Servicification of Manufacturing in Global Value Chains: How Services Trade and Foreign Direct Investment Shape Export Quality and Volume

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ORIGINAL ARTICLE

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Abstract

   This study examines the role of services trade and foreign direct investment (FDI) in shaping export performance among manufacturing firms participating in global value chains. Using firm-product-destination level panel data for Slovenia (2008–2020), the analysis investigates whether servicification—the growing integration of services into manufacturing—enhances firms' export quality and export volume. The findings reveal that services imports at the destination level significantly enhance export quality, particularly for consumer and intermediate goods, while services exports positively influence export volumes, suggesting strong complementarities between goods and services trade. Outward FDI is a key driver of both higher export quality and volume, while inward FDI has mixed effects, benefiting quality but occasionally reducing export volumes. These results highlight the critical role of services trade and FDI in global value chain upgrading and suggest that policies promoting servicification and strategic international investments can enhance firms' competitiveness in global markets.

Keywords: Services trade, Global value chains (GVCs), Export quality and volume, Servicification, Foreign direct investment (FDI)

JEL classification: F14, F23, L80

1 Introduction

As per the Organisation for Economic Co-operation and Development (OECD, n.d.), services are the cornerstone of the global economy, contributing over two thirds of the world's GDP, account for more than three quarters of foreign direct investment in developed nations, serve as the largest source of employment, and drive the creation of the majority of new jobs on a global scale. Nayyar and Davies (2023) report that services account for the largest portion of global GDP and are the primary engine of output and employment growth worldwide. However, capturing cross-border trade in services remains a persistent challenge (Bohn et al., 2018). Furthermore, around a fifth of world gross trade consists of services trade, whereas in terms of gross value-added trade, services

account for roughly a half (up from 30% in 1995). The larger share of services in value-added trade is explained by the fact that the value added of services is often integrated into manufacturing activities and consequently exported as manufacturing goods. Additionally, pertaining to the servicification of manufacturing, the share of value added attributable to services in manufacturing has grown over time, with services contributing around 30% to global value added in manufacturing in 2015, up from 20% in 2005 (Cigna et al., 2022). Clearly, services play an outsized role in international trade generally and global value chains (GVCs) specifically, as the latter are not only the glue linking value chains together but are also value-adding activities (Heuser & Mattoo, 2017; Low, 2013; Miroudot & Cadestin, 2017).

   Principally, GVCs depend on efficient logistics, transport, communication, finance, other business,

and professional services to facilitate the movement of goods and coordinate production throughout the value chain (Miroudot & Cadestin, 2017). In this regard, one can perceive the emergence and existence of GVCs as a direct result of advancements in services such as transportation, communication, and IT, which have enabled the fragmentation and coordination of production processes across the globe. Resultantly, this paper argues that services can be considered analogously to goods in both the analysis and measurement of GVCs. However, services play a distinct role in GVCs compared to goods, as they enable the formation of GVCs in ways that goods cannot. Services function as unique components within GVCs, differing from the conventional cross-border or arm's-length trade typically associated with goods (Heuser & Mattoo, 2017). In essence, industrialised countries' benefits from globalisation increasingly rely on intangible assets[1] rather than physical goods, with Al-samawi et al. (2020) suggesting that intangible assets contribute to 27% of the income generated by manufacturing GVCs in OECD countries. Furthermore, services play a critical role in facilitating transactions across space (transport, telecommunications) and time (financial services) and constitute significant and increasing portions of national incomes and employment, making them systemically important. They are essential inputs for all economic activities and significantly influence the productivity of core production factors: labour and capital. Thus, they are crucial for the broader economy and the efficient functioning of both domestic and international value chains. Lastly, with higher growth rates than agriculture and manufacturing, they have been a key driver of GDP and employment growth (Kowalski et al., 2015).

This paper contributes to the literature on GVCs by addressing several interrelated theoretical and empirical gaps. While existing GVC research has highlighted mechanisms of upgrading and firm participation, it often treats firms as homogenous actors and focuses predominantly on manufacturing, overlooking the increasing complexity of firm-level behaviour and the growing importance of services. This paper responds to three key limitations in the literature. First, despite increasing interest in firm participation in GVCs, little is known about the link between export product quality and firm-level GVC integration. This represents a deeper theoretical gap: current GVC frameworks rarely explain how firm-specific capabilities related to quality upgrading influence participation trajectories. Second, although

the servicification of manufacturing is a growing trend, existing theory tends to focus solely on manufacturing processes and has yet to fully incorporate how the integration of services such as logistics, R & D, and business support shapes firms' upgrading potential within GVCs. This challenges foundational assumptions in GVC theory about where and how value is created. Fundamentally, both theoretical and empirical gaps remain in understanding how trade in services influences firms' participation in GVCs. Notably, even in the comprehensive overview of the current state of GVC literature by Antràs and Chor (2022), there is a lack of theoretical models and empirical studies that explicitly differentiate between participation through goods trade and services trade. Third, there is a disconnect between firm-level and macro-level analyses: while trade economists often model GVCs from a country or industry perspective, they underappreciate the heterogeneity of firm strategies, a shortcoming that international business (IB) research—see, for example, Kano et al. (2020)—has begun to address. By combining servicification, export product quality and firm-level GVC participation, this paper builds a more nuanced, multilevel perspective on value chain dynamics and offers a theoretically grounded explanation of firm heterogeneity in GVC engagement and performance.

Recognising multifaceted roles of services provides a broader context for analysing export performance, especially because improvements in service efficiency (e.g., logistics, finance, or communication) may also indirectly raise the quality of goods exports by reducing production and coordination costs. More specifically, this paper argues that the incorporation of such services within a firm can generate similar positive spillovers as described in Anwar and Sun (2018) and presented in the literature review section, implying that services may enhance a firm's productivity, which results in them producing higher-quality goods and thus leads to higher export unit values. Conversely, service tasks themselves can form the main source of a firm's sales and exports, challenging the traditional goods-centric paradigm of trade analysis.

Bringing these two strands, export quality and the services dimension of GVCs, together highlights how foreign presence and service-based activities collectively influence the competitiveness of a firm and an industry. Specifically, while foreign presence may elevate quality and productivity in goods exports, the simultaneous role of services can further

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[1] Intangible assets include trademarks, copyrights, patents, brand names, software, product designs, databases, and certain types of business organisation structures (Cummins, 2005).

modify the nature and trajectory of value creation. For instance, if a firm specialises in high-end service tasks within GVCs, it may also generate positive spillovers that enhance the broader trade ecosystem. On the other hand, the entry of lower-capability firms or less sophisticated service providers can complicate the net impact on measured export quality, prompting an empirical examination to ascertain the balance of these forces.

