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Value-added of services in exports of all sectors and implications for public policies

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Master's in Economics and Public Policies

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Department of Political Economy

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To Vanessa, Mia, Daniel,
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Abstract

Services provide relevant contributions to the economy, both as final products and through servicification mechanisms. With services intermediate inputs, services developed internally in firms of all sectors and services included in sales bundled with goods, the services sector accounts for the major share in global exports. This supports the need to consider the potential of services to shape the performance of downstream sectors. Services influence innovation, productivity and competitiveness of all sectors. This role is influenced by several policy areas such as education, data, infrastructure, technology, innovation, regulatory frameworks, competition, business facilitation, institutional frameworks, regional cooperation and trade. This study concludes that policy coherence is necessary to address the multiplicity of different policy areas involved. Policy coherence will contribute to improve the effectiveness of policy measures that envisage economic development benefits from servicification. This comprises the need for policy coherence between different policy areas, most notably between industrial and trade policy and between regulatory frameworks and trade policy. Policy coherence is also required between different economic sectors. Institutional coordination, harmonization and standardization and implementation strategies play a role in policy coherence. While economies in all development levels will benefit from an increased focus on policy coherence, this call may be more urgent in several developing economies.

Keywords: trade policy, industrial policy, competitiveness, services, servicification.
JEL classification: F10, O10.

Resumo

Os serviços contribuem de forma relevante para a economia, quer como produtos finais quer por meio dos mecanismos de servicificação. Com insumos intermediários de serviços, serviços desenvolvidos internamente em empresas de todos os setores, e serviços incluídos nas vendas em pacote com bens, o setor de serviços representa a maior parte das exportações globais. Isso aponta para a necessidade de considerar o potencial dos serviços para moldar o desempenho dos setores a jusante. Os serviços influenciam a inovação, a produtividade e a competitividade de todos os setores. Este papel é influenciado por várias áreas de política, como educação, dados, infraestrutura, tecnologia, inovação, enquadramentos regulatórios, concorrência, ambiente de negócios, enquadramentos institucionais, cooperação regional e comércio. Este estudo conclui que a coerência das políticas é necessária para abordar a multiplicidade de diferentes áreas de política envolvidas. A coerência das políticas contribuirá para melhorar a eficácia das medidas que visam os benefícios do serviço para o desenvolvimento económico. Isto inclui a necessidade de coerência entre as diferentes áreas de política, principalmente entre a política industrial e comercial, e entre os enquadramentos regulatórios e a política comercial. A coerência das políticas também é necessária entre os diferentes setores económicos. A coordenação institucional, a harmonização e estandardização, e as estratégias de implementação desempenham um papel na coerência das políticas. Embora as economias em todos os níveis de desenvolvimento possam beneficiar de um foco maior na coerência das políticas, esse apelo pode ser mais urgente em várias das economias em desenvolvimento.

Palavras-chave: política comercial, política industrial, competitividade, serviços, servicificação.
Classificação JEL: F10, O10.

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List of abbreviations and acronyms

BPM6	Balance of Payments and International Investment Position Manual
CAGR	compound annual growth rate
CIATEJ	*Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C.*
COMTELCA	Regional Technical Commission on Telecommunications
FDI	foreign direct investment
GATS	General Agreement on Trade in Services
GDP	gross domestic product
GTAP	Global Trade Analysis Project
EVAD	Export Value Added Database
ICT	information and communications technology
ILO	International Labour Organization
IMF	International Monetary Fund
ISIC	International Standard Industrial Classification
ISO	International Organization for Standardization
MSME	micro, small and medium-sized enterprise
NACE	*Nomenclature des Activités Économiques dans la Communauté Européenne*
OECD	Organisation for Economic Co-operation and Development
R&D	research and development
SCM	WTO agreement on subsidies and countervailing measures
SISCOSERV	Integrated System of Foreign Trade in Services and Intangibles
SME	small and medium-sized enterprise
TiVA	Trade in Value-Added
UNCTAD	United Nations Conference on Trade and Development
WITS	World Integrated Trade Solution
WTO	World Trade Organization

Introduction

Services as final products accounted for major contributions to global output, employment and investment in 2019. In the same year, services represented a quarter of global exports. In recent years, services exhibited the fastest growth in all these economic dimensions. These contributions increase when the value-added provided by services to other sectors is taken into account. When the value-added of services intermediate inputs and of in-house services is considered, services can account for two thirds of total exports (Miroudot and Cadestin 2017b, pp.21-22). These contributions have prompted several analyses on the economic and development effects of services and of the value-added services provide to all economic sectors.

The size and growth of services' contributions, paired with their potential to influence the performance of downstream sectors, support the need to assess the implications for the policies aiming to harvest the development benefits of services. The assessments that have been made have covered multiple and diverse policy areas. This broad range of policy areas points to the need to examine the role of policy coherence and coordination, which considers the differences in the development levels of countries, to seize the potential of services to pursue development objectives.

This study adds to the existing literature with a deeper focus on what is the role of policy coordination and coherence in the public policies that aim to harvest the development benefits of value-added of services in exports of all sectors.

The first chapter reviews the literature on how the contributions of services to the whole economy can influence innovation, productivity and competitiveness in all sectors. The chapter also reviews the literature on the policy implications of these effects. This review covers a broad range of policy areas, namely education, data, infrastructure, technology, innovation, regulatory frameworks, competition, business facilitation, institutional frameworks, regional cooperation and trade.

The second chapter will detail how the value-added of services in exports of all sectors can derive from services' intermediate inputs, services developed internally in firms of all sectors and services included in sales' bundles with goods. This chapter will use the Export Value Added Database from the World Integrated Trade Solution, with information for 27 sectors and 118 economies up to 2014, to calculate services' value-added in total exports.

This calculation confirms that the value-added provided by services to exports of all sectors is much higher that the contribution of services as final products to total exports. This supports the premise that public policies should consider all the mechanisms through which services provide value-added to exports of all sectors.

The third chapter will build on the first two chapters and examine the role of policy coordination and coherence to pursue the potential of services value-added to envisage development objectives. This will comprise the importance of coherence between industrial and trade policy, between regulatory frameworks and trade policy, between different sectors and policy areas. The examination will also focus on the role of institutional coordination, harmonization and standardization, and implementation for policy coherence.

The conclusion on whether and how it is important to consider coordination and policy coherence in public policies, with a view to reap development benefits from services' value-added in all sectors, will result from this examination.

CHAPTER 1

Services at the service of all sectors

Services as final products have relevant contributions to the economy. These contributions are increased in an important way with the role of services as a provider of inputs for all sectors. These contributions justify the analysis of the economic and development effects of services.

The first chapter of this study reviews these contributions of services and their relevance to influence innovation, productivity and competitiveness in the economy, namely in other sectors. As this relevance calls for the assessment of the policy implications, this chapter will review the literature on policy areas relevant to services. These include education, data, infrastructure, technology, innovation, regulatory frameworks, competition, business facilitation, institutional frameworks, regional cooperation and trade.

1.1. Everybody is in services

The services sector accounted globally, in 2019, for 68 per cent of gross domestic product (GDP). The compound annual growth rate (CAGR) of global services output between 1970 and 2019 was 7 per cent, above the primary and manufacturing sectors.[1] In 2019, 51 per cent of jobs worldwide were in services. Between 2001 and 2019, global employment grew more in services than in other sectors, with a CAGR of 3 per cent.[2] Services received, in 2019, 50 per cent of global foreign direct investment (FDI). The FDI in services had, between 2003 and 2019, a CAGR of 5 per cent, above the primary and manufacturing sectors.[3] The services sector was responsible for 25 per cent of global exports in 2019. Between 2005 and 2019, services exports grew more than goods exports globally, with a CAGR of 6 per cent.[4] The growth and size of the services sector has encouraged increasing attention to the economic and development effects of services.

[1] Calculations from the author based on data from UNCTADstat (https://unctadstat.unctad.org/EN/). Data accessed in November 2021.

