



Governance and learning in global, regional, and local value chains: The IT enabled services industry in South Africa

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ABSTRACT

Global value chain (GVC) participation is generally seen as an important avenue for developing countries to access new markets and diversify exports, to add value to local industries and to increase employment. For developing country firms it provides opportunities to access knowledge to enhance learning and capability building. However, many firms in developing countries do not directly integrate into GVCs but rather into regional value chains (RVCs) or local value chains (LVCs), as these have become increasingly important due to the emergence of “Southern”-end markets and increased South-South trade. In this paper we examine and compare the role of involvement in these different types of value chains in stimulating supplier learning in the context of the IT-enabled service (ITES) industry. We distinguish between different types of learning and argue that learning outcomes depend crucially on value chain governance: the power balance and interactions between the lead firms and suppliers. We draw on a survey among the population of ITES providers in South Africa. These novel firm level data allow for a study of learning mechanisms in value chains at the firm level, going beyond prior studies of aggregate level relationships. In a multivariate analysis, we find that service providers in GVCs learn via interactions with their client firms. Yet, GVC participation is not the only avenue for client learning and capability building; we similarly observe learning in LVCs and RVCs. Learning is generally and strongly enhanced by trust-based governance of the client-supplier relationship, while in GVCs, control-based governance additionally promotes learning specifically in the IT domain. These findings provide a better understanding of how firms in developing countries can build capabilities in local, regional and global value chains of services, a topic that has gained interest among development practitioners.

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1. Introduction

The globalization of production and trade are important features of the contemporary economy. World markets are rapidly integrating, while at the same time production is becoming more fragmented due to lower transportation costs and technological advances. Many firms, predominantly from advanced economies, seek efficiency gains and cost savings by relocating their non-core business activities offshore, either to a captive firm (captive or subsidiary offshoring) or to a third-party service provider (offshore outsourcing) (Gereffi & Fernandez-Stark, 2010). This has given rise to value chains of services, typically including business processes or functions with the usage of information technology (IT) in the delivery process, which is also known as the

IT-enabled services (ITES) industry. The industry has grown exponentially in the past two decades, with developing countries offering attractive incentive packages to companies to promote their territory as a services export platform (Bamber, Fernandez-Stark, Gereffi, & Guinn, 2014). Firms in less developed countries have been typically providing low-value and standardized services, such as customer service and data management. However, more knowledge-intensive business services and IT services, such as software development, legal services, and marketing are also increasingly offshored (Massini & Miozzo, 2012).

Earlier contributions refer to the relocation of service activities to developing countries as a ‘next wave in globalization’ or even a ‘second industrial revolution’ (Dossani & Kenney, 2007). The offshoring of ITES has created opportunities for developing countries to participate in global value chains (GVCs) of services without having to develop the full range of capabilities of the value chain. GVC participation is considered important for developing countries, not only for job creation, but also as a new avenue for

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firm-level learning, thereby strengthening their competitive position (Altenburg, 2006; Bamber et al., 2014; Gereffi, Humphrey, & Sturgeon, 2005; Gereffi & Fernandez-Stark, 2010). The GVC literature stresses especially the role lead firms (e.g. global buyers) may play in supporting producers' learning and innovation activities in less developed countries (Altenburg, 2006; Gereffi, 1994, 1999; ; Kaplinsky, Morris, & Readman, 2002; Giuliani, Pietrobelli, & Rabellotti, 2005; Humphrey & Schmitz, 2002; Pietrobelli & Rabellotti, 2011). Governance structures (i.e. the power balance between lead firms and producers in GVCs) are found to influence learning and capability building opportunities (Gereffi et al., 2005; Humphrey & Schmitz, 2002).

The extensive focus on GVCs in the extant literature, however, has overlooked the fact that many domestic firms in developing countries, especially small and medium-sized enterprises (SMEs), do not integrate into GVCs, as they often face challenges that limit their GVC participation. Domestic firms in developing countries may be more likely to integrate into local value chains (LVCs) and regional value chains (RVCs), which could in turn provide a stepping-stone for the involvement in GVCs (Bamber et al., 2014; Navas-Alemán, 2011; Staritz, Gereffi, & Cattaneo, 2011). Local and regional value chains have become increasingly important for developing countries, especially due to the emergence of "Southern"-end markets and the rise of South-to-South trade (Kaplinsky & Farooki, 2010). It remains an open question whether governance structures in regional and local value chains have a comparable influence on learning and capability building as those documented for GVCs.

In this paper we address this caveat and conduct a detailed study of supplier learning in the context of the ITES sector and the role played by governance in local, regional and global value chains. We focus on the ITES sector in South Africa, a young and emerging sector, thereby complementing the more abundant evidence from India, Kenya, Pakistan and the Philippines (D'Costa, 2011; Sinkovics, Choksy, Sinkovics, & Mudambi, 2019; Dossani & Kenney, 2007; Kleibert & Mann, 2020; Mann & Graham, 2016). The ITES sector in South Africa does not solely provide services to overseas firms, but also serves as an end market and as a gateway to the rest of Africa. This has led to the presence of a variety of value chains making the South African outsourcing and offshoring services sector an interesting case for our particular study on value chain governance and learning in the services sector.

Our study takes a novel and fine-grained approach. First, we provide detailed and systematic evidence on four key learning domains specific to the ITES sector, that we identified on the basis of the literature and cross-validated in a qualitative part of study. Second, we examine whether these learning outcomes depend on the nature of value chain governance. Here we address a gap in the literature by juxtaposing evidence on this relationship in global value chains with the evidence in regional and local value chains. Third, our study draws on unique firm-level data collected in South Africa. This includes both data from a qualitative study, based on interviews with ITES providers and industry actors and stakeholders, and quantitative analysis based on data gathered subsequently through a tailored firm-level survey administered among the entire population of ITES providers in the country. With this approach our study contributes a firm-level multivariate analysis of learning mechanisms in value chains, whilst prior studies have generally not been able to take such a firm level perspective (Morrison, Pietrobelli, & Rabellotti, 2008). The analysis is enriched with insights from the qualitative study to provide contextual interpretation and complement the findings.

