The offshore services value chain: upgrading trajectories in developing countries

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Abstract: This article analyses the offshore services industry using the global value chain approach. This industry has grown at a rapid pace over the last decade, driven principally by the search of businesses to reduce costs by unbundling and offshoring corporate services. This paper explores how developing nations have seized these growth opportunities. While developed countries consume the vast majority of global services, demand from developing economies and new end markets is beginning to grow. Supply is dominated by India, which in 2009 had 45% of the global market share for offshore services. Indian firms occupy most value chain segments and they have expanded in the South to serve both domestic and export markets. Although the quality and quantity of human capital remains the key factor in the location of offshore services, formal education is being supplemented by demand-driven training and compliance with required international professional certifications and performance standards.

Keywords: global services; outsourcing; knowledge economy; information technology; IT; business process outsourcing; BPO; knowledge process outsourcing; KPO.

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1 Introduction

Structural changes in the world economy during the past decade have facilitated the global outsourcing of the internal business activities of multinational corporations (MNCs), thereby creating the offshore services industry, a new and rapidly growing sector in developing countries [Gereffi and Fernandez-Stark, (2010b), p.1]. Information technology (IT) now allows for quick and easy information transfer. Companies looking to improve their efficiency levels in the global economy, reduce costs and increase flexibility (Lopez et al., 2008) unbundled their corporate functions, such as human resource management, customer support, accounting and finance, and procurement operations, and ‘offshored’ these activities (Gospel and Sako, 2008; Sako, 2006). This reduced the burden of support activities and allowed firms to focus on their core business.

MNCs began by offshoring basic service activities to India in the early 1990s, but now, at the end of the first decade of the 21st century, increasingly sophisticated services are performed for these firms by operations centres in a growing number of developing countries. These firms were attracted to establishing offshore services in developing countries by key competitive advantages, particularly low human resource costs, technological skills, and language proficiency (AT Kearney, 2007). Time zones and geographical and cultural proximity to major markets also played key roles in location selection [ECLAC, (2008), Chapter 2]. In recent years, core activities have begun to move offshore as well, and many firms now look for new talent in developing countries in order to drive product development, research and development (R&D) and other knowledge-intensive activities. As more of these sophisticated jobs are performed abroad, the supply of scientific, engineering, and analytical talent offered by developing countries is becoming significant (Couto et al., 2007). The increasing participation of developing countries in this new industry highlights the growing capabilities of the South, not only at the production level but also in creating the knowledge behind the products. The offshore services sector in 2010 accounted for US\$252 billion in revenues¹ and employed over 4 million people globally, most of whom are in developing countries.²

India is the market leader and dominates most of the value chain segments. However, other developing countries are providing a variety of offshore services. As they upgrade to higher-value activities, low-income countries are joining the industry at lower points of the chain. This dynamic opens up a chance for new nations to enter the value chain, thus offering an opportunity to drive sustainable growth through the expansion of the knowledge economy. In addition to providing employment in good jobs and creating international linkages with the global markets, this industry has begun to foster domestic innovation and industrial development. In particular, large developing country providers are now seeing a fast growing demand for their services in markets of the South as local firms recognise the benefits of outsourcing to drive their growth. This expansion of demand to new regions, combined with the industry's *raison d'être* to lower costs, highlights the resiliency of the industry in the face of economic crises. Indeed, the 2008–2009 economic crisis did little to slow the industry or reverse its growth trajectory (Borchert and Mattoo, 2009; Gereffi and Fernandez-Stark, 2010b).

The evolution of the market and the structural changes that have helped to drive it suggest this shift of offshore service work to the developing world will be permanent. Despite significant political opposition to the advancement of the industry in developed countries, well documented by Mankiw and Swagel (2006), the industry gained momentum at the outset of the 21st century, with compound annual growth rates of 24.2% between 2005 and 2007 prior to the economic crisis of 2008 (OECD, 2008). As more firms in the developing world adopt outsourcing and offshoring of services and add to this global growth, these structural changes will be consolidated. Faced with less competition from large global providers, this expansion of domestic demand provides smaller firms in developing countries with further opportunities to enter, and possibly upgrade through, the value chain.

In order to capture the gains of this evolving market, many developing countries have been pursuing workforce development strategies to encourage upgrading. Analysis of the rapid development of India's industry, in spite of a poor business environment and weak education system (Athreye and Hobday, 2010), revealed the importance of investing in human capital to drive growth (Wadhwa et al., 2008). Highly focused private sector

investments in skill development have been particularly important in the shift of India and other developing countries into higher value service provision.

This paper uses the global value chain (GVC) framework to analyse major changes in the global supply of services and to identify diverse upgrading trajectories among developing countries. By mapping the various types of offshore service activities and the firms that participate in different industry segments, the GVC approach encompasses both micro- and macro-level examinations of the dynamic processes at work in globalization (Gereffi, 1994, 1999; Gereffi and Kaplinsky, 2001; Humphrey and Schmitz, 2002; Kaplinsky, 2000). A particular concern in this paper is how the diversification of end markets for global services offers new opportunities for upgrading by developing economies.

The organisation of the paper is as follows. The first section provides an overview of the offshore services value chain, emphasising the structure and dynamics of a service-sector chain based on human capital. Second, the market size and the role of lead firms in the industry are examined in the context of the changing patterns of global supply and demand of offshore services both in the developed and developing world. The third section discusses the potential contributions of the industry in engaging developing countries in the rapidly advancing knowledge economy. The fourth and final section applies the GVC upgrading perspective to industry growth, with a specific focus on how workforce development initiatives contribute to the movement of developing countries into higher value segments of the value chain.

2 Offshore services: a GVC approach

The offshore services industry has evolved continuously since its inception, making efforts at categorisation challenging. Despite these complexities, a fairly comprehensive, yet flexible, classification of the industry has emerged employing the GVC framework (Gereffi and Fernandez-Stark, 2010a), which uses firm-level analysis to determine the different stages of production of a good or service and the value of each component (Gereffi and Kaplinsky, 2001). For manufacturing and extractive industries based on goods, value-added is determined by the difference between the cost of the inputs and outputs at each stage of the chain. In the case of the offshore services industry, measuring value is complicated by the lack of reliable company-level data and trade statistics for services (Sturgeon and Gereffi, 2009). The rapid evolution of the industry has impeded previous attempts to categorize it, complicating the measurement of the offshore services themselves [ECLAC, (2008), Chapter II; UNCTAD, (2009), Chapter III].