[2] Calculations from the author based on data from ILOSTAT (https://ilostat.ilo.org/). Data accessed in November 2021.

[3] Calculations from the author based on data from the annex tables of the World Investment Report of the United Nations Conference on Trade and Development (https://worldinvestmentreport.unctad.org/annex-tables/). Data refers to announced greenfield investment projects. Data accessed in November 2021.

[4] Calculations from the author based on data from UNCTADstat (https://unctadstat.unctad.org/EN/). Data accessed in November 2021.

These trends are partly attributed to differences in productivity between some services and other sectors (Baumol 1967, pp.415-417). One analysis argued that lower productivity in some services increased the relative price of services over time and this contributed to these trends (Schettkat and Yocarini 2005, p.144).

Changes in demand are also referred as an increasingly relevant driver of the growth in the services sector. This includes an increasing household budget spent on services (Schettkat and Yocarini 2005, pp.142-145). Demand shifts also encompass a demographic factor, as aging of the population tends to increase demand for certain services as health and energy services (Oliveira Martins et al. 2005, p.9).

The gradual rebalancing of several economies, most notably China, from manufacturing to consumption and services (Constantinescu et al. 2018, p.25) has been pointed out as another demand factor explaining the trends in the services sector.

The proliferation of international value chains increased demand for services that facilitate their functioning. These services allowed the operation of international value chains (Miroudot 2017, p.28). The global trade of goods and services has thrived with the improvements in services like transport and information and communications technology (ICT). These and other services allowed the fragmentation and coordination of international production networks. Firms perform better in international value chains when relying on an appropriate mix of financial, communications, transport, professional and other business services (Heuser and Mattoo 2017, p.20).

The development of these international production networks also enhanced opportunities for services to provide intermediate inputs, including through outsourcing and offshoring, for goods and services being produced elsewhere. Trade in intermediate products accounted for around 40 per cent of world trade in 2011 (UNCTAD 2018, pp.8-9). Services represented 28 per cent of the trade in intermediate products in 2009, up from 24 per cent in 1995 (Baldwin and Lopez-Gonzalez 2013, pp.14-16).

The integration in value chains has particularly called for the availability of efficient inputs from transport services. The detachment of sub-Saharan African countries from manufacturing value chains has been attributed to high transport costs (Arvis et al. 2010, pp.1-11; Christ and Ferrantino 2011, pp.1749-1751).

The research and development (R&D), distribution and other business services, including marketing, are relevant to differentiate and customize processes, products and sales propositions in global competitive markets. These services have contributed to the growing share of services in intermediate inputs. Other services inputs are required to address regulatory requirements propagated through international production networks, including on environmental services such as recycling (UNCTAD 2018, pp.8-9), other business services such as certification, logistics services such as labelling and financial and insurance services.

The role of services as a provider of inputs for the production and trade of products from all economic sectors adds importantly to the already meaningful relevance of services as final products. This blurs the distinction between merchandise and services sectors and reinforces the justification for the analysis of the economic and development effects of services. "There are no such things as service industries. There are only industries whose service components are greater or less than those of other industries. Everybody is in services" (Levitt 1972).

1.2. The good, the bad and the driver of transformation

The literature on competitiveness and on its determinants has presented different views on the role of services. Some authors argued that services have lower productivity. With the assumption that services have a limited potential for productivity increase, the growth potential of the economy would be reduced (Baumol 1967, pp.415-417) and a cost disease would take place.[5] Low labour productivity in services, derived from trade policies and regulations that lead to lower competitive pressure, would explain a slowdown in relative aggregate productivity (Duarte and Restuccia 2010).

Conversely, more recent analyses confirmed that the cost disease is not verified empirically, especially since the 1970s. Productivity limitations in services can derive from measurement issues because calculating services contributions to GDP is frequently based in volume analyses inspired by the merchandise analytical tradition. These measures do not capture the nature of services transactions where user interaction and quality differential measures may not be reflected in the price structure (Gallouj and Savona 2009, pp.154-155). To address these issues, it is necessary to go beyond looking merely at costs and consider hedonic prices that reflect the quality differential.

[5] The lower productivity in services would call for hiring additional workers. The overall salary increase in the economy would lead to a salary increase of the workers in lower productivity sectors, leading to a cost disease.

Other authors defend that a limited potential for productivity increases in services would reduce the overall growth potential if services were only final products. But the influence of services in competitiveness can result from the value-added provided by services to downstream goods and services sectors. Services are acknowledged as a factor that inputs into goods and influences how international transactions occur (Melvin 1989). Services inputs enable further division of labour in the economy and help in the coordination of production processes. This services-led fragmentation of production facilitates achieving returns to scale and ensuing productivity (François 1990, pp.727-728).

Transport, education, financial and business services are essential to support industrialization as manufacturing growth will increasingly require services inputs (Scholtès 1998, pp.184-185). Conversely, the potential for goods to support services' value-chains may be more limited to the extent that services are produced in generally shorter value chains (Miroudot and Cadestin 2017a, p.6) with arguably less opportunities to receive intermediate inputs.

Since several services sectors are producing mostly for intermediate use, the aggregate productivity growth rate may rise due to downstream sectors that grow building on services inputs. This remains valid even if the services sectors providing inputs are considered to have slow growth (Oulton 2001, pp.618-627).

As inputs, services are determinants of labour and capital productivity that generate knowledge, goods and services (Hoekman and Mattoo 2008, p.3). Inputs from transport, design, retail and financial services complement labour directly employed in agriculture and manufacturing and increase the interlinkages of these sectors with the services sector (UNCTAD 2018, p.2).

Other analyses have also found a relevant role of services in determining competitiveness. The increase in services productivity by 10 per cent is followed by a 0.3 per cent increase in manufacturing productivity and a 0.2 per cent increase in exports. For firms that use services inputs more intensively, the link between services productivity and manufacturing productivity is stronger (Hoekman and Shepherd 2017).

Quality and efficient finance, communications, transport, professional and other business services improve performance of downstream firms and can increase total factor productivity. This is because these services enable investments, achieve economies of scale by concentrating production and coordinate actions with suppliers and customers (Heuser and Mattoo 2017, p.20). An analysis argues that a stronger services sector in China could contribute to manufacturing upgrading and ensuing resilience of manufacturing export performance (Liu et al. 2019, p.14).

Furthermore, services are a very heterogenous sector[6] and many services sectors have had important labour and total factor productivity growth (Hoekman and Mattoo 2008, pp.4-5). The productivity growth in distribution and financial services explained much of the productivity expansion in the United States of America after 1995 (Triplett and Bosworth 2004).

Services can also shape aggregate productivity beyond changes in the services sector itself and changes induced in other sectors. Services can change relative prices in downstream sectors, affecting decisions of production, employment, investment, trade and consumption in those sectors. Some sectors become more important, transforming the economic structure. This may improve overall productivity if the increasing sectors tend to be more technological intensive and have higher productivity than the decreasing sectors (UNCTAD 2017b, pp.2-10).

The role of services in facilitating productivity increases by structural changes can be meaningful due to the relevant productivity gaps between sectors in low level income countries. Services accounted for two thirds of total productivity growth in developing countries between 1991 and 2013 (UNCTAD 2017b, p.5-6).

1.3. To be or to be something different, innovate with services

Services can also be relevant in promoting innovation throughout the economy. The linkages that services have with the whole economy, including through the inputs provided to all economic sectors, show that services can intermediate higher intensity in new technologies, knowledge and organizational change (Evangelista 2000, pp.183-184).

[6] See Annex A for more information on the taxonomy on services sectors.

The knowledge intensity is an important determinant of innovation (Azevedo et al. 2019). The innovation promoted by knowledge-intensive services[7] is a relevant factor for export competitiveness (Niembro 2017, pp.65-67). The importance of these services in fostering innovation comprises the central role of ICT services in facilitating innovation processes in services firms. Furthermore, innovation in services – which are more interactive – relies more on the links between firms, suppliers and clients (Abreu et al. 2010, p.101). Telecommunications and ICT services facilitate communication and collaborative processes between stakeholders and are therefore relevant to enable open innovation processes or innovation systems.