Furthermore, foreign direct investment (FDI) plays a pivotal role in firms' export performance, with potential impacts on both the quality and volume of goods they export (e.g., Harding & Javorcik, 2012; Zhu & Fu, 2013). By injecting capital, technology, and managerial know-how, FDI can spur productivity gains that enable firms to produce higher-quality products and scale up their export volumes. In line with this reasoning, Anwar and Sun (2018) and Swenson and Chen (2012) find that foreign firm presence significantly boosts the quality of local exporters' products, enhancing their international competitiveness. Also, Chun et al. (2021) state that outward FDI by domestic firms facilitates greater export quantities through technology transfer and improved market access. However, FDI's impact is not uniform across all contexts—for example, while some research documents clear quality gains, other work finds mixed or even negative effects under certain conditions (e.g., Liu et al., 2024; Sun, 2009). This mix of findings underscores the importance of examining how FDI influences both export product quality and volume.

The aim of this paper is to determine, among manufacturing firms that are GVC participants, which internationalisation activity contributes most to the firm's export product quality and volume: trade in services or FDI. This research focuses exclusively on manufacturing firms to specifically examine the effects of the servicification of manufacturing—the increasing integration of services into traditional manufacturing processes. Ultimately, this paper defines the key transmission channels for the firm's quality of exported products, outlines the exact role services trade has in the process, and assesses the role of servicification of manufacturing firms. By doing so, the paper aims to provide new insights into the drivers of export quality and volume, paying particular attention to how services integrate and reshape value chains in a globally interconnected economy. More specifically, this paper answers the following research question: Which activities affect a GVC-participating firm's export quality and volume, and what are the effects of these activities? As such, this paper has empirical implications, as the literature examining export product quality within GVCs at firm level is limited and

as most other firm-level GVC studies focus solely on trade in goods.

A key strength of this study lies in its use of a comprehensive firm-level dataset for Slovenia—an economy deeply integrated into global trade. In 2024, exports of goods and services accounted for 81.5% of its GDP (World Bank, 2025), placing it 19th globally in trade openness. Its strong participation in European value chains makes Slovenia an empirically rich and analytically appropriate context for examining how services trade and FDI affect export quality and volume. The country's GVC participation index stood at 56.7 in 2018 (World Trade Organization, n.d.), well above the European average of 48.8, underscoring its deep embedment in international production networks. With a large number of small manufacturing suppliers, Slovenia also demonstrates robust backward GVC participation. In addition, Slovenia offers a theoretically relevant setting: as a small, open EU economy with a strong manufacturing base and a postsocialist institutional legacy, it reflects structural features central to GVC participation and servicification dynamics. Moreover, its manufacturing sector is highly export-oriented and increasingly intertwined with services, as Jaklič et al. (2020) note that Slovenian manufacturers rely heavily on imported goods and services, while Stare et al. (2019) find that foreign services account for a growing share of export value added. As Michailova (2011) and Welch et al. (2022) argue, explicitly leveraging national context enhances the theoretical contribution of IB research. The insights from this study may thus extend beyond Slovenia to inform policy and strategy in other small or peripheral EU economies and emerging markets with similar integration trajectories.

The database constructed for the purposes of this paper includes the following databases for the 2008–2020 period that have been—via unique firm identifiers—merged together: (i) transaction-level trade data at the 8-digit level of the European Combined Nomenclature classification provided by the Statistical Office of the Republic of Slovenia, (ii) detailed transaction-level trade in services data for a sample of Slovenian firms by the Bank of Slovenia, (iii) a firm-level database of financial statements collected by the Agency of the Republic of Slovenia for Public Legal Records and Related Services, containing all financial data for all firms registered in Republic of Slovenia, and (iv) information on firms' cross-border direct investment (FDI) inflows and outflows provided by the Bank of Slovenia. These combined datasets offer detailed panel data at the firm-product-destination level, making Slovenia an empirically illustrative and well-suited case for such a study.

For the empirical analysis, this paper employs a fixed-effects panel regression to estimate the impact of a firm's trade in services and FDI flows on its export quality and volume, focusing specifically on manufacturing firms that are also participants in GVCs. Further, it distinguishes between types of goods (intermediate, consumer, and capital goods) to examine whether the effects of the abovementioned internationalisation activities vary with respect to the type of goods in question.

This paper highlights the transformative role of services trade and FDI in shaping the export quality and volume of Slovenian manufacturing firms participating in GVCs. The findings reveal that market-specific services imports significantly enhance export quality to that market, especially for consumer and intermediate goods, while services exports positively influence goods export volumes. Outward FDI emerges as a key driver of both export quality and volume, which underscores its role in technology transfer and market access, whereas inward FDI exhibits mixed effects, benefiting export quality but occasionally diminishing export volumes for consumer goods. The paper underscores the nuanced effects of internationalisation strategies, which vary across different types of goods, and offers actionable insights for policymakers to foster competitiveness by prioritising servicification, strategic FDI, and enhanced access to high-quality service inputs. These findings contribute to understanding the evolving dynamics of GVCs and the growing importance of intangible assets in modern trade.

The remainder of the paper is organised as follows. In the next section, a summary of the relevant literature is given. Section 3 introduces the methodology utilised in the empirical part and presents data and descriptive statistics. The empirical analysis and results' discussion are included in Section 4. The last section summarises and offers conclusions.

2 Literature review

2.1 Theoretical background

Global production has become increasingly fragmented across countries, resulting in complex GVCs coordinated by lead firms overseeing dispersed suppliers and affiliates. This trend marks a shift from the hierarchical multinational enterprise (MNE) model toward networks of specialised partners (Coe & Yeung, 2015; Yeung, 2016). Kano et al. (2020) conceptualise a GVC as a distinct governance form that must deliver efficiency gains over simpler alternatives (e.g., internal hierarchy or arm's-length trade) to persist. In their framework, governance issues arise at the firm

level (strategies and capabilities), the GVC level (network structure and coordination), and the macro level (institutional environment). This implies that international economics (IE) theories of trade and quality must be integrated with IB concepts of governance and coordination. In particular, firms' export quality depends not only on their productivity (an IE perspective) but also on how they orchestrate and adapt within global networks (an IB perspective).