To partially address this problem, the value of different services in the offshore services value chain can be related to skill levels and work experience, that is to say, the human capital inputs of offshore services. Human capital is a key determinant of value creation and success in service exports from developing countries. Saez and Goswami (2010) find positive and significant correlation between human capital and service exports after controlling for institutional variables and electronic infrastructure. In addition, research by Nyahoho (2010) on the importance of factor intensity as a determinant of trade also finds that human capital is clearly related to exports of information services, while Shingal (2010) finds that human capital is one of three key variables that have the biggest impact on bilateral service trade.

We have developed a classification of the offshore services value chain, which is presented in Figure 1.³ The first categorisation refers to three broad types of offshore services that can be provided across all industries (general business services): information technology outsourcing (ITO), business process outsourcing (BPO), and knowledge process outsourcing (KPO). The second categorisation refers to services that are industry specific. Firms providing general business services tend to be process-oriented, while those in the vertical chains must have industry-specific expertise and their services may have limited applicability in other industries. For general business services, all activities are related to supporting generic business functions, such as network management, application integration, payroll, call centres, accounting, and human resources. In addition, they include higher-value services, such as market intelligence, business analytics, and legal services (referred to as KPO in this paper). Within these services, ITO contains a full spectrum of low- middle- and high-value activities of the offshore services chain; BPO activities are in the low and middle segments, while KPO activities are in the highest-value segment of the chain.⁴

Figure 1 The offshore services industry GVC (see online version for colours)

Notes: ^aIndustry specific: Each industry has its own value chain. Within each of these chains, there are associated services that can be offshored. This diagram captures the industries with the highest demand for offshore services.

^bThis graphical depiction of industry specific services does not imply value levels. Each industry may include ITO, BPO and advanced activities.

Source: Gereffi and Fernandez-Stark (2010a)

The value of different services in the chain is related to the level of preparation of the workforce required to provide the services at each stage (Gereffi and Fernandez-Stark, 2010a). In addition to encompassing technical abilities acquired through an employee's formal education and experience, preparation includes other important aspects such as

language capabilities, interpersonal or soft skills such as leadership, teamwork and innovation, and global certifications earned through specialised training. This means that employees in activities located in the lower part of the value chain diagram have less preparation, particularly with respect to specialised skills, while the employees in the upper section of the value chain have greater skills and more years of experience and therefore command higher wages (see Table 1).

The ITO segment illustrates these differences: low value IT services include network and infrastructure management provided by computer technicians (1–2 years of post-secondary education); software development such as creating database applications is undertaken by computer engineering graduates (3–4 years, Bachelor's degree, specialised certifications in software platforms such as Cisco, Microsoft and Oracle); while software R&D to be applied in new technologies requires employees with either higher levels of education, years of experience such as post-graduate (Masters and PhD) degrees or with significant specialised training. Positions in R&D also typically rely on highly innovative individuals.

Table 1 Employment, revenue and salary information, selected segments of the offshore services industry in a middle-income country, 2008

<i>Segment</i>	<i>Activities</i>	<i>Most populous position within segment</i>	<i>Average education level for employees</i>	<i>Average revenue per employee^a (US\$)</i>	<i>Median salary per employee^a</i>
BPO	Call centres	Call centre agents and technicians	High school/bachelors degree	\$19,720	\$17,280
ITO	IT infrastructure	Computer technician	High school/technical institute	\$20,704	\$16,932
	Software development	Programmers	Bachelors/masters degree	\$36,788	\$28,065
	IT consulting	Systems analysts	Bachelors/masters degree	\$55,956	\$45,455
KPO	Business and financial services	Financial analyst	Bachelors degree in Business Administration	\$127,081	\$47,150
Vertical activities	Engineering services	Engineer	Bachelors degree	\$103,844	\$53,514

Note: ^aThis information is drawn from a confidential study published by Mercer (2008) for a specific country in Latin America.

Source: Fernandez-Stark et al. (2010b); IDC Latin America (2009); Meller and Brunner (2009); Mercer (2008); Wadhwa et al. (2008)

3 Market size and lead firms in the offshore services value chain

Generally, countries do not collect detailed data on service exports. There are a relatively small number of trade classification codes to accurately identify service activities and companies have little incentive to disclose this information (Sturgeon and Gereffi, 2009),

while globally consensus has yet to be reached on how to collect data that correspond to appropriate definitions of services. In addition to this dearth of available and reliable data, the different methodologies adopted to quantify the size of the offshore services industry have resulted in widely varying estimates from disparate sources. Nonetheless, several attempts at measuring the size of the industry have been made.

The estimates of the offshore services market size range from US\$117.5 billion to US\$281.3 billion. Figure 2 illustrates the three most reliable available estimates. According to OECD (2008) estimates, the size of the offshore services market will reach \$252 billion in 2010. The OECD stresses, however, that growth rates will be different in each segment of the offshore services GVC. The OECD study, published before the economic crisis began in early 2008, projected that the global demand for BPO services, especially those related to call centres, along with those in financial services, was expected to triple between 2005 and 2010, and IT services were expected to continue growing at a similar pace. The demand for other high-value service activities was expected to reach \$31 billion by 2010. This growth translates into a compound annual growth rate for the KPO segment of 58% between 2005 and 2010, much more than the expected growth rates for the demand of the BPO (25%) and ITO (26%) segments. While new estimates of the size of the industry for 2010 are not yet available, the significant decline in revenues for a number of the leading firms in the industry during the economic crisis (October 2008 to September 2009) suggests that the projected size of global offshoring for 2010 in Figure 2, published pre-crisis, overestimates the actual size of the market (Gereffi and Fernandez-Stark, 2010b).

Both demand and supply have diversified geographically during the past three years. Global demand for offshore services is led by developed countries, especially the USA (Gereffi and Fernandez-Stark, 2010b), although it is increasingly being supported by an expansion of demand from developing countries.

During the recent economic crisis two effects were observed with respect to developed nation clients: the 'demand effect' that resulted from a contraction of demand for services from existing customers as business slowed around the world, leading annual growth rates in offshore services to decrease significantly; and secondly, a simultaneous but counteracting 'substitution effect', which involved the substitution of lower-price services conducted abroad for the higher-price services originally carried out inside companies in developed economies. The 'substitution effect' mitigated the negative impact of demand contraction as new clients in these markets began to adopt offshoring practices in order to lower costs and improve efficiencies (Wadhwa, 2008). The result was that while demand for offshore services from developed countries dipped in response to the crisis (Borchert and Mattoo, 2009), net growth remained positive and by the end of 2010, the industry was showing signs of recovery (Gereffi and Fernandez-Stark, 2010b).