Firms also use services to provide differentiated sales propositions to their clients. The potential of services to customize production, bring it closer to the needs of the clients, is in line with some of the objectives of innovation. For example, some categories of business services as R&D and management services have a transformational potential inherent to its nature that is in line with some objectives of innovation (OECD 2006, p.8).

Other business services are also of interest to facilitate innovation in its clients. Process innovation can benefit from engineering services and organizational innovation from management services. More broadly, professional services can contribute to organizational change and innovation optimization (Doloreux and Frigon 2019). Management services can still play a part in generating awareness for non-technological innovation, beyond technological innovation.

Marketing services are relevant to establish network relationships with clients, suppliers and other stakeholders. Marketing services can also facilitate the information sharing needed for innovation (OECD 2006, p.10). This is particularly relevant when innovation occurs through collaborative models. Legal services can support in intellectual property protection associated with innovation. Financial services can be instrumental in supporting the financing of innovation processes.

1.4. All services are equal, but some are more equal than others

Research on the importance of financial services started several decades back and continues. The relevance of financial services in establishing connections between investments needs and funds underlies a correspondence between financial development and economic growth (Goldsmith 1969). Financial services play an important role in researching productive

[7] See Annex B for more information on knowledge-intensive services.

technologies before investment, designing governance and other arrangements to reduce risk and facilitating transactions (Levine 1997, pp.890-701). This contributes to a strong link between financial services and long-run economic growth (Levine 1997, p.720). More recently, an analysis found that crises in banks providing trade finance declined exports faster than output (Amiti and Weinstein 2011), pointing to the importance of financial services.

The importance of access to financial services is recognised in several of the Sustainable Development Goals. This is because financial services are relevant to facilitate domestic and international transactions, mobilize and channel savings, make credit available for firms and households, facilitate remittances and provide options to apply remittances in productive investments (UNCTAD 2021, pp.3-4).

The ICT services have a positive impact on services productivity (Motohashi 1997, pp.35-36) and facilitate services' exports (Freund and Weinhold 2002, p.240). These ICT services support downstream industries by digitally transforming networks, delivery platforms, collaboration models and by allowing an information-centric work. ICT services also provide systems and technology for data and knowledge management and specific application software (Hannus et al. 1999, pp.31-34).

The diffusion of ICT services supports the reorganization of many industrial sectors (Guerrieri and Meliciani 2005, p.491). Affordable and high-quality ICT services facilitate the mobility of information and knowledge (Hoekman and Mattoo 2008, pp.2-3; Baldwin 2016a). These services have a prominent role in coordinating productive processes and in the cooperation between its activities (UNCTAD 2017a, pp.8-9).

Business services include accounting, engineering, consulting, legal and R&D services. Several business services reduce transaction costs and transmit process innovations across firms (Hoekman and Mattoo 2008, p.3). Business services improve the competitiveness of manufacturing industries by supporting new products and business models, and more effective organizational innovations (Evangelista et al. 2015). Business services allow manufacturing firms to increase productivity, reduce the cost of doing business and differentiate products (Liu et al. 2020, p.2).

Transport services shape the cost of moving people and goods at national and international levels. Distribution services provide critical linkages between producers and consumers, influence the cost of supply chains and thus have an effect on producer firms' competitiveness. Health and education services determine the stock and growth of human capital, which is vital for competitiveness. A diverse services sector is a precondition for economic growth (Hoekman and Mattoo 2008, pp.3-31).

Several analyses focused on the role of foreign services contributions to competitiveness. Foreign services can be particularly important for domestic downstream firms when domestic services provision is inefficient (Liu et al. 2020, p.2).

Access to telecommunications, transport, distribution and financial services in open economies determines the competitiveness of firms. Liberalization allows services imports to bring technology as a source of growth (Hoekman and Mattoo 2008, pp.1-14). More imports of business services have positive effects on industries like machinery, motor vehicles, chemicals and electric equipment. Openness in business services can promote competitiveness in skill and technology-intensive industries (Francois and Wörz 2008). The liberalization of financial, transport and distribution services is linked to trade gains in other sectors (Francois and Hoekman 2010). The liberalization of upstream sectors, such as energy and financial services, increase productivity in downstream firms (Bas and Causa 2013, p.860).

In Chile, between 1992 and 2004, liberalization of foreign investment in services improved productivity growth of manufacturing firms that use services more intensively (Fernandes and Paunov 2012). In Czechia, between 1998 and 2003, services' reform in the context of accession to the European Union contributed to the productivity of downstream manufacturing firms (Arnold et al 2014).

In India, between 1994 and 2004, the reform of upstream services such as energy, telecommunications and transport, increased the export performance of downstream manufacturing industries (Bas 2014). Also in India, between 1993 and 2005, reforms in telecommunications, transport and financial services improved the productivity of manufacturing firms (Arnold et al. 2016).

The relevance of services and of particular services sectors to shape innovation, productivity and competitiveness in downstream sectors, coupled with the size and growth of the services sector, support the increased interest in assessing the related policy implications. This examination is necessary to design and deploy the actions required to harvest these potential effects of services while managing their unwanted effects.

1.5. Behind every great service there is a great policy?

The returns on the specialization effects enabled by services outsourcing depend on their cost and availability (François 1990, p.728). The productivity of firms relies on efficiencies driven by varied and high-quality services (Hoekman and Mattoo 2008, p.4). The participation of

countries in value chains calls for the support of efficient and high-quality services (UNCTAD 2017a, p.13).

The results of such analyses have focused much of the policy debate on how to improve the efficiency and effectiveness of services to strengthen the inputs and value they provide to the economy. The policy choices influence the endowments, institutions and infrastructure that determines the capacity to produce services (Hoekman and Mattoo, p.22).

This section of the study will conduct a literature review on several areas that may be relevant for such policy choices. These policy areas include crosscutting enabling policies in education, data and infrastructure. They also comprise supply-capacity policies in technology and innovation. Regulatory and institutional frameworks, competition and business facilitation policies are part of the relevant policy areas. Regional cooperation, regulatory convergence and trade policies are also important policy areas.

The literature reviewed includes analyses concentrating on developed economies' context and others centred more on developing economies' context. The policy implications will differ to some extent between these two contexts, as detailed in chapter 3.

1.5.1. Education and skills

Education and human capital are fundamental drivers of advantages in services, which are on average more skill intensive than the overall economy (see annex B). The availability and quality of education are more important determinants of competitiveness than labour costs (Niembro 2017, p.73). A highly skilled labour force is a requirement for many knowledge and technology-intensive services (OECD 2006, p.14; UNCTAD 2017a, pp.14-15; UNCTAD 2017b, p.7). More broadly, skills are important for the role of services in value chains (Miroudot 2017, p.29).

Governments have an important role focusing on education policies as a precondition for efficient services. In India, services output per capita was associated with the number of people with tertiary education per capita (Hoekman and Mattoo, pp.22-25). Education policies will underlie other policy areas that are relevant for services activities, namely innovation policies (OECD 2006, p.13; Abreu et al. 2010, p.114).

1.5.2. Data ecosystem

The importance of data has also been recognised. Limitations on data were identified for services, including on financial services (Goldsmith 1969, pp.120-121), on empirical research on services (François and Hoekman 2010) and on services-led innovation (Abreu et al. 2010,

p.115). More data on input-output linkages would help to better understand the role of services in dynamic structural changes (Heuser and Mattoo 2017, p.20).

Services policies require high-quality, reliable, timely, comprehensive and sufficiently disaggregated data on services (UNCTAD 2017a, p.8). Policies for the data ecosystem, improving the collection, treatment and analysis of services data, will allow evidence-based policymaking and enable the effects of services on structural transformation (UNCTAD 2017b, p.7).