Our study finds that GVC participation is not the only avenue for client learning, as we also observe learning in LVCs and RVCs. We find that learning is significantly enhanced in all value chain configurations if the client and service provider interactions are based

on trust. Positive effects of control based governance are also observed, but are restricted to learning in the IT domain and only observed in GVCs rather than in LVCs and RVCs. When producers from developing countries are integrated in GVCs and supply more sophisticated markets, client control becomes more important and can facilitate adherence to international standards, which has been argued to be one of the main channels of GVC learning (Pietrobelli & Rabellotti, 2011). Value chain learning also has important consequences in terms of an increased probability that service providers are able to develop new service innovations. These findings contribute new insights to the expanding literature on the importance of (global) value chain involvement for developing country firms, and suggest a number of policy implications.

2. Prior research and background

The GVC literature, illustrating buyer and supplier interactions along the value chain, has been particularly useful in understanding the learning- and capability-upgrading processes of suppliers in developing countries (Gereffi, 1999; Kaplinsky et al., 2002; Lema, Quadros, & Schmitz, 2015). Common learning channels in GVCs include knowledge transfer from the GVC lead firm through face-to-face interactions, specific training, and enforcement of standards (De Marchi, Giuliani, & Rabellotti, 2018).

Key to the GVC theory are the various governance structures prevailing in value chains (Gereffi et al., 2005; Humphrey & Schmitz, 2002; Giuliani et al., 2005). According to Gereffi (1994) "Governance structures refer to the authority and power relationships between actors in value chains, which are key for understanding how a chain is controlled and coordinated in terms of the allocation and flow of financial, material and human resources" (Gereffi, 1994, p. 97). Highly governed chains can explain how underdeveloped regions have become major exporters in a short period of time. An upgrading effect can be observed, especially for local producers that are new to the global market (Gereffi, 1999; Humphrey & Schmitz, 2001). On the other hand, governance structures may also create barriers for capability development due to lock in effects into certain activities (Humphrey & Schmitz, 2002), and mostly into low value-added activities (Navas-Alemán, 2011). Kaplinsky et al. (2002) analyzed the upgrading of South African producers in the global furniture value chain paying attention to the role of global buyers. They emphasize that buyers differ in their demands for producers to conform to a variety of codes and standards, which may create barriers to entry in product markets (Kaplinsky et al., 2002).

Recent studies (Lema, 2012; Morrison et al., 2008; De Marchi et al., 2018; Pietrobelli & Rabellotti, 2011) advocate that the focus should not be solely on the role of the lead firm and GVC governance structures. According to Lee and Chen (2000), firms' upgrading potential depends not only on governance structures, but also on the managerial capability of the local supplier to balance competence enhancing investments. They highlight the evolutionary process of continuous competence building, including both the exploration of new capabilities via working closely with outsourcing partners and the exploitation of the stock of competences in the GVC (Lee & Chen, 2000).

De Marchi et al. (2018) observed cases of firms that are typified as "poor innovators" in spite of being part of GVCs that connect them to world markets and demanding consumers. They attributed this finding to a lack of absorptive capacity, i.e., firms having weak technological capabilities remain locked-out of innovative circles. The notion of absorptive capacity, which has later been extended to dynamic capabilities (Teece & Pisano, 2003) has been applied to the GVC and related literature. For instance, Ernst and Kim (2002) argue that suppliers need capabilities to internalize exter-

nally acquired knowledge in global production networks. This requires firms to take strategic decisions on individual and organizational learning, such as investing in the recruitment of talented workers and the development of training programs to upgrade the existing knowledge base.

While the GVC approach generally assumes a positive effect of GVC participation for domestic firms in developing countries, studies also point out that less-capable firms, especially SMEs, fail to integrate into GVCs, and that LVCs are used by latecomer country firms to build capabilities first before entering global markets (Navas-Alemán, 2011). A recent study from Mann and Graham (2016) discusses how the Kenyan government has re-oriented the ITES sector from overseas markets towards contracts sourced from clients in the domestic market and other East African clients in an attempt to enhance competitiveness and improve global recognition. This so-called “domestic turn” results from an increase in outsourcing within the country and in the region, as well as the challenges for local firms to compete in overseas markets (Mann & Graham, 2016). Navas-Alemán (2011) studied the impact of operating in multiple value chains for upgrading by looking at the case of Brazilian furniture and footwear industries. Findings show that GVC participation is no guarantee for upgrading and that many firms simultaneously service multiple value chains (at the national, regional and global market level). These so-called multi-chain firms are found to have better upgrading prospects than firms operating in global export markets only, especially regarding functional upgrading – moving into new stages of the value chain where higher margins are obtained. Bamber et al. (2014) stress the need for further analysis of the policy implications of GVCs for developing countries to ensure inclusive growth, and argue that value chains at a local or regional level may offer more likely prospects for building capability. They depict GVCs as value chains capturing the flow of services at the global market level – that is, across two or more continents, whereas RVCs embody chains of activities at the regional market level, and LVCs capture the flow of services within a country.