In addition to the demand led by developed countries, growth in offshore services has been buoyed by new sources of demand in the South, especially from Brazil, Russia, India and China (BRIC countries) (IDC, 2010). These four countries together accounted for 38% of demand in IT services from developing nations in 2009 (Gartner, 2010b). In India, domestic demand has already begun to demonstrate compound annual growth rates (CAGRs) that are higher than those in the export sector and domestic demand is expected to continue growing faster than foreign demand. As shown in Table 2, the CAGR of the domestic market is expected to be 18.4% for the years 2007–2012, while the export market shows CAGR of 15.4% in the same period (NASSCOM, 2009b). The domestic Indian market is consuming a growing amount of generic services, thereby creating

opportunities not only for the dominant Indian providers but also for small and medium third-party providers to supply these services.

Figure 2 Estimates of the offshore services market size

Notes: Activities included: three industry segments (ITO, BPO, and KPO), along with more specialised, higher value-added service activities, such as engineering services and R&D. The size estimates in Figure 2 differ in the activities they include. Generally, the high-value services segment is the most difficult to quantify; thus, it may be underrepresented here since some relevant activities may not be included.

Source: Authors based on Boston Consulting Group (2007), NASSCOM (2009a) and OECD (2008)

Table 2 Size of the Indian outsourcing market, 2007–2012

	2007	2008	2009	2010	2011	2012
Domestic	90,014	110,177	133,100	158,053	182,991	209,698
Export	156,594	186,142	218,107	250,087	467,657	529,976
Total	246,608	296,319	351,207	408,140	650,648	739,674

Note: In Crore (10,000,000 Indian Rupees)

Source: NASSCOM (2009b)

Brazil's IT market⁵ had a CAGR of 11% in 2010 (Hermelin, 2010) and is growing even faster than India's market, already accounting for 10% of Brazil's GDP (Gartner, 2010a). Domestic IT and BPO services alone grew by almost 13% from US\$17.2 billion in 2007 to US\$19.4 billion in 2008 (BRASSCOM, 2008). In China, while the outsourcing market is still considered to be in its infancy, accounting for a fraction of the US market, it is quickly evolving [KPMG, (2009), p.12]. The size of Chinese outsourcing is estimated to have doubled between 2006 and 2010, reaching \$US20.6 billion. Revenue from the domestic market for one of China's leading offshore services firms, VanceInfo, grew from 11.7% in 2007 to 21.5% in 2008. The market, however, continues to be undermined

by a lack of understanding of the industry: “many Chinese companies, from state-owned enterprises to large privately held outfits, remain unsure about which business processes should be outsourced or do not fully recognize what efficiency gains can be achieved” [KPMG, (2009), p.17]. As the growing Chinese offshoring operations begin to educate local businesses about the benefits of outsourcing, this market is likely to see significant growth.

Rapid economic growth rates in these and other emerging markets have led domestic businesses to increase IT spending to help them support the challenges of fast-paced growth, manage customer support, facilitate supply chain management, and optimise their business processes. In addition, government spending is expected to drive growth in demand from developing nations as public institutions modernise to keep pace with economic growth. While these offshore services in the South are typically less sophisticated than the ones demanded by developed countries, this may change in the future when potential client firms located in developing countries engage more deeply in higher functions such as design, product development, and R&D. This demand expansion from the South for offshore services is thus gradually creating a new emerging market, although it is still small – the BRIC nations accounted for slightly less than 10% of the global IT market in 2009 (IDC, 2010). The expansion of offshore services into these emerging markets is likely to impact both upgrading opportunities and the governance structure of this GVC.

On the supply side, the 2008 crisis put increased downward pressure on prices, speeding up the search for lower-cost locations (Gereffi and Fernandez-Stark, 2010b; Lewin et al., 2009). At the same time, it highlighted the need for providers to diversify their client base to include more geographic locations. Supply has continued to spread geographically across the world, with a growing number of developing countries consolidating their entry into the industry (see Figure 3). While supply has been dominated by India, which in 2009 accounted for 45% of the global market share for offshore services (*NASSCOM Newslines*, 2009), new destinations have emerged in the Asia Pacific region (Magtibay-Ramos et al., 2008) and Latin America (Gereffi et al., 2009), and more recently Africa too is being considered a potential offshore service destination (Radwan and Strychacz, 2010). Developing country governments have begun to incorporate attractive incentive packages, including free trade zones, training subsidies, and tax concessions, to encourage firms to set up operations in their countries.

Despite the diversification of supply across the globe, the companies providing these services have become increasingly consolidated as the industry has matured (Gereffi and Fernandez-Stark, 2010b). The industry is organised in three major groups of lead firms: first, captive or shared services centres; second, third-party providers from developed countries; and finally, third-party providers from India. The first group of firms refers to MNCs that established ‘captive centres’ in developing countries in the early 1990s, as they offshored their business activities abroad in order to find lower-cost and appropriately skilled workers. Captive centres, also named shared service centres, allowed these MNCs to keep service operations in-house opening subsidiaries in developing countries. However, in the late 1990s many MNCs decided to sell these operations to third-party providers to further reduce costs. In this process, a great deal of knowledge transfer occurred and developing countries benefited significantly from this new type of corporate reorganisation (Sako, 2006). The decline of these captive centres gave way to the division of the market into two groups of large firms that dominate the supply of offshore services.

Figure 3 The global supply and demand for offshore services

Note: The demand for offshore services is primarily from developed countries, although recently demand for offshore services has begun to emerge and expand from the South.

Source: Center on Globalization, Governance & Competitiveness (CGGC), Duke University, based on data from Everest (2009) and Datamonitor, 2009.

The second type of lead firms is well-established third-party providers from developed countries that began exporting services in the 1990s. These firms entered the industry by using their subsidiaries in developing countries as platforms for service exports. These include third-party providers such as IBM, Accenture, EDS (now HP enterprises), and Capgemini. The large global service providers operating in the offshore industry are principally dedicated to serving large MNCs and governments. These firms established services platforms first in India, then in Central and Eastern Europe, and later in Latin America. In 2007, Accenture employed more people in India than anywhere else in the world. By 2006, IBM had 60,000 employees in India, and Capgemini employees there had reached 12,000 (Dossani and Kenney, 2007).