1.5.3. Infrastructure development

Infrastructure development remains a central component for several services sectors. This is the case for ICT services infrastructure (Niembro 2017, p.73; UNCTAD 2017a, p.13) such as telephone and Internet access infrastructure (UNCTAD 2017a, p.13; UNCTAD 2017b, p.6). Investment in ICT infrastructure will bring benefits for the development of other services sectors as transport (Arvis et al. 2010, p.77) and digital financial services (UNCTAD 2021, p.36).

Energy services also require investments in infrastructure, including in electricity (UNCTAD 2017a, p.13). These investments will also have a spillover on the development of other services activities, as digital financial services (UNCTAD 2021, p.36). Transport services need road infrastructure and maintenance (Arvis et al. 2010, p.77), including rural roads to provide inputs needed for agriculture development (UNCTAD 2017b, p.6).

1.5.4. Technology and innovation

Technology policies will improve the performance of services (UNCTAD 2017b, p.7) and their linkages with the manufacturing sector (Guerrieri and Meliciani 2005, p.499). Technology lowers transaction costs, for example in financial services (Levine 1997, p.721). Technology and innovation-driven services will contribute to growth decoupled from exhaustible natural resources (UNCTAD 2017a, p.13).

Innovation is an important requirement for several knowledge-intensive services sectors (OECD 2006, p.14). Innovation policies, supported by new industrial policies, can improve the quality and quantity of the relationships between business services and the rest of the economy (Evangelista et al. 2015). Innovation policies are important for how services support value chains (Miroudot 2017, p.29).

1.5.5. Regulatory frameworks

Regulatory frameworks are necessary to harvest the potential effects of services. This is particularly relevant in infrastructure services as energy, financial, telecommunications and transport services. These services depend on networks such as cables for services of energy distribution, physical or digital access points for financial services, cables and satellites for telecommunications, and roads, rails and terminals for transport services (Hoekman and Mattoo 2008, p.25). Sector specific regulations play a critical role (Miroudot 2017, p.29).

Regulations are needed to promote efficiency (François and Hoekman 2010), universal access (Hoekman and Mattoo 2008, p.25; François and Hoekman 2010), competition, consumer protection (Hoekman and Mattoo 2008, pp.27-28) and to address supply-side constraints, externalities and coordination issues (UNCTAD 2017b, p.6).

In some cases, information asymmetry on the quality of the service and the service provider is not easily assessed by consumers. This can be the case of some professional services where information on the competence of the professional can be hard or costly to obtain. Regulations can address these concerns by determining the conditions of entry and operation in the sector (Hoekman and Mattoo 2008, p.29).

Regulations can promote wider access to services with different tools which encompass universal access funds or proportional requirements that demand compliance with regulatory objectives without excessively burden firms (Hoekman and Mattoo, p.30). Regulators can encourage the provision of financial services in rural areas to assist producers to overcome resource allocation problems that affect productivity (UNCTAD 2017a, p.13).

Regulations to pursue universal access in financial services can include direct measures of support to infrastructure and to the provision of affordable financial services. These measures need to be coordinated with indirect measures to avoid cherry picking by providers, for example by limiting the exclusion of geographic areas that providers may consider less profitable (UNCTAD 2021, p.36).

Regulations attend several policy objectives, including macroeconomic and development objectives. This is the case in financial services with prudential regulation for financial stability (Constantinescu et al. 2018, p.34) and risk management for financial inclusion (UNCTAD 2021, p.36).

1.5.6. Competition and business facilitation

Competition policies are also relevant for services (Miroudot 2017, p.29; Scholtès 1998, p.201). This is pertinent, most notably, for network-based services that may be associated to a natural

monopoly or oligopoly (Hoekman and Mattoo 2008, p.25). The positive effects of competition policy in the development of sectors such as telecommunications, transport and financial services has facilitated the contribution of these services to structural transformation policies in South Africa (UNCTAD 2017b, p.6).

Competition measures can be useful to induce efficiency in services and in inputs they transmit to the economy. This is the case, for example, of pro-competitive regulation on markups and margin costs (François and Hoekman 2010) and on interconnection rates for access to telecommunications networks (Hoekman and Mattoo 2008, p.25).

Some analyses defended that competition policies are especially relevant for service in face of a reduced tradability that would lead to lower competitive pressures. This pressure could be applied by actual or announced competition measures (Duarte and Restuccia 2010).

The efficiency of services sectors is also promoted by business facilitation measures which can encompass transparency or tax measures, for example double taxation agreements (Niembro 2017, p.73).

1.5.7. Institutional frameworks

Several services sectors also depend on the quality of institutions (Scholtès 1998, p.203; Hoekman and Mattoo 2008, p.23; Niembro 2017, p.73; UNCTAD 2017a, p.13; UNCTAD 2017b, p.6). These institutions need to inform the definition of regulations and contribute to compliance with regulatory frameworks. Governments need to create the conditions for appropriate institutional frameworks as a precondition for efficient services. In India, higher services output per capita was associated with stronger institutions (Hoekman and Mattoo 2008, pp.23-25).

The establishment of effective institutions is recognised as a challenge (Hoekman and Mattoo 2008, p.28). Be that as it may, this remains as a fundamental dimension to strengthen many services sectors, including telecommunications (Hoekman and Mattoo 2008, p.23) and financial services (UNCTAD 2021, p.36). The institutional framework should include a system to coordinate the activities of the several relevant institutions (Scholtès 1998, p.203).

1.5.8. Regional cooperation

Regional cooperation can support the pooling of skills to address more efficiently the needs of national institutional frameworks. This can be an important issue due to fast pace of technological developments and evolution in services and the related growing need for sophisticated skills in regulatory institutions (Constantinescu et al. 2018, p.34).

An important dimension of regional cooperation is pursuing regulatory convergence. This will contribute to market integration and participation in international value chains of several services activities such as education, health, financial and professional services. Regulatory convergence can contribute to reducing trade barriers, achieving economies of scale and efficiency, and promoting competition (Heuser and Mattoo 2017, p.21).

Regulatory convergence can occur, for instance, through mutual recognition, adoption of standards or regulatory harmonisation. The costs of convergence should be considered so they can only occur when there are expected to be offset by the gains (Kox and Nordås 2007, pp.5-6). Governments could consider supporting and promoting the adoption of standards with awareness raising, finance mechanisms, technical assistance, training and equipment (Scholtès 1998, p.202).

1.5.9. Trade policy

Trade policies are also deemed important to improve services provision, with progress in services reform associated with productivity in manufacturing industries relying on services intermediate inputs (Fernandes and Paunov 2012, p.214; Arnold et al. 2014; Arnold et al. 2016). This was particularly noted in the productivity of banking and telecommunications services (Arnold et al. 2016) and in the competitiveness of energy, telecommunications and transport services (Bas 2014).

Greater openness in services is a potentially positive factor in the efficiency and export performance of technology and skill intensive manufacturing sectors (Francois and Wörz 2008). Access to foreign services and to inputs and factors that support domestic services can support the contribution of services to the structural transformation of the economy (UNCTAD 2017b, p.9). Another study points for a strong correlation of trade openness with industry productivity but less with services productivity. The latter would be strongly correlated with regulatory frameworks (Duarte and Restuccia 2010).

Trade liberalization in services intensifies competition, defined as a reduction in variable trade costs (Kox and Nordås 2007, p.5), contributes to efficiency, technology upgrading, and quality of services provided (Bas 2014). These trade strategies would be in line with efforts to diversify the economy (François and Hoekman 2010). One analysis argues that the reform of telecommunications, transport and financial services in East Asia will facilitate the connectivity and access to capital required for participation in international markets which are technology demanding (Constantinescu et al. 2018, pp.47-48).

Liberalization of services sectors can benefit from pro-competitive regulations (Kox and Nordås 2007, p.5) and from trade agreements that can create transparency and a predictable policy environment. These agreements would envisage achieving market integration and economies of scale (Constantinescu et al. 2018, pp.34-48).

Despite important levels of liberalization, some analyses point to several restrictive measures still in place (François and Hoekman 2010). These restrictions are mainly found on services trade through the temporary movement of natural persons, the Mode 4 of services trade[8] (Mirodout 2017, p.29).