From an IE perspective, firm heterogeneity drives selection into export markets. Only the most productive producers export, and those firms tend to deliver higher-quality outputs (Bernard & Bradford Jensen, 1999; Kugler & Verhoogen, 2012; Melitz, 2003). Moreover, exporters are a select group: Typically only a minority of firms export, and exporters are generally larger and more productive than nonexporters (see e.g. Bernard & Bradford Jensen, 1995, 1999, 2004; Clerides et al., 1998; Eaton et al., 2004; Pavcnik, 2002). Building on the Melitz model, Anwar and Sun (2018) show that the presence of foreign firms in an industry can boost that industry's export quality via productivity spillovers—consistent with this, the authors find that foreign presence in China's manufacturing significantly raises the industry's export quality—, an effect directly reflected in higher export prices. This provides a theoretical rationale for using export unit value (a price-based measure) as an observable proxy for underlying export quality. However, foreign entry may also lower barriers for less productive firms, whose lower-quality outputs can offset some gains. Thus, the net impact of foreign presence on overall industry quality is ambiguous ex ante, which underscores the need for empirical verification. Despite the limitations of price-based quality measures, export unit values remain a widely used and practical indicator of export quality in empirical research.

From an IB perspective, the fragmented nature of GVCs makes coordination and governance central concerns. IB theory highlights the role of the lead firm in orchestrating the value chain (Rugman & D'Cruz, 1997). Lead-firm headquarters must manage complex interfirm linkages: fine-slicing the value chain into tasks, controlling critical information flows, and coordinating independent partners across borders. This role often demands advanced management capabilities (Buckley, 2009; Kano, 2018), sometimes more so than in a conventional MNE. In effect, the headquarter becomes a hub that bundles resources, aligns incentives, and steers the network. Kano et al. (2022) further argue that managerial governance adaptations—the routines and decision processes leaders adjust in response to disruption or new information—are crucial for long-run GVC resilience. That is, beyond relocating activities, firms

must adapt how they govern (e.g., switching between hierarchical control and collaborative contracts) to maintain efficiency under change. From a theoretical perspective, these ideas support transaction-cost and internalisation views: A GVC as a governance form exists because it economises on coordination costs. Kano et al. (2020) underscore that a GVC will thrive only if it aligns its structure with the attributes of transactions in a cost-efficient way. Modern ICT, logistics, and transport services facilitate this alignment: by improving communication and linking distant stages, these services have allowed firms to manage geographically dispersed production (Jones & Kierzkowski, 2001). In other words, coordination across a chain often relies on complementary service inputs to reduce delays and uncertainties. Together, these IE and IB perspectives provide a foundation for understanding how firm-level capabilities and governance, along with market selection, jointly determine export quality in GVCs.

2.2 Firm-level evidence on export quality

The quality of exported products has significant implications for trade performance. Higher-quality goods fetch higher prices in international markets (see, e.g., Hallak & Sivadasan, 2009; Kugler & Verhoogen, 2012) and higher-income countries tend to export relatively higher-quality goods (see, e.g., Hallak & Schott, 2011; Khandelwal, 2010). These patterns further justify using unit values as quality proxies and underscore why export quality is a pivotal factor in international trade and development. However, such findings also underscore firm-level differences: Kano et al. (2020) emphasise that even within the same industry and region, lead firms vary widely in their control and governance strategies, driven by their own capabilities and goals. In other words, firm-level strategic choices (not just country or sector factors) shape how GVCs are organised and, ultimately, what quality outcomes emerge. Thus, understanding export quality requires examining both the productivity-driven selection emphasised by IE and the governance and strategic adaptation emphasised by IB.

At the firm-product level, evidence shows a positive link between productivity and export quality. For example, more productive Portuguese manufacturers export larger quantities at higher unit prices within the same product categories, which indicates they produce higher-quality goods (Bastos & Silva, 2010). Such firms also set higher unit values for identical products in more distant or wealthier markets, and productivity further amplifies this pricing-to-market effect. Similar patterns have been observed in other countries; see, for example, Manova and Zhang (2012)

for Chinese data, Görg et al. (2016) for Hungarian data, Martin (2012) for French data, and Harrigan et al. (2015) for U.S. data. Consistent with this evidence, export unit value is widely used as a firm-level proxy for product quality.

GVC participation appears to be another factor associated with higher export quality. Deep participation in GVCs is indeed associated with higher export product quality, via access to advanced foreign inputs and knowledge—relevant to this paper, albeit on a macro level, is the study by Ndubuisi and Owusu (2021). Similarly, Brambilla and Porto (2016) suggest that producing high-quality goods comes with higher production costs. These goods are typically exported to wealthier countries and firms producing them tend to offer higher wages to their employees. Additionally, greater foreign services value added in exports is linked to longer-lasting trade relationships (Díaz-Mora et al., 2018). Lastly, Bernini et al. (2015) find, using French firm-level data, that higher financial leverage is associated with lower export quality.

Opposingly, the impact of FDI on export quality is more ambiguous. Some studies find that FDI brings positive spillovers, boosting local firms' export quality (Swenson & Chen, 2012; Anwar & Sun, 2018). However, research on Chinese firms often finds small or even negative FDI effects on export quality (Liu et al., 2024; Lu et al., 2022; Sun, 2009). On the other hand, FDI can have indirect benefits: the presence of MNEs in upstream sectors is associated with improved export quality for downstream firms (Bajgar & Javorcik, 2020). In sum, the net impact of FDI on export quality remains context-dependent. Finally, some relevant macro-level papers include Harding and Javorcik (2012), Guerra (2024), Khandelwal (2010), and Zhu and Fu (2013).

2.3 Servicification of manufacturing firms

Although trade in services plays a pivotal role in GVCs, it remains underrepresented in much of the existing literature, especially within IE. Studies—within IB literature—that recognise the enabling function of services in supporting manufacturing GVCs typically rely on analytical frameworks originally developed for manufacturing value creation; most notably Porter's value chain (1985) and the "smiley curve" (Mudambi, 2008). Stabell and Fjeldstad (1998) provide a notable extension by proposing distinct value configuration models—value chains, value shops, and value networks—to capture diverse ways services generate value.