Questions persist on how capabilities are developed within local and regional value chains, how these may differ from learning trajectories in GVCs, and how they may facilitate participation in GVCs in the future (Bamber et al., 2014). While RVCs have captured increasing interest by researchers and policymakers, empirical evidence remains scant and limited to manufacturing sectors. Studies that have recently examined upgrading in local and or regional value chains (see e.g. Navas-Alemán (2011) and Lee, Szapiro, and Mao (2018)), focused on industrial upgrading, leaving questions open on learning in value chains of services (Bamber et al., 2014).

2.1. Learning in the ITES sector

Previous research has mainly discussed organizational learning from the perspective of the client firm in manufacturing industries, while less attention has been paid to learning in service industries (Lema, 2012). Studies on service outsourcing have drawn on relational studies to understand what shapes relationships between organizations in value chains (Lee, 2001; Teo & Bhattacharjee, 2014). Relational theories have been used to explain how different constructs and norms, such as trust, power, communication patterns, commitment, dependence, and conflict shape the relationships between different actors in the chain. Particularly trust and commitment to a long-term relationship produce governance mechanisms that favor knowledge exchange (Lee, 2001; Patnayakuni, Rai, & Seth, 2006). According to Mao, Lee, and Deng (2008) transaction costs and social exchange theories suggest that both the tightening of control, through contracts and beyond formal contracts, and the development of mutual trust determines the outsourcing success. Offshore outsourcing involves more risk than traditional outsourcing, especially given the possible cultural

differences, communication barriers, and lack of personal contact due to geographical distance, requiring a greater degree of control (Mao et al., 2008). In their study of Chinese service providers serving clients in Japan, they find that trust and control act as complements in improving outsourcing success.

The growing literature on services highlights the importance of organizational and human resources (e.g. skills of firms' employees), and patterns of client interaction as critical assets for innovation, rather than accumulating physical capital and tangible assets, given the knowledge based and intangible nature of service activities (Hertog, 2000; Hipp & Grupp, 2005).

Various ITES studies emphasize that professional knowledge is needed for the service provider to deliver the business process in accordance with clients' requirements for day-to-day operational services, in terms of cost, quality and functionality (Feeny, Lacity, & Willcocks, 2005). This includes the supplier's professional knowledge of the target process domain to understand the client's requirements fully (Bharadwaj & Saxena, 2010; Feeny et al., 2005; Ramachandran & Voleti, 2004). Integral to building professional knowledge of the target domain is the availability of skilled and trained manpower (Feeny et al., 2005; Bharadwaj & Saxena, 2010; Lahiri & Kedia, 2009).

In addition to understanding the core function of the process, an understanding of the clients business culture, i.e. the specifics and idiosyncrasies of the clients is needed (Feeny et al., 2005). Recent studies on services offshoring found that a “cultural fit” is critical to the client firm and drives their decision to allocate services towards certain suppliers. Cultural fit matters especially in services where the notion of fostering customer satisfaction is critical. A literature review on ITES outsourcing reveals that cultural distance, referring to the extent to which the client and supplier differ on one or more cultural dimensions, negatively affected outsourcing outcomes (Lacity, Khan, & Willcocks, 2009). Deng, Mao, and Wang (2013) also argue that a higher level of learning about clients can assist the provider in understanding the clients' requirements and environment, which would allow for a better focus on those activities that improve the service quality.

Finally, there is a wide agreement in the ITES literature that an ICT infrastructure and related skills are critical to any outsourcing of business processes. A company needs to have a robust and reliable ICT infrastructure in place, which encompasses hardware and software, as well as the knowledge and capabilities required to manage the infrastructure. Applied technology, like the adopted software, applications and platform, are found to affect the quality, cost and associated risks of the delivery of the service, and facilitate innovative solutions (Bharadwaj & Saxena, 2010). IT skills are ever so important, not only with the increased demand for digital skills (e.g. in areas of big data analytics), but also given that outsourcing is increasingly being used as a skills enhancer rather than only a cost saver.

While the literature on outsourcing of ITES has been rapidly expanding and has identified capabilities critical for outsourcing relationships, we still know very little about conditions for effective supplier learning and whether learning differs across the different types of value chains. Prior literature suggest that the degree to which supplier learning in value chains occurs will be a function of the governance mechanism characterizing value chain relationships. We investigate these relationship in an empirical analysis of supplier learning in the South African ITES sector.

3. Data, variables, and empirical model

3.1. Data

In our empirical analysis of learning in the South African ITES industry, we examine to what extent different types of learning within the value chain are associated with trust-based and/or

control-based modes of governance in supplier-client relationships. We distinguish domains of learning that have been identified as important in the sector: the transfer of professional knowledge, learning of business culture and practice, IT learning, and more general information exchange. Subsequently, we examine if these associations differ for firms in GVCs compared to firms in LVCs and RVCs.

Our analysis is based on a comprehensive data collection effort in the South African ITES industry. We conducted a survey among the population of ITES third-party service providers in the country. The focus of this paper is on South African based third-party or independent service providers that provide services to an external client. Hence, so called captive providers, serving only the parent company, are not included in the survey, as no outsourcing occurs and governance and learning are a function of corporate management.

We identified 206 firms based on a business register that was made available by the national association representing the ITES industry and information gained from intensive fieldwork in the country in 2016 and 2017. The response rate of the survey was 39.3% (81 out of 206 firms), but due to missing information on some variables used in this study the number of firms included in the analysis is reduced to 64 firms. We verified that non-response was not likely to bias findings, as the proportion of respondents was equal under firms engaged in the domestic market and firms engaged in international markets. The survey questions were inspired by existing surveys, mainly the Community Innovation Survey (CIS) for innovation questions, and the World Bank Enterprise Surveys for general firm characteristics, and studies on organizational learning and outsourcing as well as studies of the ITES sector.