The last set of lead firms is Indian third-party providers that emerged in the service sector in the late 1990s and includes Tata Consultancy Services, Infosys and Wipro, among others. These firms emerged despite an unpredictable business environment in India, and their growth has led to significant changes within Indian institutions (Athreye and Hobday, 2010). They established a sophisticated system to leverage global time zones around the world called the Global Delivery System (GDS), whereby they maintain headquarters in India, delivery centres in developing countries, and customer support offices in developed countries (early to mid-2000s). This system ensures uninterrupted services for clients. These firms have established delivery centres in developing countries, supported by generous government incentives that aim to position their countries as export service platforms to the world. In doing so, Indian firms have also successfully gained access to unexploited domestic and regional markets in the South. Today, they use the GDS to serve both local and export markets, allowing them to geographically diversify their revenue streams. Indian firms have grown at significantly

higher rates than firms from the developed world, despite the fact that both firm types have leveraged India's low costs in their offshore service operations.

Table 3 provides an overview of leading Indian offshore service providers in Latin America. Indian firms have expanded aggressively into Latin America and opened numerous delivery centres between 2000 and 2010, especially in the region's largest economies, Brazil, Mexico, and Argentina (Gereffi et al., 2009; Laughlin and Camino, 2010). TCS's Chilean delivery centre is the firm's largest outside of India, accounting for 13% of the company's non-Indian labour force (*The Times of India*, 2010).

Table 3 Top Indian offshore service providers in Latin America (FY 2009–2010)

<i>Company</i>	<i>Countries</i>	<i>Year of entry</i>	<i>Number of employees, Latin America</i>	<i>Number of employees, total</i>	<i>Revenues, total (USD millions)</i>
Tata Consulting Services (TCS)	Argentina	2005	7,000	160,429	\$6,327
	Brazil	2003			
	Chile	2003			
	Colombia	2006			
	Ecuador	2007			
	Mexico	2003			
	Uruguay	2002			
Wipro	Brazil	2006	850	108,071	\$5,826
	Mexico	2007			
Infosys	Mexico	2008	330	113,796	\$5,826
Cognizant	Argentina	2008	250	95,600	\$3,279
HCL Technologies	Brazil	2009	150	70,218	\$2,704
Mahindra- Satyam	Brazil	2007	100	50,570	\$1,240

Source: Based on information from diverse sources: online databases such as OneSource, Hoovers and DataMonitor; company annual reports; telephone interviews; media information; newspapers; and press releases.

The significant market power of these lead firms in the offshore services value chain has made it difficult for local companies to compete in developing countries. With the exception of those countries with large MNCs, which have established local service providers to meet the needs of sizeable domestic markets, local firms have not been able to compete with international providers for major contracts. To lessen risk and facilitate service provision, big buyers prefer to source from well-established firms with solid global reputations. The large global providers can leverage the same workforce, with economies of scale and organisational learning, to provide services at lower costs and with lower risk to the client than local firms (Laughlin and Camino, 2010).

The new demand emerging from clients in the South, however, is providing opportunities for smaller suppliers to enter the value chain. Four categories of

suppliers are meeting this demand: the first is Indian third-party providers located in the South (particularly notable in Latin America); the second includes providers from the South serving demand in other countries in the South; the third category consists of domestic companies; and the fourth, although to a lesser extent due to the limited size of the contracts, large global third-party provider firms from developed countries. This growing demand offers business opportunities for third-party providers in categories two and three, located in the South, to enter the outsourcing service industry that would otherwise be unable to compete for large contracts with the global and Indian providers (KPMG, 2009; Wadhwa, 2010).

In particular, some of the larger, non-Indian Southern firms have been able to leverage comparative advantages of price, time zones and expertise to provide services regionally, a new market that is expanding rapidly. Sonda, Chile's largest IT services firm, is the key example of regional consolidation. The company employs 8,000 workers across Latin America with revenues of US\$671 millions in 2008. The company has strategically focused on expanding only within the region, establishing operations in Argentina, Brazil, Colombia, Costa Rica, Ecuador, Mexico, Peru and Uruguay. The company uses its numerous regional operations to provide a range of offshore services from low value-added to very sophisticated services. In addition to a wide variety of private sector clients, including Brazilian MNCs such as Embraer and Petrobras, it has also provided the central government procurement systems to Chile, Panama and Colombia (Peña, 2009).

In this complicated network of business-to-business activities, multiple governance structures within the offshore services GVC are beginning to emerge. Governance structure refers to the global organisation of the industry, paying close attention to the coordination and key drivers among different actors of the GVC. Gereffi et al. (2005) identified five governance categories: markets, modular, relational, captive and hierarchy.⁶ Table 4 illustrates how governance structures differ at different stages of the offshore services value chain.

Figure 4 links the various types of governance structures identified in Gereffi et al. (2005) to the offshore services value chain. In lower value stages of the chain, the 'market' governance structure tends to predominate (see Figure 4). When buyers within the offshore services value chain simply expect access to low-cost labour, the interaction between the buyer and supplier is limited. Suppliers in this case provide services according to the customer's specifications. The supplier is expected to provide the required competencies to fulfil the service obligations. This is seen with the commoditisation of several services, including call centres, low value IT services, and finance and accounting (Couto et al., 2007). These routine services are non-complex and can be easily codified, standardised and transferred. Buyers select their services from multiple providers principally based on cost. Increased complexity in transactions, such as the expansion into higher value BPO services such as human resource management, requires more interaction and coordination between the client and the supplier and the governance structure becomes more 'modular'. Service providers in this case operate in a similar manner to the global contract manufacturers in production chains (see articles by Sturgeon and co-authors on the automobile and electronics value chains in this special issue of *IJTLID*), where they are contracted to provide comprehensive 'blocks' of services.

Table 4 Types of governance structures in the offshore services value chain (see online version for colours)

Governance type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base	Degree of explicit coordination and power asymmetry	Offshore services value chain segment	Example
Market	Low	High	High		Low value added BPO	Third-party providers call centres in Central America. For example, Sitel in Nicaragua
Modular	High	High	High		High value added BPO	BPO services such as accounting and payroll carried out by Infosys BPO in India.
Relational	High	Low	High		KPO, high value added ITO and high value added services in industry specific activities	R&D services for pharmaceutical MNC, Roche, by TCS in India
Captive	High	High	Low		IT and BPO operations sold recently to third party providers	The acquisition of Unilever BPO operations by Capgemini in Chile
Hierarchy	High	Low	Low		'Captive centres' in IT and BPO	A large number of MNCs that opened captive centres in East and Central Europe and as well as in Latin America. Captive Centers in Costa Rica include: Astra Zeneca SS, British American Tobacco, Chiquita Brands, Citi Business Services, DHL, Intel, Oracle and Procter & Gamble GBS.