In this context, the growing infusion of services into manufacturing is significant. In the IB literature on service growth dynamics, a distinction is often made between service infusion and servitisation (in

this paper referred to as servicification; see, e.g., Forkmann et al., 2017; Kowalkowski et al., 2017; Raddats et al., 2019; Rašković et al., 2025). The former refers to the growing importance of service offerings within a company or business unit, reflecting an increase in service business orientation, which, according to Homburg et al. (2002), can be assessed through three dimensions: the number of services offered, the number of customers receiving those services, and the relative emphasis placed on services. This concept aligns with Shostack's (1977) product-to-service continuum, which posits that a firm's service orientation strengthens as intangible elements become more central to its offerings. The latter, by contrast, goes beyond service infusion. It entails a fundamental shift from a product-centric to a service-centric business model and logic. This transformation often requires reconfiguring organisational structures and capabilities (Baines et al., 2009), redefining the firm's strategic mission, and reshaping internal routines, values, and norms (Kindström & Kowalkowski, 2014).

Even simple infusion can upgrade product offerings: for example, manufacturers may bundle R & D, design, or after-sales support with goods. Miroudot and Cadestin (2017) show that many manufacturers not only purchase more services as inputs but also export services either bundled with their goods or on their own. This shift is not limited to large MNEs; small and medium-sized enterprises (SMEs) also leverage services to add value and build long-term customer relationships. For example, many manufacturing firms develop support services (e.g., R & D and IT) in-house and even export these services to their foreign affiliates (Kelle, 2013). As a result, services now account for a substantial share of manufacturing output and trade—over half of manufacturing export value once in-house service activities are included. Likewise, roughly one quarter to over one half of all employees in manufacturing firms work in service-related roles such as R & D, design, logistics, marketing or other support functions. Such evidence suggests that the traditional boundary between goods and services is blurring (see, e.g., Kowalski et al., 2015; Miroudot & Cadestin, 2017).

Importantly for theory, services differ from goods in how value is added: Whereas goods production typically follows a linear "snake" sequence, service value chains often create value through a networked "spider" pattern, with multiple activities contributing concurrently (Baldwin & Venables, 2013). In addition, services play multiple roles within GVCs. Heuser and Mattoo (2017) and Miroudot and Cadestin (2017) identify four key roles: Services can form their own value chains; they link and coordinate dispersed production (via transport, logistics, and ICT); they act as outsourced inputs (such as R & D at an early stage or marketing at the end); and they can be produced in-house as support (e.g., IT and finance). These dimensions suggest that servicification can raise export quality through several channels: High-value services (e.g., engineering, quality control, and branding) can directly improve product quality, and supporting services (e.g., faster logistics or better design) reduce costs or delays, allowing firms to use higher-quality inputs.

Empirical evidence supports such dynamics. Lodefalk (2013) reveals a significant shift toward servicification among Swedish manufacturing firms. Chun et al. (2021) find that Korean GVC participants—via trade and FDI—have restructured their domestic labour force to provide high-value-added headquarters services for their foreign manufacturing operations in proximity. Further, Reddy et al. (2022) show that servicification positively impacts GVC participation, with notable benefits for SMEs and less technology-intensive firms. However, the effects can be nuanced: Du and Agbola (2022) discover that although domestic and aggregate servicification strengthens GVC upgrading, foreign servicification diminishes it. In sum, theory predicts that servicification and GVC participation are intertwined: Efficient service inputs help knit the chain together and support value creation at every stage. Finally, macro-level studies of servicification of manufacturing in GVCs include Lanz and Maurer (2015), Thangavelu et al. (2018), Sharma et al. (2024), and Díaz-Mora et al. (2022).

To conclude and to integrate the aspects of GVC participation, services, and export quality, a multi-level story emerges. At the firm level, firm productivity and capability heterogeneity determine which firms opt for exporting and how they perform. At the network level, governance choices—from contract structures to coordination routines—shape how inputs flow and value is created. At the macro level, the policy and institutional environment influences trade costs and the availability of foreign inputs. Services are the glue that connects these levels: advances in transport, ICT, and finance services have enabled fine-sliced chains and allowed firms to specialise (Heuser & Mattoo, 2017). Indeed, two thirds of recent growth in services value-added trade comes from services embedded in other sectors, underlining their critical GVC role. Crucially, improved service efficiency (e.g., better shipping or communications) lowers coordination costs and thus can indirectly raise the quality of exported goods, even if the goods themselves are unchanged. In the context of this paper, this suggests that firms deeply integrated into GVCs—especially those with significant foreign-sourced services content—have access to superior inputs and coordination capabilities, which should

manifest in higher export quality. The empirical analysis tests these theoretical linkages: namely, whether servicification of GVC participants enhances a firm's export quality, consistent with a theory-driven view that spans IE and IB perspectives.

3 Empirical analysis

3.1 Data and descriptive statistics

This analysis is based on the transaction-level trade data at the 8-digit level of the European Combined Nomenclature classification provided by the Statistical Office of the Republic of Slovenia (SURS) and on the detailed transaction-level trade in services data for a sample of Slovenian firms collected by the Bank of Slovenia. Furthermore, the following firm-level databases were also used and ultimately, via unique firm identifiers, merged together: (i) the detailed database of firms' financial statements collected by the Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES), which spans the population of Slovenian firms, and (ii) information on firms' cross-border direct investment (FDI) inflows and outflows provided by the Bank of Slovenia. The examined period in this paper is 2008–2020, as this is the period for which data in services trade is available.

Note that this analysis only includes manufacturing firms that are GVC participants, as it aims to examine the effects of the servicification of manufacturing. Hence, for this paper, data availability resulted in transaction-level trade data for 6957 Slovenian manufacturing firms, which amounted to 1,749,082 observations at the firm-product-destination level. As expected, the number of observations per year follows a generally increasing trend during the observed period (from 104,298 in 2008 to 172,621 in 2020), with decreases in the number of annual observations being related to the effects of the global financial crisis in 2008, 2009, and 2012 and to the COVID-19 pandemic in 2020.

Table 1 reports mean values and standard deviations of the dependent variable and control variables of the empirical model and some other relevant financial indicators. Note that the descriptive statistics are presented separately for all cohorts of the type of goods that this paper accounts for and researches the effects for (i) all types of goods, (ii) intermediate goods, (iii) consumer goods, and (iv) capital goods. Overall, the table shows that firms exporting these different types of goods exhibit noteworthy differences in export values, quantities, and firm characteristics. Firms exporting capital goods command the highest export unit values, which suggests that these products tend to be more complex

or technologically intensive, yet their exports—both nominally and in volume—are on average the lowest. Consumer goods, meanwhile, show higher average exports of products than intermediate or capital goods, but are shipped in lower volumes compared to intermediate goods. In terms of services trade, consumer and capital goods exporters generally engage in slightly higher services exports and imports than intermediate goods exporters, although their respective ratios of services exports and imports orientation is lower than that of intermediate goods exporters. Firms exporting consumer or capital goods also tend to be larger, more mature, and more likely to engage in outward or inward FDI. These patterns underscore the distinct nature of intermediate, consumer, and capital goods producers, highlighting differences in their product characteristics, reliance on services, and degree of global integration.