In addition to the survey, a series of interviews were conducted with Chief Executive Officers (CEOs) and managers of 47 third-party ITES providers and 35 industry stakeholders (such as representatives from industry associations, governmental organizations, training providers, client firms, captive ITES providers, industry consultants, and academics). The supplementary information from the interviews allowed us to adapt the survey to the context of the ITES industry in South Africa and to help interpret and verify our empirical findings.

Table 1 provides an overview of the sample of firms. Firms in LVCs and RVCs are on average smaller than firms in GVCs, and a lower share of firms perceives itself to be profitable. More than half of the firms active in the regional and global markets operate in the Business Process Outsourcing (BPO) segment (54% in RVCs and 60% in GVCs), and on average 31% and 15% of these firms, respectively, perform activities in the IT Outsourcing (ITO) segment. Examples of BPO include finance and accounting, and sales and marketing activities (often within contact centers), whereas examples of ITO include IT infrastructure maintenance and software development. In LVCs the clear majority of firms is engaged in BPO (74%) and 13% of the firms perform ITO activities. The shares of firms performing services in the Knowledge Process outsourcing (KPO) segment are highest in GVCs (25%), followed by RVCs (15%), and LVCs (13%). The KPO segment includes knowledge-intensive services, such as legal services, business consulting and analytics (often in financial markets).

3.2. Variables

Our focal dependent variable is client learning in value chains. We identified specific learning domains that the literature pointed out as critical to capability building in the ITES sector. We tested these domains in a preparatory phase of the study using expert interviews to ensure that the domains were clearly understood and the terminology widely shared across the actors in the indus-

Table 1
Descriptive statistics: firms in local, regional and global value chains.

	LVC	RVC	GVC
Mean size in terms of employment	207.5	431.5	1152.9
Mean age in terms of years in operation	14.5	18.8	18.0
% of firms that perceive themselves as profitable	73.3	76.9	95.0
Share of firms by main service activity:			
% in BPO	74.2	53.8	60.0
% in ITO	12.9	30.8	15.0
% in KPO	12.9	15.4	25.0
# of firms	31	13	20

Source: Author's calculations.

Notes: BPO = business process outsourcing, ITO = IT outsourcing, KPO = knowledge processing outsourcing (Gereffi & Fernandez-Stark, 2010).

try. Learning in these domains can lead to product, process or functional upgrading (minor changes in the product, process or adding new functions) or can lead to inter-chain upgrading (moving into a different value chain), which is the typology of upgrading outcomes identified in extant GVC literature (Humphrey & Schmitz, 2002; Pietrobello & Rabellotti, 2011). First, we measure *knowledge of the process domain*, derived from Bharadwaj and Saxena (2010) and others (see Table 2). In interviews, firms argued that process domain knowledge is pivotal and determines their competitive edge. Firms in ITES generally refer to domain knowledge as knowledge about the industry, clients' needs, and the operational aspect of the processes that are outsourced. The level of expertise and experience of employees are considered critical in determining the companies' domain knowledge. Second, we identify and measure *IT skills and infrastructure*. Firms explained that they need to keep up to date with the latest technologies, and continuously develop their IT competences both in terms of infrastructure and skills. Nearly all firms (also those not solely engaged in IT outsourcing) explained that they need to add value through developing smarter technological capabilities and the use of IT systems to adapt to new technologies and demands. The third learning domain concerns the client's *business culture*. Firms need to understand and adapt to their clients' business culture, e.g. understanding their playing field, norms and habits, and way of working. For example, a firm engaged in a GVC argued that understanding the playing field in South Africa and aligning it with the way of working in the UK is important to its clients in the UK. Finally, we measure to what extent the client shares *information* with the provider firm that is important to the growth of the provider firm. This is added to capture any learning that may not be captured through the other dimensions.

The survey includes questions capturing to what extent the firm agrees that client interactions have assisted in learning and the building of capabilities in these four domains (see Table 2). The answers to the questions are noted on a Likert scale ranging between zero (strongly disagree) to five (strongly agree). Due to a limited variation in the strongly disagree and disagree categories, in contrast to a wide variation observed for agree and strongly agree, the learning questions are recoded into 0 = strongly disagree, disagree and neutral; 1 = agree and 2 = strongly agree.

We consider the individual learning outcomes as well as overall learning. To capture the overall level of client learning (OVERALL LEARNING), the four learning questions process (domain knowledge, IT, business culture and information) are aggregated into one variable ranging between zero (no learning) and 8 (strong learning in all areas).

To identify trust and control-based relations between provider and client in the value chain, 5-point Likert scale questions (0 = strongly disagree/5 = strongly agree) are included, asking respondents to what extent they agree with the following statements: 1) The relationship is characterized by goodwill and trust;

Table 2
Survey questions to construct the learning variables.

Variables	Survey question	Adapted from literature
Knowledge of process domain	The interaction with our client has helped our firm to expand the overall professional knowledge of the process domain.	Bharadwaj & Saxena, 2010; Mao et al., 2008; Feeny et al., 2005
Business Culture	The interaction with our client has helped our firm to understand the client's business culture.	Feeny et al., 2005; Deng et al., 2013
IT skills & Infrastructure	The interaction with our client has helped our firm to adopt improved IT infrastructure systems (specific software, applications etc.) and improved IT skills in our firm.	Bharadwaj & Saxena, 2010
Information	Our client shares information with our firm that is important to the growth of our firm	Mao et al., 2008

2) Our client is willing to continue the relationship long-term; 3) We have a partnership model in place with our client and not a supplier/vendor type of relation; 4) Our client is involved in improvement initiatives within our firm; 5) Our firm follows a strict transcript set by the client in delivering the service and does not have much input in designing the service offering; 6) The relationship with our client is characterized by a high degree of monitoring and control by our client. The likert-scale questions are derived from the literature (Gereffi et al. (2005), Lee (2001), Lahiri and Kedia (2009), Mao et al. (2008)) and adapted on the basis of the interviews conducted prior to the survey.

