong competition (i.e., Indian firms).

2.5 Comparing the Three Cases

General Discussion

As can be seen from Table 2 below, the two cases illustrate two very different paths of growth, and in the case of the PRC, from India's path.

Table 2: Summary Comparison of the Two Cases

Dimension	The PRC	Philippines
Focus of industry	Domestic firms engaged in software outsourcing.	MNE call centers and MNE BPO shared services facilities, some local firms' call centers and BPO providers.
Market focus	Initially focused on servicing US MNEs in the PRC's domestic market (and Japanese clients).	Focus on global shared services (some regional markets like N. America or Australia, some global).
Origins of industry	Domestic firms started independently and were needed by MNEs to service the domestic market.	MNEs' initial decision to outsource for cost reasons. MNEs' location decisions are complex and not straightforward, e.g., some MNEs had prior history with the country, which aided decision making.
Firm-level or industrial growth	Domestic firms essentially learn from MNEs as they grow, and service increasing MNE needs. They aspire to leverage this learning in order to do work for clients in the MNE's foreign markets.	MNEs appear to follow one another once a model is "tested."
What growth entails	Scaling by creating facilities in other PRC cities to absorb labor, and deepening the type of work, scale, and scope (increased verticals).	Widening the scope of work (i.e., adding to the business functions encompassed, e.g., accounting, finance).
Role of the government	Government policy did not correctly identify the new outsourcing firms so as to support them.	Traditionally weak government may have helped at the margin.
Differences with India	The outsourcing and/or upgrading path started with the domestic or Japanese markets.	Some MNEs seek to use the Philippines as a "second source," while others "prefer" it to India for various reasons.

BPO=business process outsourcing, MNE=multinational enterprise, PRC=People's Republic of China, US=United States.

The PRC experience illustrates how domestic firms can leverage the needs of US MNEs to service their own (PRC) market, or, in the case of firms focusing on the Japanese market, to pursue another market that appears more open to firms from countries that share common linguistic characteristics. The key issue is learning, as firms appear bent on upgrading themselves technologically, and on increasing their scale and complexity of work through their interactions with clients. There also appear to be significant variations in the individual PRC firms' strategies. Each firm appeared to be developing a specific niche based on the resources available to it and its unique collaborative strategy. This suggests that specialization may provide a greater advantage over time.

The Philippine case illustrates an MNE-led model that is different from the PRC's approach, but is similar to the model of MNEs that have located in India. In particular, it appears that the kind of work and shared services facilities that MNEs are locating in the Philippines is not that different from the BPO done in India. However, the decision to locate in the Philippines is quite a complex one and is not always straightforward, involving not only locational factors, like labor and infrastructure, but also past "history." Once the decision to locate in a particular country is made, the ability to follow through appears not to be a problem for MNEs as they appear very capable of transferring entire areas of work across borders, even from dispersed locations to a new, central

facility. The ability of a BPO facility to grow is limited only by the scale of the resources available within the country. While the facilities themselves tend to grow independently of one another, the arrival of even a single firm appears to provide a signaling effect to other competitors. The fact that the Philippines is already becoming known as a site for secondary outsourcing, or even primary outsourcing in the case of certain “verticals,” is promising for the country.

In the final analysis, it appears that there are multiple types of models, or at least circumstances, that can be considered in the development of an outsourcing industry. In both cases examined in this study, the two models leveraged the needs and objectives of the foreign MNE, so the development of the outsourcing industry does follow some previous models of industrialization. While this study still reinforces the notion that locational or factor advantages are a necessary condition for outsourcing, these are not sufficient in and of themselves for explaining location decisions. Complex decision making, involving specific extenuating circumstances (in the case of the Philippines) and specific firm strategies (in the case of the PRC), were also critical for the success or growth of outsourcing industries. Both cases provide some hope that outsourcing may be a trend that can benefit other latecomer countries.

Finally, another aspect that can be addressed is the role of policy. The role of policy appears more basic, being restricted to education and infrastructure, rather than affecting industrial stimulation (unlike what has been said to have occurred during certain countries’ experiences in the “East Asian Miracle” period of growth. In the software and BPO industries, the governments appear weaker, either in terms of initial (i.e., resource holding) conditions (in the case of the Philippines), or in terms of ability to improve the industry (in the case of the PRC). Strong private sector forces and MNE involvement appear to be the common factors in the emerging models of outsourcing industry development.