As for the trade in services data, the Bank of Slovenia collects information on the trade in services for a sample of Slovenian firms, which means that this dataset does not encompass the entire population of Slovenian firms, as is the case for other databases used for the purposes of this paper. Nonetheless, we still believe that the use of this dataset is applicable and advantageous, as it includes information on approximately 1100–1500 firms per year, with around a fifth of them being manufacturing firms (for more detail see Table 2). Further, most existing firm-level GVC studies do not benefit from having access to any data on trade in services—as such, literature focusing on firm-level trade in services is still rare, largely due to difficulty in obtaining suitable and complete data. As a result, this study is among the few that integrate firm-level data on trade in services, thereby offering a more comprehensive understanding of firms' internationalisation activities and filling an important gap in the existing literature.

3.2 Methodology

This paper analyses the effects of distinct internationalisation activities of firms on two dependent variables: the first is the firm's product export quality (at the firm-country-product level), proxied by the natural logarithm of its product export unit value, whereas the second is the natural logarithm value of the euro value of the firm's exports of a given product to a given country. In essence, these two dependent variables are proxies for a firm's export quality and export volume, respectively. The focus on these variables allows for a deeper understanding of how internationalisation affects not only the volume of exports but also the quality aspect, which is increasingly recognised as critical in maintaining competitiveness in global markets. The dual approach ensures a

Table 1. Descriptive statistics.

Mean value (SD)	Population	Intermediate goods	Consumer goods	Capital goods
Ln of export unit value	2.732	2.596	2.607	3.469
	(1.860)	(1.932)	(1.606)	(1.700)
Product exports (in million €)	0.123	0.109	0.151	0.077
	(3.320)	(1.161)	(6.280)	(0.637)
Product exports (in kg)	46,829	60,416	27,850	8,004
	(1,064,807)	(1,298,129)	(333,804)	(87,075)
Services exports (in million €)	1.690	1.699	2.069	2.049
	(10.968)	(11.003)	(12.819)	(12.621)
Services imports (in million €)	3.007	3.017	3.774	3.709
	(16.751)	(16.801)	(19.578)	(19.327)
Services exports orientation	0.067	0.067	0.045	0.052
	(0.204)	(0.204)	(0.165)	(0.176)
Services imports orientation	0.039	0.039	0.035	0.037
	(0.067)	(0.067)	(0.058)	(0.063)
Ln of total factor productivity	9.408	9.412	9.380	9.423
	(0.567)	(0.562)	(0.559)	(0.557)
Total sales (in million €)	9.131	9.551	13.359	14.106
	(49.037)	(50.273)	(62.547)	(66.301)
Ln of firm age	2.535	2.550	2.581	2.587
	(0.848)	(0.840)	(0.841)	(0.835)
Ln of firm size	2.530	2.580	2.841	2.909
	(1.688)	(1.686)	(1.782)	(1.749)
Outward foreign direct investment dummy	0.085	0.088	0.128	0.129
	(0.278)	(0.284)	(0.334)	(0.336)
Inward foreign direct investment dummy	0.108	0.111	0.131	0.140
	(0.311)	(0.314)	(0.337)	(0.347)
Debt to assets	0.594	0.589	0.569	0.540
	(5.476)	(5.615)	(0.706)	(0.478)
Ln of capital intensity	10.197	10.214	10.181	10.219
	(1.491)	(1.477)	(1.456)	(1.424)

Source: SURS, AJPES, Bank of Slovenia; authors' own calculations.

Table 2. Number of firms included in the trade in services database.

Year	Number of included firms	Number of included manufacturing firms
2008	1314	167
2009	1411	238
2010	1372	232
2011	1323	241
2012	1310	247
2013	1135	220
2014	1167	225
2015	1164	240
2016	1228	258
2017	1253	263
2018	1305	269
2019	1458	295
2020	1579	347
Total	17019	3242

Source: Bank of Slovenia; authors' own calculations.

comprehensive evaluation of both tangible and qualitative outcomes of internationalisation strategies.

Further, to address potential endogeneity issues in the fixed effects model, we follow the common empirical approach of employing lagged values of independent variables to mitigate biases arising from reverse causality by imposing a clearer temporal ordering. Also, time-varying confounders and granular fixed effects are included to help control for unobserved factors that vary over time and may influence both the independent and dependent variables, thus mitigating potential endogeneity issues (in line with, e.g., Angrist & Pischke, 2009; Baltagi, 2008; Cameron & Trivedi, 2005; Stock & Watson, 2019; Verbeek, 2012; Wooldridge, 2010). This specification is well established in empirical studies of international trade and firm behaviour, as it systematically accounts for unobserved heterogeneity while exploiting the within-firm (or within-firm-country-product) variation over time. By reducing the risk of simultaneity bias and omitted variable bias, the fixed effects model with lagged regressors ultimately strengthens the credibility of the estimated relationships.

Additionally, the comprehensive panel dataset with multiple cross-sectional and temporal dimensions further justifies the use of a fixed effects specification. By exploiting the repeated observations for each firm-country-product, the model can difference out any time-invariant unobserved heterogeneity and focus on within-unit variations over time. This structure allows for more precise estimation of how changes in

a firm's international involvement, such as services' exports and imports or FDI, translate into changes in export unit values and export volumes. Further, because this paper's specifications are not dynamic in nature (i.e., they do not include a lagged dependent variable among the regressors), employing a fixed effects estimator is both appropriate and sufficient to control for time-invariant unobserved heterogeneity (see, e.g., Baltagi, 2008; Greene, 2012; Verbeek, 2012; Wooldridge, 2010). Although the generalised method of moments is powerful for dynamic panel data settings, it depends on a more complex set of assumptions—such as valid instruments (see, e.g., Blundell & Bond, 1998) and the absence of second-order autocorrelation (see, e.g., Arellano, 2003; Arellano & Bond, 1991; Blundell & Bond, 1998)—and can suffer from instrument proliferation when the panel is large in both the cross-sectional and temporal dimensions (see, e.g., Bowsher, 2002; Roodman, 2009). Consequently, the fixed effects estimation is a more straightforward and transparent approach in this context, mitigating endogeneity primarily through lagged regressors and delivering credible estimates without the added complications of instrument selection and validation.