A principle component analysis indicated that the six questions could be grouped into two distinct factor components: one characterized by questions on partnership, trust, and a long-term commitment to the relationship (item 1–3), which refer to trust based relations (TRUST), whereas the other component is associated with relations that are based on a high degree of monitoring by the client, involvement in quality improvements, and where a strict transcript is in place (item 4–6) (CONTROL). To measure TRUST and CONTROL as governance modes, the factor loadings for both components are used. The results of the PCA analysis are included in the appendix.

As a key control variable we include absorptive capacity (AC), constructed as a binary variable equaling 1 if a firm states that the hiring of professionals with previous experience and or skills in the industry was of (high) importance as an information source to their innovation activities (over a 3-years period) and 0 otherwise (when it was of low importance or not used as a source of information). The recruitment of professionals as a measure of absorptive capacity follows prior GVC studies (see e.g. Ernst & Kim, 2002). As additional control variables we include firm size and firm age - commonly used in studies on innovation and performance. Firm size is measured as the logarithm of the number of employees of the firm by 2016 (FIRM SIZE) and calculates age as the logarithm of the number of years passed from the foundation of the firm (FIRM AGE).

3.3. Value chain involvement

We used the definition of Bamber et al. (2014) to categorize GVCs as value chains capturing the flow of services at the global market level - that is, across two or more continents, whereas RVCs embody chains of activities at the regional market level (the African market), and LVCs capture the flow of services within a country (South Africa). Table 3 shows client market(s) that the South African based ITES providers service, and the resulting classification of involvement in local, regional and global value chains. Firms that are engaged in multiple markets are grouped according to their "market reach", which means that firms that participate in both LVCs and RVCs are grouped under RVCs, whereas firms active in both domestic and global markets, and firms active in all markets, are grouped under GVCs. This results in the classification of local, regional and global value chain involvement as presented in Table 3.

Table 3
Classification value chain involvement according to client market(s).

Client market(s)	Number of firms	Value chain involvement
Domestic	31	LVC
Domestic/regional	13	RVC
Overseas	4	GVC
Domestic/overseas	6	GVC
Regional/overseas	1	GVC
Domestic/regional/overseas	9	GVC
Total	64	

Source: Authors' calculations.

Among the firms in GVCs, 17 firms (85%) service clients in Europe, 14 firms (70%) service clients in North American markets and 11 firms (55%) service clients in other geographical regions, such as in Australia. Out of the 16 firms in GVCs that participate in multiple value chains 10 (62.5%) are engaged in at least two overseas regions. Firms in RVCs are nearly always simultaneously involved in LVCs. Given that we have only few observations on RVC participation, it is not possible to estimate separate models for learning in this particular value chain. Hence, in the regression analysis we take the service suppliers in the LVC and RVC groups together and compare these with firms that are (also) active in GVCs.

3.4. Empirical model

Since our dependent variables on learning are ordered categorical data, we estimate ordered probit models (Cameron & Trivedi, 2009, p. 525) relating the probability that an outcome is reached to the explanatory variables, while including fixed (threshold) effects.

3.5. Descriptive statistics

Descriptive statistics of the variables used in the analyses are reported in Table 4. The majority of firms in LVCs, RVCs and GVCs state to agree or strongly agree to experiencing client learning, but in GVCs, a larger proportion of firms experiencing learning is observed. The occurrence of learning in the IT domain is more similar across value chains. On average, firms in GVCs experience the highest level of overall learning (5), followed by firms in LVCs (4.1) and firms in RVCs (3.8). In GVCs, trust based governance is only slightly more pronounced, while control based governance is slightly higher in LVCs.

Table 5 shows the correlation coefficients of the variables for the sample of 64 firms for which information on all variables is available. Apart from the correlations between the learning variables, for which individual models are estimated, there are no correlations that warrant concerns of multicollinearity.

4. Empirical results

Table 6 shows the empirical results for all firms, irrespective of the value chain. The client-provider governance based on trust is

Table 4
Descriptive statistics on learning by value chain.

	Value chain involvement			
	LVC	RVC	GVC	Total
	(N = 31)	(N = 13)	(N = 20)	(N = 64)
	mean	mean	mean	mean
Learning domain: Information				
% firms agree	0.55	0.23	0.6	0.5
% firms strongly agree	0.16	0.31	0.2	0.2
Learning domain: process knowledge				
% firms agree	0.58	0.46	0.3	0.47
% firms strongly agree	0.23	0.39	0.6	0.38
Learning domain: business culture				
% firms agree	0.58	0.31	0.3	0.44
% firms strongly agree	0.32	0.46	0.65	0.45
Learning domain: IT skills and infrastructure				
% firms agree	0.35	0.38	0.3	0.34
% firms strongly agree	0.29	0.08	0.3	0.25
Overall learning	4.1	3.8	5.0	4.3
Governance - Trust	-0.17	-0.14	0.36	0.0
Governance - Control	0.03	-0.15	-0.04	-0.03
Absorptive capacity	0.68	0.92	0.7	0.7
Firm size (employees)	207.5	431.5	1152.9	548.4
Firm age	14.5	18.8	17.9	16.4

Table 5
Means, standard deviations and Pearson correlation matrix.