The relevance of trade policies goes beyond liberalization. Trade facilitation measures have been recognised to reduce trade costs and should occur in tandem with trade liberalization. This includes improving customs clearance and reducing bureaucracy in trade-related processes (Hoekman and Shepherd 2017). Trade facilitation and customs reform have a direct impact on transport services (Arvis et al. 2010, p.74). The reduction of the number, time required and uncertainty of roadblocks were identified as key dimensions of transport effectiveness (Christ and Ferrantino 2011, p.1757). Trade promotion policies are also a determinant of firm competitiveness (Niembro 2017, p.73).

Several analyses have covered the links between trade policies and regulatory frameworks. Liberalization may involve commitments that limit the regulatory autonomy of national authorities (UNCTAD 2017a, p.19). Regulations can restrict access to foreign services affecting the efficiency effects that could be provided by those services (Hoekman and Shepherd 2017). Trade policies need to be devised coherently with regulatory frameworks to ensure that each policy areas minimises the possible restrictive effects it produces in the other area (UNCTAD 2017b, pp.7-9). For instance, a coherent approach to trade openness and financial regulations is necessary to expand financial inclusion (UNCTAD 2021, p.36).

While regulations can improve the competitiveness of domestic services providers, excessive regulatory restrictions can impose a higher burden on the international integration of domestic services providers than on foreign services providers entering the domestic market. Regulatory barriers tend to affect SMEs more than large firms (Kox and Nordås 2007, pp.5-6).

[8] See Annex C for more information on the modes of supply of services trade.

Reform initiatives need to be put in place together with competition policies. Otherwise, rather than harvesting the potential of liberalization for more firms and competition, any monopoly rents may just possibly be transferred to new private owners (Hoekman and Mattoo 2008, p.25). Furthermore, trade liberalization can lead to an increase in the average size of trading firms and to market concentration. The coordination with pro-competitive regulations can allow for more small and medium-sized enterprises (SMEs) to participate in international trade and reduce the average size of trading firms (Kox and Nordås 2007, pp.5-6).

Similarly, openness needs to be applied together with universal access policies to ensure wider access to services. In the liberalization of services sectors, efficiency objectives are likely to prevail over universal access goals in the absence of additional policies. With the termination of cross-subsidies and the possible decline of domestic availability of services in areas where provision is less efficient, some firms and households may become underserved (Hoekman and Mattoo 2008, pp.25-29).

1.6. In sum

This study adds to the existing analyses by having provided, in this chapter 1, a holistic look at the policy implications of the effects of services value-added in the economy, particularly in exports of all sectors. This holistic view permits a deeper focus, in chapter 3, on the relevance of policy coherence and coordination to harvest the potential of the value-added provided by services.

Furthermore, chapter 2 of this study informs about the value-added provided by services to the exports of all sectors for the aggregate set of developed and developing counties. This allows to delve in chapter 3 into the policy implications taking into account the differences between these countries and focusing on how to harvest the potential of services value-added in exports for development objectives.

CHAPTER 2

Below the tip of the iceberg

Chapter 1 has provided a literature review pointing to effects of services on innovation, productivity and competitiveness. This chapter 2 will give information on the magnitude of how services contribute to the whole of the economy by providing intermediate inputs, by being developed internally in firms of all sectors and by being bundled with goods in sales packages.

The information on the significant contributions of services to all sectors, paired with the potential effects services have on economic performance, will support the need to analyse the policy implications of services linkages with the production and exports of all sectors.

2.1. Servicification

The several mechanisms through which services have linkages with all economic sectors may be defined as servicification. These linkages derive from the increasingly revealed purchase, use, production, sales and exports of services by all economic sectors.

The term has also been used specifically for the linkages between services and manufacturing (Kommerskollegium 2012, p.7). It has been used as well for the linkages between services and both the primary and manufacturing sectors (Foltea, 2018, p.9). The term is used more broadly in this study because those linkages exist between services and all economic sectors. Examples of servicification comprise automated crop monitoring services for agriculture, software services for the automotive industry, or telecommunications services for digital financial services (United Nations, 2021, pp.55-56).

Servicification materializes in value-added of services in the production and exports of all sectors. This value-added may not be so visible but adds to the already meaningful role that services have in the economy as final products which is, therefore, just the tip of the iceberg. This study focuses more on the value-added of services in exports.

Trade in services has been an area traditionally with less data availability than goods trade. With services' intangibility and with data collection and statistic production systems designed for goods, there is less information about trade in services. Furthermore, data from balance of payments depicts only some modes of supply of services (Chang et al. 1999, pp.93-94; UNCTAD 2017a, pp.7-8).[9]

[9] The four modes of supply according to the General Agreement on Trade in Services of the World Trade Organization are Mode 1 for cross border trade, Mode 2 for consumption abroad, Mode 3 for

Trade in services through commercial presence – Mode 3 – or through the temporary movement of natural persons – Mode 4 – may not be fully reflected in this data. This may represent an important underestimation, as in the case of the European Union where these modes of supply represented 73 per cent of trade in services in 2013 (Rueda-Cantuche et al. 2016, pp.15-16).

Services-related policy strategies have been calling for more data. This challenge is compounded for services value-added in exports, where the interactions between services sectors and all sectors are often overlooked but need to be captured.

2.2. In the beginning there were services

Servicification can occur through several mechanisms. One of these is the use of services as intermediate inputs. This leads to services embodied into the production and exports of all sectors and that will become an inextricable component of the final product. The value of these embodied services adds to the full value of the final product.

These inputs can derive from domestic and foreign supply of services to the whole economy. The term "Mode 5" was used to refer to the particular case of domestic services' inputs into exports of manufacturing sectors (Cernat and Kutlina-Dimitrova 2014, pp.6-8). This wording alluded to a form of supplying services which was not captured by the four modes of supply commonly used in the international trading system.[10]

The choice of the term was assumed to invite to a reflection on how the international trade agenda should address this topic (Cernat and Kutlina-Dimitrova 2014, pp.10-11). It suggested expanding the coverage of the existing relevant provisions at the World Trade Organization (WTO) to reduce tariffs on goods proportionately to the value of services component (Mavroidis and Cernat 2016). This was to mimic the fact that exports of services as final products are not subject to tariffs.

Still, available data shows that a proposal to reduce tariffs on goods proportionately to the value of their embodied services would have a differentiated impact on countries according to their level of development. Developed economies have relied more on services inputs for their exports, as it will be shown in figure 2.1, implying a higher reduction in tariffs for exports of developed economies.

commercial presence and Mode 4 for the presence of natural persons. See Annex C for more information on the modes of supply of services trade.

[10] See Annex C for more information on the modes of supply of services trade.

Services intermediate inputs also derive from services provided by foreign suppliers, which are not covered in the particular case of Mode 5. The example from the economies outside of the Organisation for Economic Co-operation and Development (OECD) reporting to the Trade in Value-Added (TiVA) database illustrates that services provided by foreign suppliers were not negligeable. In 2016, services provided by foreign suppliers accounted for 14 per cent of the total value that intermediate inputs from services contributed to gross exports from those economies.[11] The remaining value came from domestic suppliers.

Embodied services appear in input-output or supply-use tables prepared periodically by some countries in their national accounts. Input-output information identifies the value-added that corresponds to the inputs originating in services sector into downstream sectors. Resorting to these tables has limitations since they are constructed only every few years and achieved after a long process. As such, information in input-output tables can date several years back while information from final exports is available with higher frequency.

Moreover, several policy analyses require cross-country comparative examination of data and the possibility to build aggregates. For instance, development analyses can benefit from comparing input-output statistics for the set of developed economies with the same statistics for the set of developing economies or from comparing these statistics between regions. Computing these aggregates is challenging as not all countries release their input-output information in the same year and some countries still face barriers in producing such information altogether. The improvements in global value-added databases are progressively addressing these challenges (Cernat and Kutlina-Dimitrova 2014, p.8).