From most industry participants’ perspectives, it appears that PRC software firms will continue to lag behind Indian ones on scale, processes, and experience for some time to come¹³. Philippine software firms have been doing no better, suggesting that the only way for them to “catch up” to India in the near term is through call centers, BPO, and the other ITES sectors. Some of this will entail less sophisticated work, and may require the involvement of MNEs. In both the Philippines and the PRC, it appears that the knowledge that MNEs possess was an important factor in the BPO sectors’ success, suggesting that collaboration with MNEs, however managed, at the national or firm level, is an important factor for success.

3. THE GROWTH AND EQUITY IMPLICATIONS OF IT SERVICES OUTSOURCING

This section will address the economic implications of the services outsourcing industry. The focus will be on India, with some collaborating evidence from the Philippines. This is in part because data collection and studies have been more widely done in India, including some by India’s NASSCOM. (It should be noted that NASSCOM has a strong advocacy role, so it may have a dual purpose in providing these studies.) India’s industry also has a relatively longer history, allowing the various economic implications to be better discerned. In effect, despite the presence of a manufacturing sector, India’s model has been termed a services-led industrialization path (Singh 2006). Nevertheless, the trends can be expected to be similar across countries with a significant outsourcing presence.

¹³ Author’s own interviews (2005)

3.1 The IT Services Industry, Economic Growth, and Linkages within the Economy

In the 1990s, the Indian IT services industry was already registering a major impact on the economy, contributing to an average growth of services exports of 15% per year as compared with 9% per year in the 1980s (Gordon and Gupta 2004). NASSCOM points out that the sector's share of GDP rose from 1.2% in 1998 to about 6.1% in 2010, and that the share of total exports rose from less than 4% in 1998 to almost 26% in 2010 (NASSCOM 2010). Given the sheer size of its recent year revenues, the economic implications of the IT services industry in India are profound. Even so, at least in the past, and even now in certain quarters, the Indian IT services industry has been criticized for being an "island" onto itself, both in terms of job creation (localized to the sector) and in its (perceived lack of) linkages to the rest of the economy. The industry created 280,000 jobs in 2000 (NASSCOM 2008), and this was expected to increase to 2.23 million in 2008, but this is still considered small in comparison with India's total population (NASSCOM 2009). While the PRC's total employment in outsourcing was reported to be 1.42 million in 2009, the data may be misleading, as it possibly includes both the outsourcing of "local" work and the offshoring work done by both MNEs and domestic providers. At the same time, this is spread across 8,060 enterprises (People's Daily 2010). This gives a very small average firm size of about 176 employees per firm. Other data on firms' market shares show the same pattern, with the firms accounting for the largest shares of the export market—Neusoft (3.1%), HSoft (2.8%), and Sinocom (2.6%)—also being on the small side (Organisation for Economic Co-operation and Development 2006).

One study of India's services sectors suggests that, as a whole, they have a higher proportion of both forward and backward linkages of a "greater than average" linkage effect (or stimuli on upstream and downstream production, respectively) than either the manufacturing or agriculture sectors (Singh 2006).¹⁴ A study of the Philippine BPO sector shows a contrasting picture. Input-output tables show that its forward, backward, and total-linkage indices ranked 138, 178, and 177, respectively, out of 240 sectors, suggesting that the sector is neither a significant buyer of inputs nor a significant supplier of outputs within the economy (Magtibay-Ramos, Estrada, and Felipe 2008). Specifically, the study found that the BPO sector is a greater consumer of inputs than outputs, taking in 40 sectors' inputs (with banking, electricity, and telecommunications services being the most important suppliers), while providing services to only three sectors: the sector of tourism known as tour and travel agencies, wholesale and retail trade, and banking. The two studies on the Philippine BPO and Indian IT services sectors should not be compared side by side, given that they are based on different measures and are measuring industries composed of very different sectoral emphases and even stages of growth.

NASSCOM also estimated that the Indian IT services industry had an output multiplier of nearly two, by way of its non-wage operating expenses, capital expenditure, and consumption spending by its employees, which is on par with most other sectors. In contrast, the simple output multiplier of the Philippines' BPO sector was 1.63 (Magtibay-Ramos, Estrada, and Felipe 2008), indicating that a dollar's worth of final demand in the BPO sector would create 1.63 dollars of additional output across the economy.¹⁵ This may be related to the limited number of sectors that the BPO sector affects downstream. Again, the different multipliers say as much about the differences

¹⁴ Specifically, using 1998–1999 data, Singh (2006) shows that in the case of India's backward linkages, nine of 13 services activities, versus six of 22 agricultural activities and 28 of 80 industrial activities, had relative backward index values above one (and eight of the nine services activities considerably exceeded this). He also showed that in the case of India's forward linkages, nine of 13 services activities, versus five of 22 agricultural activities and five of 80 industrial activities, had relative forward linkage index values above one.