Source: Authors' interpretation, based on Gereffi et al. (2005)

Figure 4 Multiple governance structures within the offshore services value chain (see online version for colours)

Note: To see full version of GVC background diagram, see Figure 1.

As the client firm begins to demand higher value services from the supplier, and a greater degree of interaction is required between the two parties, a 'relational' governance structure emerges (see Figure 4). Using data gathered by surveys carried out by the Duke Offshore Research Network (Couto et al., 2007; Lewin and Cuoto, 2007) and by the National Academy of Sciences in 2005 that examine the offshoring of R&D and innovation practices of more than 200 large MNCs, the following characteristics for these high value services can be determined. These knowledge services are unique, non-repetitive and complex in nature, and there is a high degree of coordination between the two parties (Thursby and Thursby, 2006). The buyer is driven primarily by the search for talent, expertise and access to local know-how. In R&D services, client firms rely on their local R&D partners' competencies in serving the local markets to collaborate on the development of new products for those markets. For high value services, such as new product development, the relationship between client and supplier is fundamentally based on trust, particularly as many of the developing countries where the services are being carried out have poor intellectual property protection and weak contract enforcement. In many cases, challenges related to this weak intellectual property protection have led to MNCs maintaining their offshored R&D operations in-house, or through joint ventures (in these instances, the preferred governance structure is either hierarchical (in-house R&D) or captive (joint-ventures) rather than relational).

However, as each of these segments of the industry emerged, the relationships governing the segment have also evolved. When the industry was initially established, a 'hierarchical' governance structure was prominent; captive centres operated by MNCs opened in developing countries taking advantage of the changes brought about by the IT revolution. Capabilities in host countries were low and the concept of conducting services in one country to be consumed in another was highly novel. There was a great deal of oversight of the foreign service centres by companies in the developed world and a high degree of knowledge transfer. This gave way to a 'captive' governance structure as these foreign subsidiaries increased their competency levels and were slowly spun off or sold

to global third-party providers or Indian firms, although the majority of the control was held by the MNCs as principal buyers. These providers were 'learning' how to operate across time zones and borders, and their principal clients influenced their processes significantly. More recently, developing countries have acquired certain expertise and more activities are being codified, leading to a 'modular' governance structure in high value added BPO activities in which the complexity of the transactions are high, while at the same time a 'market' governance type has been created with the commoditisation of low value added BPO activities such as call centres. Finally, as more sophisticated services are demanded, a shift from 'hierarchical' and/or 'captive' to 'relational' governance is occurring as firms move from in-house/joint venture operations to fully outsourced service provision in which there are complex interactions and mutual dependence between buyers and seller.

The above analysis is based on the dominant market structure, with service provision occurring in developing countries for developed country buyers. As demand continues to expand in the South, new governance relationships may emerge. Early analysis suggests that large, experienced providers from the South are able to provide local companies with world-class solutions, shifting towards a supplier-driven chain. On the other hand, smaller providers looking to create innovative solutions for domestic clients, particularly with respect to social and local issues (Wadhwa, 2010), are developing more collaborative relationships characteristic of relational value chains.

4 Developing countries in the knowledge economy

In production or manufacturing-based economies, key sources of competitive advantages can be identified as large pools of unskilled labour and an abundance of raw materials. With an ample supply of both, many developing countries have become essential parts of global production chains. This is clearly illustrated by the strong African suppliers in agriculture and horticultural chains (Dolan and Humphrey, 2004), China's role as the world's assembly plant (Dicken, 2007), and Vietnam's rise in the apparel industry (Gereffi and Frederick, 2010; Thoburn et al., 2005; Thomsen, 2007). However, in the knowledge economy, information, innovation, education and expertise are the key sources of competitiveness (OECD, 1996). Several developing country governments see the offshore services industry as a great opportunity to develop their economies, drawn by key positive impacts the sector affords the local economy: employment creation in higher skilled and better compensated jobs, linkages with global markets and learning opportunities, and enhanced resilience to economic downturns.

First, the direct and indirect employment effects generated by the offshore services industry are significant. While still in its nascent stages, in many developing nations offshore services have been the fastest-growing industry in recent years, creating a host of new jobs. In India, offshore service employment shows growth rates of close to 25% annually. In 2004, the industry employed 0.8 million and in 2009 employment reached 2.3 million (NASSCOM, 2009a). It has been estimated that up to 161 million jobs can be performed remotely (McKinsey Global Institute, 2009). Yet, global employment in offshore services had only reached 4.1 million by 2008, indicating that the vast majority of its potential remains untapped.

In Figure 5, the shaded bars represent the adoption of offshore practices in the years 2003 (darker) and 2008 (lighter). In just five years (2003–2008), this industry has

demonstrated rapid growth. However, the dotted bar presents the vast opportunities that still exist to offshore activities across different industries. The graph also highlights the emergence of new segments in the GVC, including industry-specific offshoring in retail banking and the health care industry (McKinsey Global Institute, 2009). Furthermore, while resulting in an increase in direct employment, it is estimated that an additional four indirect jobs are created for every offshore services job that is established (ECLAC, 2008; NASSCOM, 2009a). Offshore services employment is also regarded as better than many production jobs. They are typically better paid, the hires come from groups that often experience high unemployment rates (youth and women), they can be geographically dispersed within a country, brain drain is reduced by providing employment opportunities at home, and they establish a culture based on learning and continuous development (ECLAC, 2008). This industry hires mostly workers with tertiary education. Lately, enrolment in tertiary education in developing countries has seen an increase. A growing number of people from low socioeconomic levels are thus increasingly able to access employment in this sector. In Chile, 70% to 80% of students enrolled in one of the country's largest IT technical institutes, DuocUC, were the first generation to enter higher education (Barriga, 2009).

Figure 5 Actual and potential adoption of offshore practices

Notes: Actual adoption of offshoring assesses the current and projected level of offshoring to low-wage countries within a sector. Theoretical maximum global resourcing potential describes the percentage of a sector or function that may be performed remotely.