The TiVA database from the OECD, in the edition available during the period in which this part of the study was undertaken,[12] provided this information for 36 sectors and 64 economies up to 2015. The Export Value Added Database (EVAD) from the World Integrated Trade Solution (WITS)[13] provides this information for 27 sectors and 118 economies up to 2014.

[11] Calculation from the author based on data from TiVA database (https://www.oecd.org/sti/ind/measuring-trade-in-value-added.htm). Data accessed in November 2021.
[12] Last access on 15 November 2021. A new version of the database was announced for 17 November 2021. See more at: https://www.oecd.org/sti/ind/measuring-trade-in-value-added.htm
[13] The World Integrated Trade Solution was developed by the World Bank in collaboration with the United Nations Conference on Trade and Development and in consultation with the International Trade Centre, United Nations Statistical Division and the World Trade Organization. Last access on 15 November 2021. See more at: https://wits.worldbank.org/analyticaldata/evad-countrystats.aspx See Annex D for more information on the use of the Export Value Added Database.

For a development-focused analysis, such as the one from this study, it is relevant to have a wider geographic coverage, with more information on developing economies. This is relevant to establish a better comparison between developed and developing economies regarding the value-added of services intermediate inputs in exports. As such, information presented in the figures below draws from the EVAD database.

In developed economies, in 2014, services as final products represented 28 per cent of exports while services as intermediate inputs were 48 per cent of the value-added of total exports. In developing economies, in the same year, services as final products accounted for 15 per cent of exports whilst services as intermediate inputs amounted to 33 per cent of the value-added of total exports (figure 2.1).

The shares of services as intermediate inputs in the value-added of exports are much higher than the shares of services as final products in exports. The analysis of the value-added of exports reveals the importance of intermediate inputs of services. These inputs are hidden under final products in the analysis of exports through balance of payment data.

The higher shares of services in intermediate inputs than in final products occurred in both developed and developing economies. This is in line with the hypothesis that all economic structures have strong demand for services' intermediate inputs, although in various degrees. This would include assembly activities and large-scale commodity production that increasingly depend on the availability, cost and quality of services.

Nevertheless, developed economies have relied more on services inputs for their exports. This difference may be even higher than what is shown by these statistics. If developing economies have access to services with lower productivity, the value of the reliance of these economies on services value-added will appear higher due to higher costs.

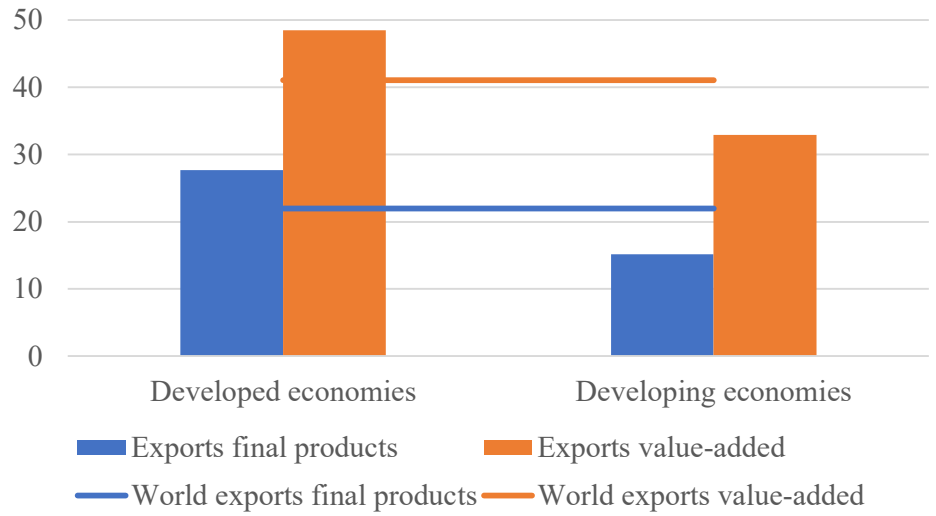

Figure 2.1. Participation of services in exports of final products and of services intermediate inputs in total value-added of exports, 2014 (Percentage)

Source: Author's elaboration with information from UNCTADstat (https://unctadstat.unctad.org/EN/) and EVAD (https://wits.worldbank.org/analyticaldata/evad-countrystats.aspx). Information accessed on November 2021.
Note: See Annex D for more information on the use of the Export Value Added Database.

Although the direct exports of services have increased in recent years, close to two-thirds of the growth of the value-added of services in exports came from an increase in services embodied in exports of other sectors (UNCTAD 2017b, p.4). This confirms the increased tradability of services, as their inputs can be associated with inherently tradable goods and services (Low 2017, p.17).

Services inputs accounted for 25 and 12 per cent of the value-added of agriculture exports in 2014, in developed and developing economies, respectively. As an illustration from the manufacturing sector, in the same year, services inputs were 35 and 29 per cent of clothing exports in developed and developing economies (figure 2.2).

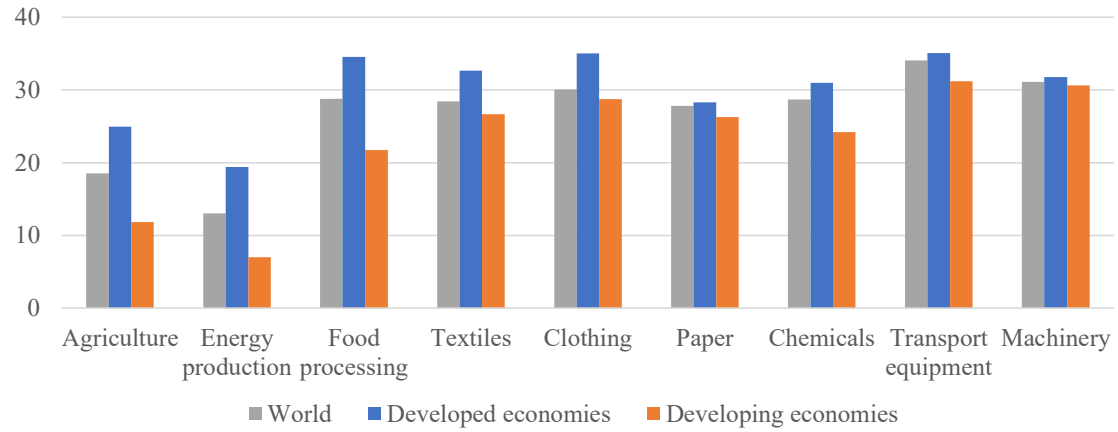

Figure 2.2. Participation of services in the value-added of exports of selected sectors, 2014 (Percentage)

Source: Author's elaboration with information from EVAD (https://wits.worldbank.org/analyticaldata/evad-countrystats.aspx). Information accessed on November 2021.
Note: See Annex D for more information on the use of the Export Value Added Database.

Services inputs were important for all sectors, more in manufacturing than in agriculture and in energy production. This may be partly attributable to the fact that sectors relying more in complex value chains are likely to depend more on intermediate inputs, revealing more value-added from services inputs. Sectors with shorter value chains may have less value-added from services inputs.

Still, caution may be required in interpreting the levels of value-added in some sectors. For example, the input-output linkages of energy production may be altered as energy prices are set in international markets without fully reflecting the cost structure. This includes the value of intermediate inputs, which can even consist of sophisticated specialized services in some energy-related activities such as operations in offshore platforms.

The relevance of services intermediate inputs was revealed both in developed and developing economies. Still, developing economies incorporated less value-added from services than developed economies in many sectors, with a wider gap in agriculture, food processing and energy production.

The group comprising the category denominated as other business services[14] and ICT services was the main global contributor of services' inputs to the value-added of total exports. Globally, in 2014, this group accounted for 10 per cent of this value-added (figure 2.3). This supports the hypothesis that strategies to enable trade require the contribution of other business services (Hoekman and Mattoo 2008, p.3) and ICT services (Freund and Weinhold 2002, p.240).