¹⁵ This was estimated using the input-output tables for 2000.

across both countries' IT services industries as anything; for instance, that a higher percentage of the Philippines' IT services workforce than India's is in call centers.

The same Philippine study also showed a compensation coefficient for the BPO sector of 0.31, meaning that 31% of the sector's inputs goes to wages. Coupled with the higher than average compensation in the sector¹⁶, this can be expected to translate into a reasonably high impact on the economy by way of disposable income and spending. In fact, it appears obvious that while the Indian software sector is high paying, its 2 million strong workforce is not a chief contributor to the country's 50 million strong middle class, though it has certainly contributed to certain cities' fortunes.

When placed in this broader perspective, it does not appear that the IT services sector has any more impact than other sectors in terms of linkages, multipliers, or (as will be shown later) employment. However, the sector has a greater than average (and increasing) impact on growth.

The IT Services Industry's Linkages with Manufacturing

IT has perhaps some of the greatest remaining potentials for unlocking productivity gains, including that for developing countries, and for manufacturing. That IT can benefit many manufacturing sectors should be no surprise, given that many MNE manufacturers of products, including General Motors, Huawei, Samsung, and Sanyo, have software arms in India. Indian manufacturing firms should be able to reap similar benefits, particularly once they develop a strong internationalization focus. Among the Indian manufacturing sectors, the automobile components sector recorded US\$15.6 billion of sales in 2007, including US\$2.8 billion of exports. Yet, despite having a thriving IT export sector, a study found that in comparison with other countries, India continued to lag behind in the domestic adoption of IT, especially for the small and medium enterprise sectors (NASSCOM 2007a). The study showed that multiple types of productivity gains could be realized from using IT, ranging from the improvement of manufacturing processes to the integration of firms with their suppliers and customers—foreign and domestic alike. Specific business processes—the most critical ones being order receipt and demand management, production planning, and order processing—have not been addressed, and basic IT systems, such as enterprise resource planning, have not been adopted. Among the factors that impede IT adoption, the most critical have been the difficulty of justifying IT investments internally, and the alignment of those investments with business goals. In part, this is also due to the different levels of preparedness of businesses, with small and medium businesses being the least prepared for technological advancements. A similar finding was observed among domestic PRC firms in the early stages of IT-enabling work such as systems integration (Tschang and Xue 2005). The key to successful IT usage in domestic firms is the recognition that different firms are at different stages of development, and that, as a consequence, they have a mix of IT capabilities. When IT firms do take the trouble to understand and customize their operations for their domestic clients, as when the Indian firm Infosys combined some services with its banking product Finnacle (developed largely for its domestic clients), the results can be quite positive.

At the same time, IT can certainly benefit many organizations in the domestic sectors, including government and education. One of the challenges faced by Indian IT firms trying to link their expertise to domestic needs is the difficulty of reconciling the model most of them have adopted—a high cost, high profit model that focuses on developing advanced systems—with the domestic sectors' need for lower cost, customized systems. This has led to difficulties in recent years, as when the larger, export-oriented firms tried to service local contracts. One of the problems faced is that the current export model is predicated on a higher cost of delivery and higher value added,

¹⁶ In 2005, the average monthly compensation for the BPO sector was US\$386, versus the national average of US\$165 (Magtibay-Ramos, Estrada, and Felipe 2008).

while the model that best suits local customers is one of higher customization and lower costs.¹⁷ The result is pressure for the firms engaged in both kinds of work to provide a lower-capability workforce or even a lower quality of work to domestic clients.

It should be pointed out that not only has the Indian economy yet to realize significant productivity gains from IT services, it has also been limited in its growth potential by certain other industrial and service sectors—electricity and transportation being among the most significant (Singh 2006). It has also been pointed out that growth in services can be held back by some of the same constraints (Srinivasan 2005). In the case of India and Philippines, the removal of constraints, such as the lowering of telecommunications costs, has certainly helped to unleash the potential of the IT services sector.