	Mean	St Dev	1	2	3	4	5	6	7	8	9	10	11
1. GVC	0.31	0.05											
2. RVC+LVC	0.68	0.05	-1										
3. Overall learning	4.31	0.27	0.21*	-0.21*									
4. Information	0.90	0.08	0.09	-0.09	0.78*								
5. process Knowledge	1.21	0.08	0.27*	-0.27*	0.82*	0.55*							
6. IT	0.84	0.10	0.04	-0.04	0.72*	0.47*	0.37*						
7. Culture	1.34	0.08	0.25*	-0.25*	0.74*	0.40*	0.64*	0.30*					
8. Trust	0.00	0.19	0.16	-0.16	0.50*	0.46*	0.39*	0.27*	0.43*				
9. Control	-0.02	0.16	-0.004	0.004	0.24*	0.17	0.14	0.28*	0.11	0.05			
10. AC	0.73	0.05	-0.05	0.05	-0.01	-0.03	0.03	0.01	-0.06	-0.08	-0.04		
11. Firm size	4.78	0.24	0.35*	-0.35*	0.18	0.16	0.12	0.16	0.11	0.15	0.05	0.18	
12. Firm age	2.51	0.11	0.19	-0.19	0.03	-0.01	0.06	-0.06	0.13	0.09	-0.05	-0.003	0.52*

Note: * p < 0.10.

Table 6
The effect of governance structures on value chain learning.

	(1) Overall learning	(2) Information	(3) Process domain knowledge	(4) IT skills & Infrastructure	(5) Business culture
Trust	0.484*** (0.133)	0.590*** (0.152)	0.373** (0.144)	0.273* (0.143)	0.408*** (0.150)
Control	0.241** (0.116)	0.217* (0.128)	0.146 (0.125)	0.285** (0.117)	0.108 (0.141)
AC	0.052 (0.271)	0.035 (0.319)	0.22 (0.321)	0.069 (0.374)	-0.031 (0.349)
Firm size	0.084 (0.089)	0.064 (0.104)	-0.001 (0.107)	0.119 (0.087)	-0.030 (0.083)
Firm age	-0.139 (0.197)	-0.202 (0.222)	0.03 (0.202)	-0.251 (0.193)	0.140 (0.202)
Fixed threshold effects	Included	Included	Included	Included	Included
Observations	64	64	64	64	64
Loglikelihood	-112.69	-54.21	-58.19	-631.74	-53.91
Wald chi2	23.42	21.54	12.00	12.18	9.39
p-value	0.0003	0.0006	0.04	0.03	0.09

Note: Standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.010.

positively associated with overall learning. Absorptive capacity, age and size do not show any significant effect on client learning. Similar, but generally stronger, results are observed for the association between the explanatory variables and the individual learn-

ing domains. A relationship based on trust is positively associated with learning in all domains. Trust has the strongest association with information sharing. The association between trust and the probability of learning is similar for learning about domain knowl-

Table 7
The effect of governance structures on value chain learning in GVCs compared to LVCs and RVCs.

	(1) Overall learning	(2) Information	(3) Process domain Knowledge	(4) IT skills & Infrastructure	(5) Business Culture
Trust	0.535*** (0.145)	0.583*** (0.168)	0.411*** (0.153)	0.233* (0.131)	0.474** (0.195)
Control	0.135 (0.168)	0.134 (0.186)	0.04 (0.16)	0.203 (0.143)	0.085 (0.194)
AC	-0.421 (0.399)	-0.103 (0.487)	0.132 (0.456)	-0.599 (0.497)	-0.347 (0.508)
Firm size	0.299** (0.123)	0.251* (0.15)	0.131 (0.123)	0.345*** (0.106)	-0.015 (0.092)
Firm age	-0.34 (0.276)	-0.414 (0.3)	-0.105 (0.236)	-0.547** (0.272)	0.252 (0.221)
GVC	1.098 (0.905)	0.694 (1.247)	2.57 (1.774)	-2.231* (1.26)	2.697 (1.641)
Trust*GVC	-0.118 (0.248)	-0.04 (0.33)	-0.299 (0.426)	0.568 (0.379)	-0.492 (0.428)
Control*GVC	0.245 (0.235)	0.104 (0.297)	0.265 (0.357)	0.676* (0.349)	-0.116 (0.347)
AC*GVC	1.080* (0.642)	0.109 (0.724)	0.473 (0.758)	2.239*** (0.855)	0.69 (0.823)
Firm size*GVC	-0.557*** (0.174)	-0.467** (0.198)	-0.700** (0.289)	-0.438*** (0.163)	-0.193 (0.2)
Firm age*GVC	0.528 (0.322)	0.643 (0.419)	0.682 (0.483)	0.976*** (0.337)	-0.51 (0.385)
Observations	64	64	64	64	64
Fixed threshold effects	Included	Included	Included	Included	Included
Observations	64	64	64	64	64
Loglikelihood	-106.51	-51.57	-51.52	-55.64	-48.91
Wald chi2	61.85	19.21	33.71	32.73	15.19
p-value	0.0000	0.0021	0.0004	0.0006	0.17

Note: Standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.010.

edge and the client’s business culture, and somewhat lower for IT learning. In addition, a control based relationship is positively and significantly associated with the gaining of information and shows a more strongly positively association with capability building in the field of IT.

Table 7 shows empirical results examining whether learning in GVCs differs from learning in other value chains. Absorptive capacity is more strongly positively associated with overall learning in GVCs than with overall learning in LVCs and RVCs, as the positive and significant coefficient for the interaction terms between AC and GVC indicates. Learning is positively associated with firm size in LVCs and RVCs, but this association is negative in GVCs. Results for the individual learning dimensions show that these patterns hold in particular for IT learning. Additionally, the results suggest that the association between control based governance structures and IT learning is significantly stronger in GVCs. Firm age has a significantly negative association with IT learning in LVCs and RVCs (younger firms are more likely to learn), but the relationship between firm age and learning in GVC is significantly different with learning more salient in older firms.