Source: McKinsey Global Institute (2009)

A second benefit is the establishment of international linkages with global markets that drive learning and technological growth in developing countries (Morrison et al., 2008). Entry into the offshore services value chain facilitates the development of sophisticated products and services that the local market cannot yet appreciate. Athreye and Hobday (2010) argue that technology products in particular often face adverse demand in developing countries because the relatively low income of consumers and firms favours goods and services with low prices rather than those of higher quality. Demand for IT-enabled services within the domestic markets in India, for example, initially trailed that of its export market. However, this trend has now been reversed with a growing number of domestic companies adopting similar outsourcing strategies as developed economies to help support growth (NASSCOM, 2009b). Thus, engaging with clients in the developed world helps to increase the level of sophistication of exports. In turn, increased sophistication of the exports of these developing countries is considered an important determinant of their future growth prospects (Hausmann et al., 2007).

Recent evidence suggests that the offshore services industry has a contra-cyclical nature. The economic crisis of 2008 highlighted the weaknesses of economies based on commodities and manufacturing (Borchert and Mattoo, 2009). However, the offshore services industry continued to grow in these periods owing to its principal purpose to lower costs and thus improve competitiveness for its clients (Gereffi and Fernandez-Stark, 2010b). This may provide improved economic stability in developing countries.

5 Upgrading trajectories in the offshore services industry

The emerging pattern of geographic diversification of the offshore services industry described in this article has revealed country-level economic upgrading not dissimilar to that which has occurred in production-based value chains. Upgrading in this context refers to “a process of improving the ability of a firm or an economy to move to a more profitable and/or technologically sophisticated and skill-intensive economic niche” [Gereffi, (1999), p.51]. Upgrading occurs when multiple firms or key lead firms within a country begin to provide higher value added services. In the case of the offshore services industry, this upgrading has been driven in the private sector on the demand side by clients seeking more advanced services, as well as on the supply side by entrepreneurs and large firms alike looking to exploit new, innovative opportunities within the industry (Athreye and Hobday, 2010; Wadhwa, 2010). The public sector’s principal role to date in upgrading has been supportive, mainly providing incentives for entry into the value chain and subsequent workforce development. The following discussion of upgrading in the offshore services industry is based on the analysis of ten developing country case studies of a cross section of nations that have entered or attempted to enter the industry since its inception (Fernandez-Stark et al., 2010b). These include Barbados, Chile, Costa Rica, Czech Republic, Guatemala, Honduras, India, Ireland, the Philippines and South Africa.

There is consensus among researchers and industry experts alike that the principal factor underlying the location of service centres in offshore services is both the quantity and quality of the available human capital. As the key factor of production, human capital and a country’s ability to develop its workforce are central to its ability to upgrade (Fernandez-Stark et al., 2010c).⁷ However, education systems in many countries, and in developing countries in particular, remain limited and inflexible in the face of changing

demand of the labour market (World Bank, 2000), and frequent mismatches are seen between formal education programs and skills required by the labour market (Handel, 2003). In particular, emphasis is placed on theoretical and technical knowledge, and the growing importance of the interpersonal skills and global understanding required for success in the workplace is underestimated. In those industries where software and technology play a central role, technical expertise is constantly changing and must be continuously updated, making 'soft' skills such as adaptability, creativity and life-long learning vital to ongoing success (Gallivan et al., 2004). In offshore services, knowledge in languages, cultural intelligence, teamwork abilities and a global perspective are also paramount (Fernandez-Stark et al., 2010c). Thus, the skills required for industry upgrading are most often attained through focused workforce development initiatives. These initiatives are designed to meet the needs of MNCs that expect quality standards similar to those in developed countries (Fernandez-Stark et al., 2010b).

Important differences in the quantity of labour required through each stage of the value chain are particularly relevant a country's upgrading potential. Analysis of firms in the countries studied shows that the lower levels of the value chain require a significantly larger number of employees than higher levels. Firms such as India's Infosys have approximately 50,000 employees in their basic business service operations. Competitive advantage in lower levels of the value chain is focused on abundant labour with basic preparation that requires efficient training to produce adequate numbers of employees. Athreye and Hobday (2010, p.39) credit this for India's success, noting the industry exploited its initial advantage in low-cost human capital by fashioning business models that leveraged this strength.

When moving up the value chain, however, the need for quantity is surpassed by the demand for quality, and the industry requires fewer, but more highly qualified personnel. The competitive advantage for higher ends of the value chain including 'high value knowledge services' are derived, as Porter argues, from a small number of highly skilled persons or 'talent' (Porter, 1990). A growing literature on the offshoring of innovation and research development confirms that the search for talent is the key decision-making factor in location selection (Lewin and Cuoto, 2007; Thursby and Thursby, 2006).

We find distinct workforce development strategies for the diverse upgrading trajectories in the industry. Certain activities, particularly in the BPO segment, only require short-term training; in other cases formal education and globally recognised certifications are mandatory to move to higher value-added activities, particularly in R&D stages. Nonetheless, a general pattern of engaging the workforce has emerged. Formal education through the country's established education system is complemented by specific training to fill the knowledge gap between education systems in developing countries and high quality standards required to serve the global market. Demand-driven training has been the most effective way to impart specific skills needed by the offshore services companies. This type of training has provided a rapid and efficient solution in filling the skills gap.

Within the GVC framework, upgrading can be classified in four different ways: *process upgrading*, which transforms inputs into outputs more efficiently by reorganising the production system or introducing superior technology; *product upgrading*, or moving into more sophisticated product lines; *functional upgrading*, which entails acquiring new functions (or abandoning existing functions) to increase the overall skill content of the activities; and *chain or inter-sectoral upgrading* where firms move into new productive activities (Humphrey and Schmitz, 2002). Adapting this scheme to our case evidence,

five principal upgrading trajectories can be identified from the ten country case studies: Entry into the value chain; upgrading within the BPO segment; offering broad spectrum services; the expansion of IT firms into KPO services; and the specialisation of firms in vertical industries.⁸ These five upgrading trajectories are presented in Figure 6 and discussed in further detail below.