3.2 Effects on Employment

The evidence suggests that the IT services sector's output employment multiplier is positive. NASSCOM estimates indirect job creation in India to have been about 6.5 million in 2007 on the basis of 1.6 million IT industry jobs, or a four to one ratio. This includes direct service providers, such as food catering and transport. The sector has contributed somewhat to India's rising middle class, at least in the cities with the strongest IT clusters.¹⁸ The problematic issue is whether services are contributing as much to employment as they are to GDP. Singh (2006) reviewed the evidence for employment, which shows that in India, "while the share of services in employment increased from 20% in 1970–71 to 23.5% in 1999–2000, this was much less than the growth of the services sector's share of GDP, which was from 32.1% in 1970–71 to 48.5% in 2000–01. Gordon and Gupta (2004) note that, while services rose from 42% to 48% of GDP during 1990–2000, the share of services in employment actually went down by about one percentage point. This point suggests that while the services sectors do provide a higher labor productivity, they generally do not have the concomitant benefits of high employment effects that labor-intensive sectors can provide for developing economies (this generally being the case with IT as it is with other higher-skilled services sectors).

On the other hand, in the case of the Philippines at least, it certainly seems that IT services, such as BPO and call centers, have provided a valid alternative for reducing unemployment and addressing the underemployment of the higher-skilled populace. In the Philippines, the BPO sector's share of GDP increased from 0.075% in 2000 to 2.4% in 2005 (Magtibay-Ramos, Estrada, and Felipe 2008). Employment more or less grew linearly from 99,300 in 2004, to 235,600 in 2006, to 435,000 in 2008 (Congressional Planning and Budget Department 2009). An early forecast by the Business Processing Association of the Philippines showed that if employment in the sector reached one million workers in 2010, it would account for 27% of all new jobs generated. In 2006, call centers accounted for 68% of the BPO sector's total employment, showing that job creation was highly skewed within the various IT services sectors (Congressional Planning and Budget Department 2009), but this was expected to correct itself over time as jobs in non-call center BPO activities were increasing at a faster pace than call center jobs (International Labour Organization 2009).

Education, Employability, and Equity

While there is some evidence that services such as IT services can be a compelling source of growth and exports, the evidence for employability is more mixed. There is also significant

¹⁷ Interestingly, the firm that was most effective at building large-scale systems in India in the past was the former CMC (once known as the Computer Maintenance Corporation), which, among other achievements, built the Indian Railways automated ticketing system. CMC attempted to get into the higher-value export model too late, and ended up being acquired by one of the major software firms.

¹⁸ Based on a conversation with Raja Mitra, independent consultant to the World Bank (4 August 2010).

indication that, at least in the 1990s and just after, only a relatively small proportion of Indian higher education graduates—namely those with technical skills and English language ability—were able to take advantage of the opportunities in the then burgeoning industry (Singh 2006). At the same time, the Indian IT industry has faced a shortfall in labor supply. Some of this shortfall can be explained by the fact that the higher education system can produce a limited number of graduates. However, with 10% of Indian youth achieving a college education, a bigger issue is the employability of those graduates (the industry currently only finds one of four graduates employable). In the mid-2000s, in the early stages of growth, Philippine call center heads were only choosing the top 10% of college graduates for their positions. This percentage likely went up over time as firms became less selective (and as supply failed to keep pace with demand), with a possible consequential deterioration in the quality of employees and their work. Another possible result is that the bias toward the “better” educated part of the populace will enhance the disparity between those with stronger or better-fitting educational backgrounds and those without. Only broader economic growth will help to ameliorate this diverging trend.

3.3 Implications for Regional Economic Disparity

Historically, the Indian IT industry has been concentrated in a handful of urban locations—a feature shared by all other industries. The success of Bangalore, Hyderabad and other early IT industry locations, also contributes to an inequality in incomes amongst cities. The trend however has also been for firms to open facilities in new locations, and 72% of respondents to a recent NASSCOM survey reported having opened offshoring centers in the so-called “second-tier” and “third-tier” cities (NASSCOM and Deloitte 2008). As firms start to expand to second-tier cities in search of labor and space to grow, the next hubs will take shape. It appears that the industry started burgeoning first in Bangalore and then moved quickly into other “first-tier” cities like Noida, Pune, Hyderabad, and Chennai. However, judging from the entry dates of firms, which were between “before 1980” and 2001, the seven main centers reached their peak in terms of firm entry during the same period: the 1992–1999 time frame (Athreya 2005).