As stated above, in its aim to examine the effects of the servicification of manufacturing, this paper focuses exclusively on GVC-participating manufacturing firms. The applied approach to identify GVC-participating firms follows Stemberger and Zajc Kejžar (2025) by refining the usual "importer plus exporter equals GVC participant" logic through explicitly capturing both upstream (forward) and downstream (backward) links. First, it quantifies a firm's backward participation through the share of foreign inputs in its exports, reflecting how much of its exported goods rely on imported content. Second, it measures forward participation by identifying the share of a firm's own value added in intermediate exports that other producers use in subsequent stages. These two ratios sum to form the firm-level GVC participation score. Finally, to distinguish genuine engagement from minimal foreign transactions, the method sets a threshold of 10% (in line with, e.g., Cieślik et al., 2019) of combined backward and forward participation above which firms are classified as true GVC participants.

As the paper tests the effects on two dependent variables, it follows a distinct specification for each variable of interest. The first specification is a fixed effects panel regression estimation, where export quality ($\text{lnunitvalue}_{ijkt}$) is expressed as a function of the lagged value of a firm's services' exports and imports orientation (both total and at a destination-level) and the lagged status of a firm's outward and inward FDI.

Moreover, the lags of the following controlling variables are included: (i) firm productivity, defined as the natural logarithm of the estimated total factor productivity (TFP; lnTFP_{it}), estimated using the value-added-based approach of Ackerberg et al. (2015)—as suggested by the authors and following Manjón and Mañez (2016)—where value added is regressed on fixed assets, firm age, material costs, and number of employees, with all variables included in their respective natural logarithm values. In this framework, TFP reflects the portion of a firm's value added that is not explained by observed input usage, capturing firm-specific efficiency or technology differences, (ii) firm size, defined as the natural logarithm of the number of employees (lnsize_{it}), (iii) firm age, defined as the natural logarithm of the years since the firm's incorporation (lnage_{it}), (iv) capital intensity, defined as the natural logarithm of the ratio of fixed assets to the number of employees (lnkintensity_{it}), and (v) a firm's ratio of debt to assets (da_{it}). Further, the specification includes high-dimensional time-varying destination fixed effects κ_{jt} to control for unobserved heterogeneity and capture country-level macroeconomic conditions and firm-product-destination η_{ijk} fixed effects to absorb any time-invariant unobserved heterogeneity specific to each firm-product-destination relationship, thereby improving the precision of the estimates. Finally, the estimation takes advantage of clustered standard errors at the firm-product-destination level, which enhances reliability by adjusting for intra-group correlation, leading to more robust and credible statistical inferences. The actual regression model for the first specification is as follows:

$$
\begin{aligned}
\text{lnunitvalue}_{ijkt} = & \; \beta_0 + \beta_1 \text{exs\_orient}_{i,t-1} \\
& + \beta_2 \text{ims\_orient}_{i,t-1} + \beta_3 \text{exs\_orient\_cntry}_{ij,t-1} \\
& + \beta_4 \text{ims\_orient\_cntry}_{ij,t-1} + \beta_5 \text{doutFDI}_{i,t-1} \\
& + \beta_6 \text{dinFDI}_{i,t-1} + \beta_7 \text{lnTFP}_{i,t-1} + \beta_8 \text{lnage}_{i,t-1} \\
& + \beta_9 \text{lnsize}_{i,t-1} + \beta_{10} \text{lnkintensity}_{i,t-1} + \beta_{11} \text{da}_{i,t-1} \\
& + \beta_{12} \kappa_{jt} + \beta_{13} \eta_{ijk} + \mu_{ijkt}
\end{aligned}
$$

whereby the firm's unit value of exports is computed as the ratio of a firm's exports of a certain product at the 8-digit Combined Nomenclature (CN8) level to a certain country and the net weight (in kilograms) of this exported product to this country:

$$
\text{lnunitvalue}_{ijkt} = \ln \left(\frac{\text{exproduct}_{ijkt}}{\text{net\_weight}_{ijkt}} \right)
$$

and the import and export of services orientation (both total and at destination-level) are respectively computed as the ratio between either the imports or

exports of services and the firm's total sales:

$$\text{exs\_orient}_{it} = \frac{\text{exs}_{it}}{\text{sales}_{it}}$$

$$\text{ims\_orient}_{it} = \frac{\text{ims}_{it}}{\text{sales}_{it}}$$

$$\text{exs\_orient\_cntry}_{ijt} = \frac{\text{exs\_cntry}_{ijt}}{\text{sales}_{it}}$$

$$\text{ims\_orient\_cntry}_{ijt} = \frac{\text{ims\_cntry}_{ijt}}{\text{sales}_{it}}$$

The second specification is also a fixed effects panel regression estimation with clustered standard errors at the firm-product-destination level to adjust for both heteroskedasticity and within-cluster correlation. Here, the natural logarithm value of the euro value of a firm's exports of a certain product at the CN8 product level to a certain country (lnexports_{ijkt}) is expressed as a function of the lagged natural logarithm value of a firm's services' exports and imports (both total and at country level) and the lagged status of a firm's outward and inward FDI. Moreover, the lags of the same controlling variables and fixed effects as in the first specification are included. The actual regression model for the second specification is presented below.

$$\text{lnexports}_{ijkt} = \beta_0 + \beta_1 \text{lnims}_{i,t-1} + \beta_2 \text{lnexs}_{i,t-1}$$
$$+ \beta_3 \text{lnims\_cntry}_{ij,t-1} + \beta_4 \text{lnexs\_cntry}_{ij,t-1}$$
$$+ \beta_5 \text{doutFDI}_{i,t-1} + \beta_6 \text{dinFDI}_{i,t-1} + \beta_7 \text{lnTFP}_{i,t-1}$$
$$+ \beta_8 \text{lnage}_{i,t-1} + \beta_9 \text{lnsize}_{i,t-1} + \beta_{10} \text{lnkintensity}_{i,t-1}$$
$$+ \beta_{11} \text{da}_{i,t-1} + \beta_{12} \kappa_{jt} + \beta_{13} \eta_{ijk} + \mu_{ijkt}$$

After performing the above analysis, we also examined these same specifications for each different type of exported goods (i.e., intermediate,[2] consumer,[3] and capital[4] goods).