Figure 6 Examples of upgrading trajectories in the offshore services value chain (see online version for colours)

Type	Diagram	Description
Entry into the value chain		<ul style="list-style-type: none"> Common way to enter the offshore services value chain is through the establishment of call centre operations. Opportunity for low-income countries to enter into the knowledge economy. <p>Recent examples of countries entering the value chain through call centres include El Salvador (Dell, Sykes and Teleperformance), Nicaragua (Sitel), Panama (HP and Caterpillar) and Guatemala (Exxon Mobil, ACS and 24/7 Customer) (Gereffi et al., 2009).</p>
Upgrading within the BPO segment (functional upgrading)		<ul style="list-style-type: none"> Companies expand their BPO services within the segment. Improving and expanding call centres operations or specialisation in certain areas. <p>South Africa has been an important destination for BPO services currently employing around 87,000 people and growing at 33% per year. South Africa is actively working in expanding their BPO activities (Everest Group and Letsema Consulting, 2008; Sykes, 2010).</p>
Broad spectrum services (functional upgrading)		<ul style="list-style-type: none"> Companies positioned in the ITO and KPO segments may opt to provide a more comprehensive range of activities and include BPO services. Acquisitions of smaller BPO firms and/or creating a new business unit within the company. <p>India has seen a number of firms in the IT and consulting (KPO) segment expands to the BPO sector. This is true for both big domestic firms like Infosys, Wipro and also foreign firms located in India like IBM and Accenture among others.</p>

Note: *To see the full version of GVC background diagram, see Figure 1.

Source: CGGC, Duke University

Figure 6 Examples of upgrading trajectories in the offshore services value chain (continued)
(see online version for colours)

Note: *To see the full version of GVC background diagram, see Figure 1.

Source: CGGC, Duke University

Trajectory 1: Entry into the value chain. This has been achieved by developing countries principally through the provision of call centre services, a BPO activity. The Dominican Republic, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua and the Philippines have entered the offshore services industry by providing call/contact centre services. This segment draws on previously marginalised labour markets, in particular youth and female labour pools, hiring a large number of young workers with high school diplomas and in some cases basic tertiary education. Hiring practices in the segment do not discriminate between educational or technical disciplines, facilitating access to a deeper labour pool in this smaller labour market. These operations rely on scalability in order to drive profitability, suggesting that these are best suited for developing countries with large populations.

The success of the Philippines in the call centre industry to become a strong competitor with India is mostly attributed to its large, English speaking youth population. Work in call centres in the Philippines is highly respected within the Filipino community and, while the industry has access to some of the lowest costs in the industry, call centre agents earn a good salary by Filipino standards. Training programmes are short and typically carried out by the private sector. "On the job training is very important in these establishments. Most newly hired agents are involved in a period of mentoring during which more experienced workers will sit next to them and listen in on their calls in order to give feedback" [Sieben et al., (2009), p.554]. In some cases, such as the Philippines, the government has provided this training or it provides incentives to encourage training,

as in Chile. In Guatemala, inter-institutional alliances were created to promote call centre skills training. Intecap, a technical training institution funded through a 1% levy on salaries, has been central to these initiatives (ECLAC, 2009).

A limited number of countries with slightly higher income levels including Chile and Ireland demonstrate a mixed approach with simultaneous entry into the ITO and BPO segments, while India is the only low-income country to have entered the value chain directly through ITO services. Entry into the value chain through the IT segment is more complex for developing countries due to the challenges of providing services for customers they do not know without a domestic market to drive growth. These services require basic levels of computer literacy generally absent in low-income countries, and the limited labour pool with pre-existing knowledge of computers in low-income countries may not consider offshoring as an attractive career alternative. Despite these challenges, many governments from low-income countries have supported and encouraged the development of the IT services industry, but they have yet to enter the global IT chain. India appears to be the exception. The country has a large labour pool to support the IT services operations, with over 300,000 three- and four-year engineering, computer science and IT services graduates per year (NASSCOM, 2006). India is at the leading edge of offshore services. India's first mover advantage, combined with its significant competitive advantage in IT personnel, has made it difficult for other countries to enter the global industry and compete effectively with the depth, vendor maturity, cost structure and scalability of the Indian firms.

Trajectory 2: Upgrading within the BPO segment. This encompasses the shift from basic services (call centres) to the provision of higher value added services within BPO, a common trend for countries entering the GVC through the BPO segment. This upgrading is seen in firms in the small countries of the Caribbean that have entered offshore services through the BPO segment as well as in South Africa and the Philippines. In the Caribbean region, offshore service firms have entered these countries principally to provide call centre services in Spanish (incoming and outgoing) for the Hispanic market in the USA, but they have rapidly offered additional services as well. Firms first expanded their services to include English-speaking agents (product upgrading), while some companies in an effort to meet global requirements for data protection, sought certification in ISO data security standards (process upgrading). Following this, a number of firms moved into providing more back-office BPO services, such as finance, accounting and payroll (functional upgrading).

The learning curve associated with overcoming the challenges of exporting services during the introduction of call centre operations can be quickly leveraged to both improve upon current services and upgrade into higher value services. Higher value BPO activities rely on similar repetitive functions as call centres, although as a whole, they draw on a slightly more educated labour force. Limited direct interaction between clients and agents facilitates growth of these functions as they do not depend on language fluency, in turn allowing access to a broad base of potential employees. Training in BPO functions is predominantly carried out by the private sector and on the job, with employees receiving training and support from a team leader. In some cases, such as in South Africa and Chile, the government has provided financial support for training for both direct jobs and middle management in the BPO segment.

Trajectory 3: Broad spectrum services. This trajectory describes functional upgrading to offer all services in the ITO, BPO and KPO segments. Maintaining the provision of low

value services while at the same time providing high valued services requires a large but versatile low-cost labour supply. In small countries, inflationary pressure on wages due to a limited but skilled workforce encourages countries to upgrade into higher value services, or lose their competitiveness in the industry to other lower cost countries. On the other hand, a large country with a significant proportion of the population earning low salaries can successfully upgrade into higher value services and at the same time remain competitive in basic services. To date, only India has been able to achieve this degree of upgrading, providing at once sophisticated KPO services in legal and business intelligence and low value call centre operations. As the first mover and leader of the industry, the evolution of offshoring in India is atypical. BPO services emerged only after the ITO segment had developed its strength in India. It has been argued that the emergence of the BPO services sector in India, at that time, was the result of the dominance of the large IT firms (Athreye and Hobday, 2010). Indian entrepreneurs who were looking to take advantage of the advances in IT and leverage India's significant competitive advantage in labour were unable to compete directly with these large firms, and thus they created the BPO market. Indeed, Indian start-ups continue to create and exploit new niche segments within the offshore services market, and most recently have begun to focus on building sophisticated R&D solutions for the developing world (Wadhwa, 2010).