While poverty is not directly affected by industrialization in the IT services, equity is. One major regional issue related to equity is that of the disparity among regions. As pointed out earlier, firms tend to locate in clusters, further advantaging those same clusters in the process of doing so. Certainly, early clusters mattered in the Indian pattern of development. By 2008, seven Indian cities accounted for 95% of IT services exports (NASSCOM 2009). Recently, an interesting case study was presented by NASSCOM on one of the poorest regions of India: Orissa (NASSCOM and Deloitte 2008). As reported by the Software Technology Parks of India authorities, the growth rate of facilities (of enterprises that reported exporting) in Orissa’s state capital of Bhubaneswar rose from 17% in 1999–2000, to 54% in 2005–2006, to 69% in 2006–2007. As a result, Bhubaneswar’s demand for IT manpower was 117,000 in 2007, with 77% of the demand being for bachelor degrees (including bachelor equivalents) and master degrees suited to IT. The supply at the time was 54,303. The companies locating in the region included some of the major Indian IT firms like Infosys, Satyam, Tata Consultancy Services, and Wipro, as well as foreign MNEs like IBM and Aricent. All of this contributed to software exports from the state of US\$183 million in 2006–2007, a 60% rise from 2005–2006. The growth rate of exports from the state was in sharp contrast to the national average of 28%, reflecting the new and healthy rise of the state’s, and in particular, its capital’s, IT services industry base. It should be noted that while the pattern is very encouraging, it also mirrors the tendency for industrialization in early periods to increase faster (or even to increase at increasing rates) relative to later periods, as seen with industrial growth at the country level in India, the PRC, and elsewhere.

Growth patterns in the Philippine and PRC cases share similarities with India’s experience. In the Philippines, Manila developed first, and by the mid-2000s, Cebu was already considered a

preferred second site for companies rapidly expanding their call centers. In 2008, together with the government, the Business Processing Association of the Philippines listed 10 “next wave” cities out of 30 candidates that could be developed into hubs. Similarly, in the PRC, the first six export bases for IT services were Beijing, Shanghai, Tianjin, Dalian, Shenzhen, and Xi’an. The PRC and Philippine governments are both attempting to broaden the opportunities to other regions, albeit with the addition of strategic growth policies.

The Ancillary Benefits of Firms on Infrastructure and Services

IT companies in India and elsewhere tend to collaborate with the city and regional authorities to improve their educational base and public and private infrastructure. For instance, for many years traffic in Bangalore suffered from poor road infrastructure and was limited by the city’s older airport. IT industry officials worked with city officials to improve both of these, though it can be argued that road infrastructure has still not caught up with demand. On the education front, as Bangalore did not have a campus of the major engineering university system (the Indian Institutes of Technology), the IT industry got behind a privately led effort (with some state support) to sponsor a new type of program—the Indian Institute of Information Technology (IIIT) Bangalore. (A similar effort took place in Hyderabad.) While IIIT Bangalore’s enrollment and faculty size is modest, the institute plays a significant role in the ecosystem in terms of providing education for foreign MNE and local firms alike, cooperative research with firms, and contributing to the clusters’ renown through its educational and research strengths. A similar bridging effect occurred between industry and educational institutions with the establishment of IIIT-Hyderabad.

Investment in private infrastructure tends not to be an issue for IT firms and states as foreign investors do also get involved. For instance, the government-linked corporations of Singapore have invested in and operate software parks in Bangalore, Chennai, and elsewhere, and in the PRC, many software parks have been created across the country by private investors, including a few by the IT firms themselves. In addition, the same developmental phenomenon that has happened in Bangalore and other early clusters is also happening in Orissa. While there were few developers before the IT industry’s boom, nationally operating builders came in to build private infrastructure like IT parks and housing projects during that period. One firm, Satyam, contributed to the setting up of street lighting and the development of roads.

For the most part, IT firms and software parks tend to be isolated and self-contained entities. It is in the IT sector’s multiplier effects on a variety of other services, namely, retail, entertainment, education, and medical care, that the broader economic impacts of the IT sector are more likely to be felt.