The coefficients of the estimated ordered probit model cannot directly be interpreted as effect sizes given the nonlinearity of the model. The calculation of average marginal effects suggests that in the overall learning model, an increase in trust by one unit typically increases the probability of a learning outcome with the highest scores (7 or 8) by 4 to 8 percent points each while it reduces the probability of the lowest learning outcomes (0–3) by the same margins. For control based learning these effects are smaller, in the range of 3–4 percent points. For the individual learning dimensions, with a smaller range of outcomes, larger size effects are found, with trust typically increasing the probability of the highest outcome (2) by 7–14 percent points and reducing the probability of the lowest outcome (0) by 8–18 percent points. For IT learning, the effect of control based governance adds 8 percent point to the probability of the highest learning outcome.

4.1. Supplementary analysis

We conducted a number of supplementary analyses to examine the robustness and validity of our findings.¹ First, we examined if learning in value chains was consequential for firms in terms of a more widely accepted performance measure: the introduction of service innovation in the form of services that are new to the market. In a multivariate analysis of the probability that a service supplier introduces innovations new to the South African market, overall client learning was found to have a significant association with the introduction of such service innovations. In this analysis we controlled for firms’ R&D, size and age, and firms’ knowledge sourcing from the local innovation system. The innovation system (IS) in which firms are embedded (including the educational system, local research institutes, industry associations, the regulatory framework, policies and an established financial system) has a paramount role in facilitating innovation by enabling firms to source knowledge externally (Nelson, 1993; Edquist, 1997; Lundvall, Johnson, Andersen, & Dalum, 2002; Lema, Rabellotti, & Gehl Sampath, 2018). The supporting role of innovation systems in GVC-driven learning and upgrading processes has increasingly been emphasized.

Second, we also confirmed findings by examining answers to specific survey questions that directly ask respondents whether client interactions resulted in service innovations (the introduction of new services or quality improvement of current services). Findings corroborated that client interactions resulting in service innovations are not restricted to GVCs, but is also observed for firms in LVCs and RVCs. Third, we examined the empirical results of alternative categorizations of the RVC variable, by adding this group to the GVC category, or by leaving it out from a comparison between GVC and LVC learning. Empirical results were generally similar to the results presented in Tables 6 and 7, with slightly sharper differences between GVCs and LVC if the RVC category was left out.

¹ The key results are relegated to the appendix.

Fourth, we examined whether the properties of our measurement of absorptive capacity mattered for our findings. Human capital based measures of absorptive capacity are generally found to be important in the case of services, such as ICT-intensive services (see e.g. Vinding, 2006; Hertog, 2000; Hipp & Grupp, 2005) but they may not capture broader, dynamic, capabilities (Teece & Pisano, 2003). An alternative measure based on involvement of the providers in R&D was available for a subset of firms, yet substituting this measure did not change empirical results.

Fifth, we verified that our core findings were consistent with the views of the CEOs of service providers in our qualitative analysis, as emanating from our interviews. The interviews with CEOs confirmed that service providers, including firms in GVCs, strive for relationships with their clients based on trust and partnership. They find this critical for the exchange of knowledge as illustrated by the following statements: *“There is an upfront investment necessary to invest in a mutual relationship. A willingness to learn needs to come from both sides”*; *“Through constant communication a relationship is being built”*; *“We have to push our relationship into a partnership. It is instrumental for knowledge sharing”*; *“Trust is so crucial. We have to be transparent.”*; *“By having frequent interactions and by establishing friendly social relations, valuable knowledge is shared”*. Several CEOs claim that without trust tacit knowledge, such as those related to business culture is difficult to transfer. In our interviews, we coded that about two third of the respondents had similar views.

The quantitative analysis suggests that a controlled type of relationship strongly aids in IT learning, in particular in GVCs. These results find a parallel in the CEO interviews revealing that close monitoring or control by the client firm is often exercised via pressure to meet standards and other client demands. Damage to the clients' brand or reputation due to geographical and cultural remoteness, which can render it difficult to ensure quality, was emphasized as a concern of client firms when offshoring. The notion that standards are important in GVCs corresponds with the survey data revealing that 55% of firms in GVCs have quality standards (including the IT-related ISO 27001) in place compared to only 15.4% of firms in RVCs and 19.4% in LVCs.

While the qualitative study corroborated that client learning is observed in all value chains, the interviews also highlighted interesting nuances in the different value chains. Firms in GVCs emphasize that clients play a major role in knowledge diffusion through the exchange and training of personnel, which they found important considering the shortage of skilled and experienced personnel (e.g. in specialist and senior management roles) in South Africa. For firms in RVCs and LVCs, in contrast, the emphasis is less on the transfer of skills from client firms, probably because South Africa itself has a leading position on the continent. Firms in RVCs stressed that learning on business culture remained important, despite perceived cultural proximity of South Africa to other countries on the continent. Differences exist in cultural norms, habits and ways of doing business, as one respondent from a firm engaged in a RVC explained: *“For our client in Kenya, we cannot just replicate the model. You need to respect the local way of doing business and get your company in a local culture”*. Respondents also indicated that operating in the domestic and regional markets provided opportunities to build and demonstrate their capabilities, and develop networks and a reputation to further expand into other African and overseas markets. Several cases are observed of firms starting in LVCs and subsequently moving to engagement in RVCs and GVCs.

5. Conclusions

In this paper, we demonstrated in a detailed firm-level study that GVC participation provides an avenue for developing country

firms to enhance learning and capability building, as suggested in prior literature (Altenburg, 2006; Gereffi, 1994, 1999; Giuliani et al., 2005; Humphrey & Schmitz, 2002). Such GVC learning is strongly associated with the client's role in the exchange and training of personnel and also relates to local skill shortages. A key finding of our study of novel data on South African based ITES providers is that GVC participation is not the only avenue for client learning, since we similarly observe learning in LVCs and RVCs. We also confirmed that value chain learning has important consequences in the form of an increased probability that service providers are able to develop new service innovations.