4 Empirical results

This section presents econometric results derived from estimating the effects of trade in services and FDI flows on export product quality and volume of manufacturing firms participating in GVCs. This is due to this paper aiming to thoroughly analyse the role trade in services plays in the enhancement of a firm's export product quality and volume.

The focus on Slovenian manufacturing GVC participants between 2008 and 2020 provides an intriguing case study given the unique position of

Slovenia as a small open economy deeply embedded in GVCs. The results can serve as a microcosm for understanding similar dynamics in other small, export-oriented economies.

Table 3 provides the results of the estimation of a manufacturing firm's internationalisation activities on its export quality for the case of Slovenian firms in the 2008–2020 period. The results in the first column refer to any type of goods, whereas the following three columns each include results differentiated by the type of goods. Clearly, by far the largest and most significant effect on firm export quality can be attributed to its services imports orientation at country level, as the corresponding coefficient is highly significant in all but the capital goods case. More specifically, this implies that a one percentage point increase in the ratio of the firm's services import orientation at destination level is associated with a 1.15% increase in its export quality when all types of goods are considered. The corresponding effect is 1.03% for intermediate goods (hereafter referred to as supply chain trade) and 2.72% for consumer goods (hereafter referred to as final goods trade). Furthermore, the export quality of firms with outward FDI is 2.8% greater than in comparable firms without outward FDI when all types of goods are considered (and 4.1% greater in the case of supply chain trade), with other factors held constant. Opposingly, the export quality of firms with inward FDI is 1.3% greater than in comparable firms without inward FDI when all types of goods are considered (and 4.1% greater in the case of final goods trade), with other factors held constant.

From Table 3, one can clearly see that the type of exported goods matters for the effects on a firm's export quality; whereas the effect of the orientation of services imports at country-level is significant and positive for both supply chain trade and final goods trade, a distinction is drawn in the type of the FDI flow, as the positive outward FDI effect is significant for the case of supply chain trade, and the positive inward FDI effect is significant for final goods trade. Lastly, for the exported capital goods, none of the analysed internationalisation strategies has a significant effect on the firm's export quality. This result likely reflects the structural characteristics of capital goods markets, where demand is often driven by long-term projects or government policies, and such goods are often bundled with engineering services and sold in turnkey projects, making them less responsive to short-term changes in internationalisation activities such as services trade or FDI. Nonetheless,

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[2] Defined as the following categories of goods as per BEC Rev. 4: 111, 121, 21, 22, 31, 322, 42, and 53.
[3] Defined as the following categories of goods as per BEC Rev. 4: 112, 122, 522, and 6.
[4] Defined as the following categories of goods as per BEC Rev. 4: 41 and 521.

Table 3. Effects of a firm's internationalisation activities on its export quality in the 2008–2020 period.[5]

	All types of goods	Intermediate goods	Consumer goods	Capital goods
Total services' exports	−0.008	−0.049	0.085	−0.129
	(0.073)	(0.089)	(0.172)	(0.221)
Total services' imports orientation	−0.013	0.025	−0.033	−0.024
	(0.110)	(0.142)	(0.207)	(0.369)
Country-level services' exports orientation	0.122	0.136	0.498	−0.180
	(0.210)	(0.243)	(0.613)	(0.561)
Country-level services' imports orientation	1.147***	1.031**	2.716***	0.274
	(0.414)	(0.503)	(1.052)	(0.991)
Outward FDI dummy	0.028***	0.040***	0.010	0.009
	(0.007)	(0.010)	(0.013)	(0.029)
Inward FDI dummy	0.013**	0.009	0.040***	−0.005
	(0.006)	(0.009)	(0.009)	(0.020)
Number of observations	572,786	352,384	137,248	81,994
Number of clusters	192,551	118,203	42,661	31,408
Clustered *SE*	firm-product-destination level	firm-product-destination level	firm-product-destination level	firm-product-destination level
Covariates	lnTFP, lnage, lnsize, lnkintensity, and da			
Fixed effects	firm-product-destination and destination-year fixed effects			

Standard errors in the parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Source: SURS, AJPES, Bank of Slovenia; authors' own calculations.

Table 4. Effects of a firm's internationalisation activities on its export volume in the 2008–2020 period.[6]

	All types of goods	Intermediate goods	Consumer goods	Capital goods
Ln of services exports	0.022***	0.019**	0.015	−0.019
	(0.007)	(0.009)	(0.018)	(0.019)
Ln of services imports	−0.011	−0.018	−0.022	0.040
	(0.012)	(0.014)	(0.033)	(0.030)
Ln of services exports at country level	0.013***	0.010*	0.005	0.018**
	(0.004)	(0.006)	(0.009)	(0.009)
Ln of services imports at country level	0.005	0.013***	0.006	−0.022**
	(0.004)	(0.005)	(0.010)	(0.011)
Outward FDI dummy	0.086**	0.028	0.190**	0.069
	(0.041)	(0.051)	(0.087)	(0.118)
Inward FDI dummy	−0.080***	−0.024	−0.126**	−0.096
	(0.026)	(0.034)	(0.052)	(0.066)
Number of observations	201,425	125,651	42,778	32,555
Number of clusters	74,900	46,643	14,566	13,559
Clustered *SE*	firm-product-destination level	firm-product-destination level	firm-product-destination level	firm-product-destination level
Covariates	lnTFP, lnage, lnsize, lnkintensity, and da			
Fixed effects	firm-product-destination and destination-year fixed effects			

Standard errors in the parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Source: SURS, AJPES, Bank of Slovenia; authors' own calculations.

as Table 1 shows, capital goods have substantially higher unit values than other goods, which is consistent with them being produced by a few specialised exporters (see, e.g., Eaton & Kortum, 2001; Mutreja et al., 2018). In line with the literature (e.g., Lian et al., 2020), we conclude that the relatively high price of capital goods and their concentrated supply imply that export outcomes for these goods depend on different channels. As such, the high unit values of capital goods warrant special attention when assessing policy implications.

Table 4 provides the results of the estimation of a manufacturing firm's internationalisation activities on its export volume for the case of Slovenian firms in

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[5] The *F* statistic is not reported due to the inclusion of clustered standard errors and high-dimensional fixed effects, which reduce the effective degrees of freedom. Adjusted R^2 is not reported due to the inclusion of high-dimensional fixed effects, which absorb most of the systematic variation across products and destination-year combinations. Here, the focus is on significance and magnitude of estimated coefficients rather than model fit.