3.4 IT and Broader-based Development

Finally, it would be remiss to examine the effects of services without considering how the broader IT revolution, consisting of IT infrastructure and applications of IT, might actually have affected productivity and the economy more broadly in the most rural of areas. The evidence has to be looked at on a project-by-project basis, and instances of best practices should be closely examined. Early studies pointed out the various models by which informatization could help the rural economy (e.g., Quibria, Tschang, and Reyes-Macasaquit [2002]), and indeed certain businesses and the business models involved, such as the Grameen Telecom—based on microenterprise and the supply of basic functions, such as communications, to rural areas—seemed to work, while others, such as the telecenter approach to internet-enabling populations and businesses, seemed less viable as far as providing a business-enabling function and value proposition (*Telecentre Magazine* 2008). Some IT projects such as the internet kiosk programs TARAhaat and Drishtee, faced various constraints, including financing and infrastructure, as well as broader challenges relating to sustainability and scaling up (Kaushik and Singh 2004). Other

technology schemes that “customized” technology and its applications, such as various low-cost laptop or handheld computer projects and proposals, often did not provide sufficient business impact to the poorer populace to allow the latter to justify making these purchases. For instance, Encore’s Simputer computer, an early effort to create a simple handheld computer with limited functions, did not sell well. These products are effectively “technology solutions,” and while many attempts to reach the rural areas start with technology, many end with the failure of the technology to compete or be diffused. While this failure might be the result of factors influencing adoption, e.g., products ill-fitted to users’ actual needs, another possible cause is a factor at the economic level identified by Quibria et al. (2003): that IT usage is correlated with income. In short, incomes may have to rise before IT usage can take hold in the economy. Relating to “technological fit” is the interesting recent development of a host of technology entrepreneurs trying to supply not simply products, but IT services and solutions to rural areas. These cater to needs identified across a spectrum of areas, from applications like telemedicine and transport scheduling, to the need for mobile phones with local language functionality and customized interfaces. While the producers of these are learning the basics of the technology and its applicability to various situations, there is possibly also a lot of learning to be done on the kinds of business models that are suited to these settings.

Other efforts have sought to enable rural employment schemes, such as then Chief Minister of Andhra Pradesh Chandrababu Naidu’s schemes at the beginning of India’s software industrialization, starting with IT-enabling the rural areas. By many accounts, the city with the second most successful IT industry after Bangalore’s was Andhra Pradesh’s state capital: Hyderabad. The general thinking at the time was that some of the IT offshoring work could be done in rural areas, but attempts in Andhra Pradesh failed. As one observation had it: the “diversity of Andhra Pradesh, with nearly two thirds of the population of the state depending on agriculture for its existence, excludes the possibility of diverse poor and rural social groups with different levels of skills, access, and education being able to benefit equally from these...sectors” (Dabla 2004). Furthermore, the state’s focus on foreign investment and offshoring facilities (resulting in, for example, the attraction of Microsoft to Hyderabad) and a host of other reasons might also have dictated against the work moving to rural areas. First and foremost of the underlying reasons might have been the set-up cost for firms and the firms’ ability to govern their operations. Generally, large firms need to create centers of some critical mass, which, in turn, require infrastructure of some critical mass. Given the need for quality assurance, and increasing security concerns, these work dictate against the earlier hopes of development advocates of the work being offshorable to literally any location.

More recently, local IT entrepreneurs have turned their attention to determining what they can do to supply rural areas with technologies specifically customized to their needs. Dr. Sridhar Mittar, a former chief technology officer of Wipro and chief executive officer of an incubator, started such a program: NextWealth Entrepreneurs, a social entrepreneurship program that tries to enable entrepreneurs and create jobs in the rural economy. The company plans to open 40 centers in three years to employ 10,000 graduates near their (rural) homes.¹⁹ In order to do this, it still has to select which rural cities to help. Typically, cities are selected for this program based on the availability of graduates from established engineering colleges in those cities, as well as the available infrastructure.

¹⁹ Author’s interview with S. Mittar.

4. CONCLUSIONS

The author has sought to accomplish two objectives in this paper. The first was to highlight the differences and similarities between three countries' services development models: India, the PRC, and the Philippines. The contrast between the experiences in each country highlights subtle and important differences, particularly with regard to latecomer countries. The PRC case shows that it is conceivable to have a successful latecomer in the software industry, a field in which India has built a commanding lead in both technical and process capability at the firm level. However, PRC firms have done this both in cooperation with foreign MNEs to service the PRC's domestic market, and also independently by working in Japan, a culturally similar market. The Philippine case shows that a latecomer can flourish by bringing in MNEs as providers—following a pure labor arbitrage model of operation (i.e. based on large suppliers of lower-wage but skilled labor), and with the additional advantages of similarities between the workforce's native language and the clients' language of work. In this model, one option for domestic firms looking to enter the industry is to emphasize lower-skilled work at lower wages than the competitors' wages.