Our study also examined the crucial role of value chain governance. We find that learning is significantly enhanced in all value chain configurations if the client and service provider interactions are based on trust. Hence, client-provider relations based on trust (relationships based on goodwill, long-term commitment, and involving a partnership model) facilitate overall client learning. Trust based relations positively affect learning about the business process, the clients' cultural business environment, and facilitate the exchange of information in general – which may capture other areas of learning critical for capability building.

Positive effects of control based governance are also observed, but restricted to learning in the IT domain within GVCs. In the latter context, absorptive capacity in the form of investments in skills also positively affects learning. Governance characterized by a form of control (relationships based on client involvement in improvement initiatives, a strict transcript set by the client firm, and a high degree of monitoring and control by the client firm) may be important regardless of the level of trust, as the transfer of knowledge in the field of IT is integral and critical to service delivery in the ITES sector. The fact that this is only observed for firms in GVCs is consistent with the notion that, when producers from developing countries are integrated in GVCs and supply more sophisticated markets, client control is more important (Humphrey & Schmitz, 2001, 2002). Control can facilitate adherence to international standards, which has been argued to be one of the main channels of GVC learning (Pietrobelli & Rabellotti, 2011). Given the cultural differences, communication barriers, and geographic distance associated with GVC involvement of firms in developing countries, control gains in importance (e.g. Mao et al., 2008).

Our study has a number of managerial and policy implications. For managers of supplier firms, our results highlight that important learning benefits are to be gained from investing in the client relationship to ensure high levels of trust and long-term commitment. In GVCs, adhering to client control can in addition be beneficial, as it can facilitate learning and infrastructure improvements in IT, for instance through the involvement of clients in new initiatives in this domain. Client firms can also play a key role in knowledge diffusion through the setting of quality standards that pressure providers in GVCs to upgrade services. This emphasizes the importance of firms' adherence to international quality standards (e.g. ISO standards) and the development and use of skills-related standardization and accreditation. These quality standards also play a positive role, but to a lesser extent, in RVCs and LVCs.

In terms of policy recommendations, we suggest to work towards a better alignment between stakeholders in public, private and non-profit sectors (e.g. government agencies across the country, industry associations, and educational organizations) to close the skills gap and to cater to the need of the ITES sector. In fact, institutional alignment has been recently more actively pursued by various stakeholders in South Africa. Sourcing skills and experience from corporate groups and the training of employees via in-firm accredited training academies to overcome skills shortages appear more common in particular among larger firms engaged in GVCs.

Our study draws on unique data collected in South Africa, which allowed a firm level study of capabilities building and learning mechanisms in value chains, and a systematic comparison of learning and governance in three types of value chains, juxtaposing global value learning with local and regional value chain learning. Despite these contributions, our study has a number of limitations, which at the same time suggest ample scope for future research. We acknowledge that the process of capability building is dynamic, and that various feedback effects could occur, through which learning helps building skills that subsequently enhance learning capabilities. The cross-sectional design of our research cannot establish explicit causal relationships between the constructs, or examine the dynamic process of capability building. Firms engaging in global value chains may have distinct capabilities allowing them to enter in these international chains, as suggested by related research on exporting and productivity (e.g. Greenaway & Kneller, 2007; Bernard & Jensen, 1999). In addition, involvement in LVCs may facilitate entry in GVCs – a process of value chain 'upgrading' (Lee et al., 2018). Although our learning construct specifically focused on direct learning from clients and findings were corroborated by survey questions and interviews on the role of value chain participation in firms' capability building, future research should collect data over multiple years to examine learning processes and outcomes over time.

Our data focused on the interaction between the IT service provider and its client firm, but did not examine the wider characteristics of the value chain, such as the possible supply relationship of client firms with their own customers. Similarly, data limitations did not allow for a comparison of learning effects for firms operating in multiple chains and firms active in a single value chain only (Navas-Alemán, 2011). Identifying potential complementarities in multiple value chain involvement with sufficient (statistical) confidence requires much larger populations of firms. Our analysis could neither give attention to client characteristics (e.g. Kaplinsky et al., 2002; Sinkovics et al., 2019) to the extent that these matter beyond governance, or potential differences in the different market segments of the ITES sector.

Finally, our analysis focused on the ITES sector in South Africa, which is a highly relevant case to examine given the presence of the three types of value chains. While the setting may be representative of participation and learning in (global) value chains in services in other countries, e.g. as observed for the case of Kenya (Mann & Graham, 2016), the South African case may still be specific due to the gateway function of the South African economy. Therefore, research in other country settings would be interesting to validate our findings on learning and capability building in different value chains of services.

In closing, we note that for capability building and innovation, not only the value chain environment is important, but also the innovation system in which firms are embedded (i.e. via merger & acquisitions, consultants, educational organizations, governmental organizations, conferences and industry associations). Future research may examine the role of GVCs for learning and innovation in developing countries from a broader perspective, exploring the interaction between value chain participation, learning, and the innovation system in their effects on firms' capability building and innovation, in order to identify policies that promote competitive participation of developing countries in (global) value chains of services.

CRediT authorship contribution statement

Charlotte Keijser: Conceptualization, Methodology, Investigation, Formal analysis, Writing - original draft, Writing - review & editing. **René Belderbos:** Conceptualization, Methodology, Formal

analysis, Writing - original draft, Writing - review & editing. **Micheline Goedhuys:** Conceptualization, Methodology, Formal analysis, Writing - original draft, Writing - review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

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