Trajectory 4: Upgrading from ITO to KPO. The shift of ITO providers into KPO activities is driven by a need to engage customers to find solutions for “unsolved business problems rather than incomplete programming tasks” [William F. Achtmeyer Center for Global Leadership, (2008), p.3]. IT firms leverage their successful global approach to the technology industry by becoming players in the business-consulting field. This upgrading trajectory has been observed in India, Chile, Ireland, and Israel, and it has been facilitated by the recruitment of personnel with higher education qualifications. Firms hire a large number of MBA graduates and workers with business experience and sharp analytical skills. Legal process outsourcing (LPO) requires qualified lawyers. It is estimated that by 2010, LPO will employ 40,000 professionals globally (Sako, 2009). These lawyers undergo similar training as in the USA.

Trajectory 5: Industry specialisation (intersectoral upgrading). Companies offering some ITO, BPO and KPO services for a wide range of industries often specialise and focus on key industries in which to develop expertise. This trajectory is closely correlated with leading productive industries in the host country. Companies hire area experts to sustain their competitive advantage in specific niche areas, drawing on available pools of highly qualified human capital. Countries that have followed this trajectory include the Czech Republic, Chile, Israel and South Africa. The Czech Republic entered the offshore services industry through the establishment of BPO shared services activities but quickly upgraded into R&D segments of vertical industries, particularly in the automotive, aerospace and IT areas (Business and Innovation Center – Brno, 2009). Inflationary pressure, caused by the high demand for labour from a small workforce, quickly forced the country to change its offshoring approach to focus on higher value activities. In Chile, the export of engineering services related to mining are the third largest service export sector (Fernandez-Stark et al., 2010a). Israel has targeted high value security offshoring, particularly in cyber security, while in South Africa, services are increasingly focused on the financial services sector drawing on the country's position as the financial capital of Africa.

Figure 7 Offshore services upgrading: India, Philippines and Chile (see online version for colours)

Note: To see the full version of GVC background diagram, see Figure 1

Source: Authors

The above analysis of these trajectories indicates that upgrading in the offshore services industry is non-linear and can move in different directions and multiple shifts could take place simultaneously. Figure 7 compares the trajectories followed by India, Chile and the Philippines, highlighting the differences in upgrading processes across countries with different characteristics.

The expansion of demand to include client firms in developing countries is likely to have an important impact on the upgrading processes of providers. Indian firms in particular have been looking towards domestic markets to drive upgrading. Consulting firm Ernst & Young notes that in their home markets “[these firms] get to handle larger projects that offer opportunities to move up the value chain, which are difficult to come by in the developed markets. This helps Indian IT firms develop capabilities that can be

leveraged in other emerging markets like Brazil and newer markets like Africa” (Global Services, 2009).

In addition, upgrading in offshore services provides opportunities to other low-income countries to enter into this value chain. Early market entrants rapidly specialised in service areas in which they have a competitive advantage. As they upgraded to higher-value activities, new countries joined the industry at lower points in the value chain. This dynamic thus opens up opportunities for new countries to enter this chain and to continue to find high-value activities within it. Chile’s shift into higher value services, for example, has made way for Peru and Colombia to enter the value chain. Due to the resulting upward pressure on wages, call centre operations previously based in Chile have begun to be relocated to other Latin countries (El Mercurio, 2010). This has also been seen to occur within countries, such as in India and the Philippines, when Tier 1 cities moved into higher value services, Tier 2 and Tier 3 cities, as well as many rural villages (India Knowledge@ Wharton, 2010) began to enter the industry in call centres in particular. This shift provides emerging economies with an opportunity to drive sustainable growth through the expansion of the knowledge economy and to reduce their traditional dependence on manufacturing and natural resource industries.

6 Conclusions

The offshore services industry is a new and rapidly growing sector that has important implications for the growth of developing countries and their integration into the knowledge economy. The industry was initially driven by the unbundling of MNC business activities and the offshoring of low value added activities in the search to reduce costs by sourcing cheap labour. However, the level of sophistication of services being offshored has increased substantially over time, and today even core business activities such as R&D are being carried out by firms in the developing world.

Demand for these offshore services has principally been driven by firms in the developed world. More recently, developing economies have begun to demand these services, creating a new market. Several Indian service providers have taken advantage of this expansion of the South by locating their operation centres in developing countries. This allows them to not only use those nations as a platform to export services, but also to serve their growing domestic markets. Since demand from the South is currently focused on more generic and basic services, this also provides an opportunity to domestic service providers that cannot compete for global contracts leading to increased regional trade.

As the industry has evolved, upgrading to new or higher value services has taken place in various developing countries, offering new opportunities to enter this industry and provide lower value services. The global expansion of the sector has accelerated and a clear majority of developing countries are actively attracting service providers that will use their countries as export platforms. The offshore services industry has offered important economic and social benefits for emerging nations, including access to new markets, more and better employment, and secure income during global economic downturns.

Different upgrading paths have been identified. Overall, upgrading trajectories have been driven by workforce development in which different initiatives and institutions have been engaged to improve the skills of the workers according to global standards. Due to the global nature of the industry, specific skill gaps need to be addressed, such as

language and intercultural awareness, as well as a number of soft skills that are fundamental to interact successfully and understand the needs of global clients. In the effort to upgrade the industry's workforce, several actors have been involved, including the private sector, the government and tertiary education institutions.

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Notes

- 1 See Figure 2 for data and a discussion on the size of the market.
- 2 Employment information accounts only for offshore work and it does not include domestic activities.
- 3 This classification was developed based on a series of interviews of leading firms in the industry in India and in Chile carried out between 2007 and 2009, compiling comprehensive employee, service, and client information, and complemented by secondary sources, including industry reports and ten country case studies.
- 4 This industry has continued to grow and evolve rapidly and while the GVC presented in this article incorporates all activities conducted within this industry to date, each of the individual segments (ITO, BPO and KPO) can be considered as a separate value chain.
- 5 This figure includes both software and services as well as hardware sales. In 2008, hardware accounted for approximately 55% of IT spending in Brazil (BRASSCOM, 2008). While this figure is a significant proportion of spending, it does indicate the growing prevalence of information technology in the country, which will ultimately lead to an increase in spending on IT services.
- 6 For a detail explanation about governance structures see Gereffi et al. (2005).
- 7 Competitive advantages in language and cultural similarities and time zones are important for initial entry into the value chain, yet these factors remain constant and can be leveraged in all stages. Thus, these do not account for major shifts in ongoing upgrading or downgrading trajectories.
- 8 Process upgrading is also identified, however, due to marginal returns to economic development from this type of upgrading in offshore services, it is not discussed in detail in this paper.