The second objective was to illustrate the broader implications of the IT services (i.e., outsourcing or offshoring) industry. As can be seen from combining the case-level and higher-level evidence for India, the sector's contribution to overall GDP and exports can be considerable over time. The multiplier effects on output and employment are not unlike those of other sectors. In a large, rapidly expanding economy like India's, the industry's effects on employment may be less significant than its effects on growth. However, due to the high value added and higher wages (on average), the effects on the economy are greater when considered on a per-person basis. In addition, while the benefits of direct employment will tend to go to the highly educated, the industry can still benefit from the creation of a vibrant middle class, at least in selected cities where the IT industry had a good start. Through natural evolution and policy assistance, these benefits can also be brought to other, secondary cities. Finally, the IT sector has the potential (and indeed, may be necessary) for cultivating productivity increases in domestic sectors (such as manufacturing) and in technologically sophisticated firms. However, as the case of India demonstrates, the usage of IT to improve productivity in other sectors of the economy, such as manufacturing, as well as the rural parts of economies, still has a long way to go.

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APPENDIX

Research Approach

Given the key elements of factor advantages, opportunities, and firm competencies, and given that the labor forces in both the PRC and the Philippines appear to have an advantage over other countries, the starting point for this study was to examine whether and how firms in these countries manage to strategize, or what MNE location behaviors are involved, with regards to opportunities, in developing strong outsourcing industries. Furthermore, given that the particular nature of the markets and business environments in each of the countries appear to have shaped their industries, the study also aimed to develop a view of macro level factors. To some extent, secondary data and literature was relied upon for providing this macro perspective.

The approach to studying competencies at the firm level was a longitudinal study based on multiple field visits to different firms in the PRC and the Philippines. In addition, comparisons were drawn with India based on earlier fieldwork in that country. To understand the specific differences that enabled each industry's growth, each country's industry was examined in terms of the composition of its firms' origins and growth path. This approach involved the systematic collection of data using a set of semi-structured and open-ended questions about: (i) the origins of firms (particularly some of the earliest and most successful firms by the time of the interview); (ii) the nature of the markets; (iii) barriers to firms; (iv) interactions with the market and clients; and (v) the upgrading path for the firm (i.e., the knowledge and capabilities acquired as the firm matures). Information on basic factors such as skills, policy, and, in the case of the Philippines, infrastructure and language capabilities, were also sought.

Table 3 shows the dates of visits and the interviews conducted. Each interview was between one and two hours in length. The interviews in the PRC were conducted with either a head of the company (usually the chief executive officer) or a key person in management (e.g., a head of marketing or business development). Interviews in the Philippines were almost all conducted with the heads of the facilities. All of the interviews were transcribed on the spot, and all of the key BPO interviews were taped for later review and possible additions to the transcriptions. (Note that the names of all the firms interviewed were changed to names that are partly descriptive of the industries they are in.)

Table A1: Interview Samples for PRC Software and Philippine BPO Cases

Country	Interview Dates (approximate)	No. and Type of Firms Interviewed
PRC	Early 2001	<u>29</u> domestic software firms (6 in outsourcing [mostly smaller firms], all different from those approached on succeeding visits)
	November 2004	<u>2</u> domestic outsourcing firms (B-soft and United Innovation), subsumed into third interview sample
	May 2006	<u>3</u> domestic outsourcing firms (B-soft, W-soft, I-soft)**
Philippines	June 2004	<u>12</u> firms (5 domestic and 7 MNE [mainly call centers and animation firms], as well as 2 software firms and 1 MNE BPO facility)
	July 2005	<u>5</u> firms (all MNE BPO shared services facilities, different from first set of firms)
India*	1999, 2001 (updated 2009)	<u>27</u> firms (all but 1 performing software outsourcing [19 domestic and 8 MNE]). 2009 update involved about 6 already interviewed firms and 4 new ones, all in software and R&D services.

BPO=business process outsourcing, MNE=multinational enterprise, PRC=People's Republic of China, R&D=research and development.

* Included here only for comparison purposes (first visits predated the other two cases).

** Additional interview material from a government interviewer was also made available on several PRC firms outsourcing to Japan.

Note: the interview list does not include representatives of governments and software bodies (e.g., associations), which were approached in each country.

Source: Author