In the same year, distribution, financial and insurance, and transport services have also provided relevant contributions to value-added in exports. These services contributed globally with 9, 7 and 6 per cent, respectively, of the value-added of total exports (figure 2.3).

The breakdown of these values confirms that developed and developing economies relied on different types of services' inputs. Developed economies used more inputs from other business services and ICT services in their exports. These services represented, in 2014, 13 per cent of the value-added of total exports in developed economies and 6 per cent in developing economies. The pattern of servicification of developing economies relied more on inputs from distribution services. In these economies, distribution services accounted for 9 per cent of the value-added of total exports (figure 2.3).

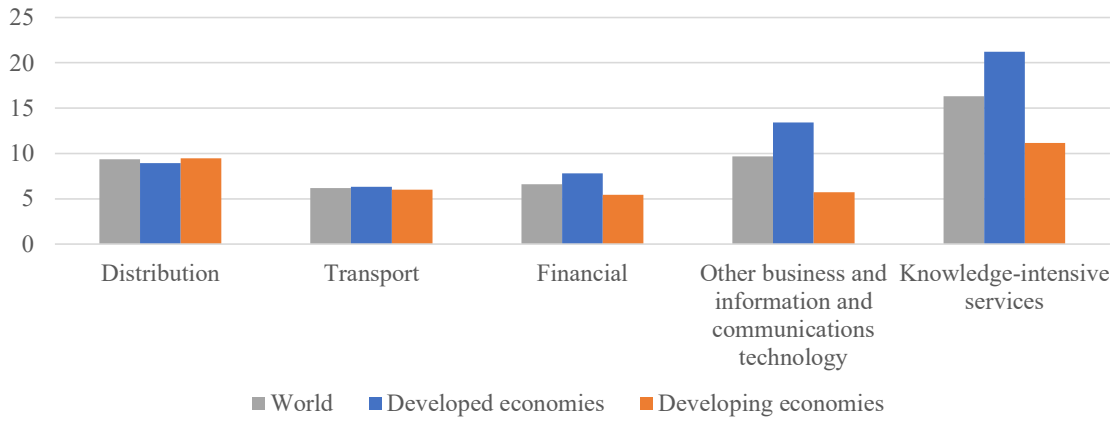

Figure 2.3. Participation of inputs from selected services sectors in the total value-added of exports, 2014 (Percentage)

Source: Author's elaboration with information from EVAD (https://wits.worldbank.org/analyticaldata/evad-countrystats.aspx). Information accessed on November 2021.
Note: Financial services in this figure include the inputs from financial and insurance services. Knowledge-intensive services include financial and insurance services, other business services

[14] See Annex A for more information on the taxonomy on services sectors.

and information and communications technology services. See Annex D for more information on the use of the Export Value Added Database.

Developed economies use inputs from knowledge-intensive services more intensively than developing economies. The set of these services[15] accounted for 21 per cent of the value-added of total exports in developed economies and 11 per cent in developing economies. This confirms the difference in servicification patterns according to the level of development (figure 2.3).

The higher intensity of knowledge-intensive services usage in developed economies occurs both in agriculture and manufacturing exports. In 2014, inputs from knowledge-intensive services accounted for 12 per cent of agriculture exports in developed economies and 4 per cent in developing economies. In the same year, inputs from these services amounted to 15 and 8 per cent of clothing exports in developed and developing economies, respectively (figure 2.4).

Therefore, developing economies benefit less from the potential of knowledge-intensive services to enable innovation and export competitiveness (Niembro 2017, pp.65-67).

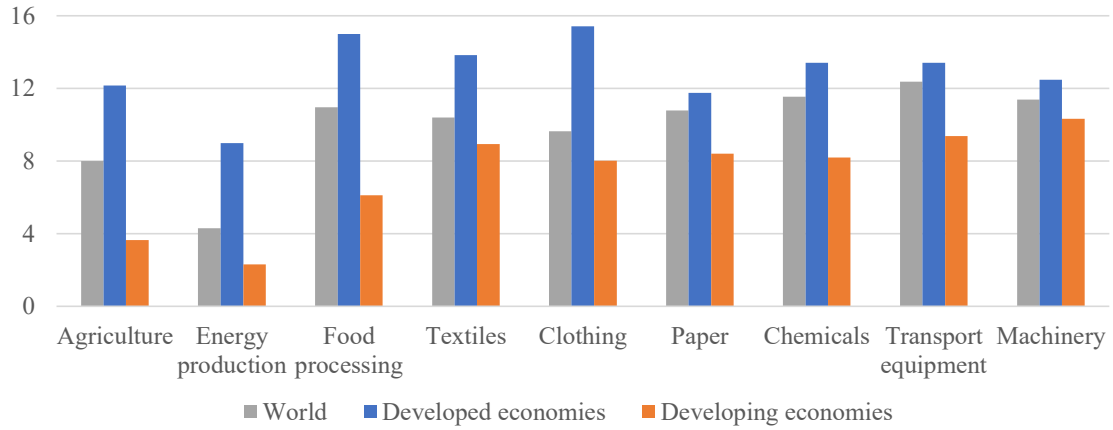

Figure 2.4. Participation of knowledge-intensive services in the value-added of exports of selected sectors, 2014 (Percentage)

Source: Author's elaboration with information from EVAD (https://wits.worldbank.org/analyticaldata/evad-countrystats.aspx). Information accessed on November 2021.

[15] The aggregate of knowledge-intensive services was calculated by adding the following categories from the export value-added database: financial and insurance services, other business services and information and communications technology services. See Annex B for more information on knowledge-intensive services.

Note: Knowledge-intensive services include financial and insurance services, other business services and information and communications technology services. See Annex D for more information on the use of the Export Value Added Database.

2.3. Hiding in plain sight

In the case of intermediate inputs, analysed in the previous section, the value of services can be measured by input-output value-added. In this section, the focus will be on services developed within the firm, which do not involve a transaction in which the value is recorded. These services are not captured by input-output tables and their quantification calls for ad-hoc analyses.

The value chain to produce construction machinery provides an illustration of how services are required throughout manufacturing value chains, both as intermediate inputs and as services developed within firms. A minimum of 66 services contribute to all phases of production including the establishment, pre-production, production, post-production, sales, after-sales, and back-office stages (Tait and Gereffi 2015, p.419).

These services can be supplied as inputs from services' providers. The same services can also be developed internally in firms from all sectors, including primary and manufacturing sectors. In the example of the value chain to produce construction machinery, 38 per cent were provided in-house, 8 per cent in-group, 18 per cent outsourced and 36 per cent were provided by a combination of these modalities (Tait and Gereffi 2015, p.419).

The decision to outsource or insource the production of the service can be driven by cost or confidentiality. The choice can rely on external suppliers of inputs when the provision of services relies on infrastructure, networks or costly skills that can be achieved more efficiently outside the firm (Miroudot and Cadestin 2017b, p.21). This may be the case, for example, of some energy and telecommunications services.

The option to produce services in-house can occur in situations where this production is more efficient and when it improves internal organization. In the example of the value chain to produce construction machinery, 71 per cent of services involving coordination of providers had an in-house component (Tait and Gereffi 2015, p.419).

Developing services in-house can also be important when services are sources of competitive advantages that should be kept within walls. This may be the case, for example, of ICT services to increase productivity or R&D services to promote innovation (Miroudot and Cadestin 2017b, pp.11-12). A higher focus of services in in-house production improves export performance. When increasing 10 per cent the share of services in in-house production, the export intensity is expected to increase around 0.6 per cent in the following year (Lodefalk 2014).

Developing services in-house may imply a shift from resources from production and assembly functions to services functions like R&D, design, marketing, sales, logistics, distribution, and after-sales and customer support services.

Some analyses confirm that this trend that date back several decades. Around 1972, the manufacturing company IBM had over half of its employees involved in services tasks (Levitt 1972). An analysis of a sample of countries found that, in 2015, services functions represented between 25 and 60 per cent of manufacturing employment (Miroudot and Cadestin 2017b, pp.17-18).