[6] The *F* statistic is not reported due to the inclusion of clustered standard errors and high-dimensional fixed effects, which reduce the effective degrees of freedom. Adjusted R^2 is not reported due to the inclusion of high-dimensional fixed effects, which absorb most of the systematic variation across products and destination-year combinations. Here, the focus is on significance and magnitude of estimated coefficients rather than model fit.

the 2008–2020 period. As in Table 3, the first column corresponds to the scenario that considers all types of goods, whereas the following three columns each give results per good type. Generally, the complementarity of the value of a firm's exports of goods and the value of its services exports is confirmed for both total and destination-level cases. Nonetheless, these results are not as straightforward as in the export quality case, as the effects are now significant for both imports and exports of services (and not only for imports as above), which suggests that these transactions have a more profound effect for the firm's export volume than on its export quality. More precisely, the results show that a one percentage point increase in the firm's services exports is related to a 0.022% increase in its export volume when all types of goods are considered (the effect is 0.019% for supply chain trade; when one differentiates by country, the effect is 0.013% for all types of goods, 0.010% for supply chain trade. and 0.018% for capital goods). On the other hand, for services imports at country level, the effect is 0.013% for supply chain trade and −0.022% for capital goods. In addition, the export volume of firms with outward FDI is 9.0% greater than in comparable firms without outward FDI when all types of goods are considered (and 20.9% in case of final goods trade), with other factors held constant. Opposingly, the export volume of firms with inward FDI is 7.7% smaller than in comparable firms without inward FDI when all types of goods are considered (and 11.8% for final goods trade), with other factors held constant.

In line with expectations, Table 4 also shows that the effect is distinct between the good types, as for capital goods and especially for supply chain trade, services imports and exports have a significant and largely positive effect on the volume of a firm's exports of these goods, whereas for final goods trade, services imports and exports have no observed effect. Rather, for the latter, the presence of FDI flows has a significant impact, with outward FDI having positive effects and inward FDI having negative effects on the firm's export volume. This relationship is present and confirmed also when there is no distinction between the types of goods.

Comparing the results from the two specifications yields several key insights. First, the determinants of export quality and volume are not only distinct but often show diverging patterns depending on the type of goods under analysis. For instance, the significance of services imports at the country level for export quality highlights the importance of accessing high-quality service inputs in enhancing the qualitative aspect of exports. Conversely, for export volume, the complementarity between goods and services trade is more pronounced, as seen in the significant effects of both

services imports and exports in total as well as at the destination level.

The role of FDI also diverges across the two outcomes. Outward FDI consistently exhibits a positive impact on both export quality and volume (at least in the case of all types of goods), which underscores its role in facilitating technology transfer and market access. However, the presence of inward FDI produces mixed effects—enhancing export quality in some cases while reducing export volume, particularly for final goods trade. This suggests that the nature of inward FDI, whether it entails vertical or horizontal integration, may play a critical role in determining its impact.

Finally, the nuanced differences across good types—supply chain trade, final goods trade, and capital goods—further highlight the complexity of the relationship between internationalisation strategies and export outcomes. In fact, the quality and volume of supply chain trade (and to a slightly lesser extent also final goods trade) benefit substantially from services trade and outward FDI, while capital goods show minimal responsiveness, which reflects their unique production and market dynamics. Policymakers and firms should consider these distinctions when designing strategies to integrate into and benefit from both partaking in GVCs and trading in services. These findings underline the need for tailored approaches that account for the specific contexts of product type, market destination, and firm-level capabilities.

5 Conclusion

This paper provides a comprehensive analysis of the role that services trade and FDI play in shaping export quality and volume among Slovenian manufacturing firms engaged in GVCs between 2008 and 2020. By integrating firm-level data, it bridges important gaps in understanding the dynamics of servicification in manufacturing and the nuanced effects of internationalisation on export performance. As global trade increasingly shifts toward knowledge-intensive and service-oriented value creation, the findings underscore the transformative potential of services trade and FDI in driving upgrading within GVC-integrated manufacturing.

This study contributes to multiple streams of literature. First, within IE, it advances the understanding of how services imports, particularly at the country level, enhance export quality by providing firms with access to high-value intermediate inputs. It complements Melitz-type models by showing that quality gains also stem from services-driven efficiency, not just goods-based trade liberalisation. This aligns with

the broader understanding that services trade facilitates both the efficiency and sophistication required to compete in global markets and complements goods trade in expanding a firm's international footprint. Second, for IB theory, the paper reinforces the role of firm-level strategic choices—especially outward FDI and servicification—as mechanisms of upgrading within GVCs. It highlights how firms adapt governance structures and resource configurations to access knowledge, coordination capabilities, and markets, thus echoing the governance adaptation framework of Kano et al. (2022). Third, for the industrial marketing and service marketing literatures, the findings underscore that services are not merely supplementary to product strategies but are increasingly central to value creation in manufacturing. Servicification enables firms to bundle high-quality services with goods, differentiate offerings, and enhance customer relationships—especially for final goods and supply chain trade.

This paper contributes to academic, managerial, and policy debates. Theoretically, it demonstrates the interconnectedness of goods and services trade within GVCs, emphasising the growing role of services in modern manufacturing processes. For managers, the results suggest that investing in service capabilities can significantly enhance product quality and global competitiveness. This is particularly relevant for MNEs pursuing servicification strategies: developing high-value support functions close to production sites and leveraging outward FDI to scale these capabilities internationally can drive upgrading. Additionally, managers should evaluate inward FDI not only in terms of capital inflow but also in light of its implications for value chain positioning, as its effects are not necessarily straightforward.

From a policy perspective, the findings highlight the importance of liberalised access to high-quality service inputs. Strategic promotion of outward FDI by domestic firms can help transfer technology and market insights back into the home country, improving export outcomes. However, inward FDI should be selectively managed to maximise local spillovers, such as through targeted R & D incentives, coinnovation frameworks, and performance-based investment conditions. Another key implication concerns participation in GVCs. Governments should avoid protectionist policies that limit firms' access to global intermediates, particularly services. Instead, they should focus on expanding preferential trade agreements that reduce tariffs and regulatory burdens on both goods and services and attracting lead firms and global suppliers. Lastly, these findings underscore the importance of aligning trade policies at the EU level to support the integration of services and strategic FDI flows. Such alignment can enhance the competitiveness of member states and foster more inclusive participation in GVCs.

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