The same analysis estimated that in 2011, while services inputs accounted for 37 per cent of the value of manufacturing exports for the economies analysed, the addition of in-house services activities brought the contribution of services to 53 per cent of the value of manufacturing exports and close to two thirds of overall exports (Miroudot and Cadestin 2017b, pp.21-22).

The strategy to internalize services is supported by the value-added information that reveals the importance of services inputs. Further research would be needed on how internalization may risk loss of advantages derived from specialization.

2.4. It is more than good; it is also services

In addition to intermediate inputs and to services produced in-house, servicification also includes services that are provided in tandem with goods in a bundle. This occurs often, for example in manufacturing firms that also provide distribution services to their customers in foreign markets or in industrial machinery firms that may provide maintenance, repair and installation services together with their merchandise exports (UNCTAD 2017b, p.3).

Firms provide services bundled with goods to differentiate the value proposition to customers or to add more value to the underlying product. This process is referred as servitization (Vandermerwe and Rada 1988), one of the mechanisms through which servicification occurs.

Servitization allows to address demand for services and may permit higher margins. This revenue argument may be compounded by the stability of income from services' contract payments that replace isolated transactions (Oliva and Kallenberg 2003, p.160).

Furthermore, by adding services, the bundle provided to clients innovates the firm capabilities and processes and is more difficult to imitate. This creates a differentiated and sustained source of competitive advantage and gives firms the possibility to avoid competing on costs (Kamp and Parry 2017, p.11).

The provision of the goods and services bundle consists of a more complete solution to clients. This is associated with higher customer centricity, customized solutions, strengthened relationship between producers and clients, and co-creation of value (Miroudot and Cadestin 2017b, p.12).

Most importantly, servitization can also promote closer relationships between goods and services providers. The interactions between the providers of the goods and services that form the bundle are recurring interactions that can foster partnerships, dynamics of adaptation and bonding effects (Johanson and Mattsson 1987, pp.44-45).

Servitization is a trend that has started several decades ago. Around 1983, 30 per cent of the revenue from manufacturing firm Honeywell came from services (Shelp 1983, p.122). In Sweden, the contribution of services to sales of manufacturing firms grew by 25 per cent between 1997 and 2006. The main contributions were from wholesale, retail and repair services. While it still represents a small share, the contribution of computer and related services was growing fast (Kommerskollegium 2012, p.7). However, calculating the value of these services may not be an easy task.

When these services are provided by services suppliers directly to final customers, they are accounted as exports of final products in balance of payment statistics. If the services are supplied to a manufacturing firm, which then exports the bundle, the value-added of the services may be captured by input-output statistics. If the services are developed in-house and provided by the manufacturing firm itself, the corresponding value-added will not be captured by balance of payment or input-output statistics. In this case, specific ad-hoc analyses would have to be undertaken to estimate the services value-added of these services in exports.

While services intermediate inputs originate services embodied in the production of broader products, services bundled with goods are services embedded in sales of broader products. Examples of embodied services can include energy, communications, insurance, accountancy, design or software services. Embedded services can comprise training, maintenance, repair and other after-sales services (Drake-Brockman and Stephenson 2012, p.7).

The concepts of embodied and embedded services have been often employed. This distinction may not be useful for analytical purposes as it is not precise. Furthermore, it may not support policy discussions as it creates a definitional break in the value chain, may not cover all services providing value to the product, and inadequately account for services that may be both embodied and embedded. For example, management services may not be easily labelled as services related to production processes or to sales processes. Back-office or information technology services might be embodied and embedded (Low 2013, pp.11-12).

With these considerations, this study aims for a holistic approach to servicification. It envisages covering services intermediate inputs, in-house services and services bundled with goods, both domestic and imported. This broader view facilitates the policy discussion.

2.5. In sum

Through the several mechanisms of servicification, services can provide relevant value-added to exports of all sectors. This role adds to the importance of services as final products and to the need to analyse the economic and development effects of services.

Chapter 1 provided a holistic look at the policy areas that shape the efficiency and effectiveness of services and therefore strengthen the inputs and value that services provide to the economy. Chapter 2 confirmed the importance of services contributions to the whole of the economy through intermediate inputs, in-house services and services bundled with goods. Together, the first two chapters of this study point to the need to consider the role of services in public policies.

Chapter 3 will give a deeper focus to policy coordination and coherence and to the differences between the aggregate of developed and developing economies and how to pursue the potential of services value-added in exports for development objectives.

CHAPTER 3

Enabling the enabler

Chapter 1 analysed the potential of services to improve innovation, productivity and competitiveness throughout the economy. Chapter 2 revealed that services provide meaningful value to the whole economy through the several mechanisms of servicification. This includes how services account for a relevant share of the value-added in the export structure of countries in all development levels, underlining the differences on how developed and developing economies use services value-added.

This potential to shape the economy calls for the examination of the public policies that can enable services and their ensuing enabling effects in all economic sectors. The economy may benefit from policies that foster the supply of quality services at competitive cost.

Chapter 1 reviewed holistically the literature on several policy areas relevant to improve services. These included policies related to education, data, infrastructure, technology, innovation, regulatory frameworks, competition, business facilitation, institutional frameworks, regional cooperation and trade. Chapter 3 will complement the literature review detailing more operational aspects in selected policy areas. These will comprise education, data, business facilitation, industrial policy, innovation and trade policy.

The last section in this chapter will examine the role of policy coordination and coherence to seize the potential of services to pursue development objectives.

3.1. A chain is only as strong as its weakest service

First and foremost, servicification is about people. A qualified workforce is a central factor for the development of the contribution of many services sectors to total value-added, most notably of skill and technology-intensive services. This comprises, for instance, the contributions from telecommunications and ICT, financial or business and professional services.

In this context, it is important to reinforce education policies for both technical and higher education, which deliver on matching skills and labour demand. This also calls for a collaborative approach between education providers, business and government towards the identification of skill gaps and education solutions. These may comprise customized postgraduate programmes and agreements with foreign universities to facilitate academic exchanges (UNCTAD 2015, pp.20-21). The collaboration of education providers with the public and private sector must promote an educational offer that considers current and foreseeable future needs.

The offer or public support for education and training is important as there may be resistance to private investment in skills development, fearing that the mobility of talent will reduce the return on that investment (Abreu et al. 2010, p.114).

A supportive data ecosystem is also a requirement for evidence-based policymaking. This is especially relevant in services due to their intangibility, limitations on data availability and because of the additional burden on capturing data on the linkages between services and other sectors.

The success of data-related strategies in services often requires a stronger push by governments. This will comprise advocacy to support the collection and reporting of data by firms. In Brazil, the Integrated System of Foreign Trade in Services and Intangibles (SISCOSERV) operated during several years and improved the collection of data on trade in services. The results of this initiative are due, to some extent, to the fact that it was fed by mandatory reporting, supported by a presidential decree, for all services transactions between residents and non-residences. The initiative also benefited from the experience of the country in e-government and e-platforms (UNCTAD 2015, p.20).

International cooperation can assist in services-related data strategies. This cooperation could facilitate exchange of best-practices and launch surveys to collect data on a regular basis (François and Hoekman 2010).

Strengthening services and their servicification potential would also benefit from less bureaucracy, a valid axiom for many other policy objectives. A better business environment will contribute to more efficiency and to facilitate trade and investment flows. In Nicaragua, the entry of new operators in telecommunications services was facilitated by the simplification of administrative procedures to grant licences and authorizations. The creation of a single licence for telecommunications services providers could also be evaluated (UNCTAD 2013, pp.69-70).

Opportunities to adequately minimize unnecessary requirements and broadly seek simplifications in procedures should be pursued. Reducing times and costs, however, do not forcibly imply deregulation or relaxation in the requirements considered relevant for legitimate policy objectives. Strategies to seek efficiencies may include higher reliance on e-government, mapping and analysing administrative procedures aiming their simplification, and increasing transparency and predictability. Transparency was found important for business regulations supporting transport services (Arvis et al 2010, p.77).

These strategies can, nonetheless, be challenging for some developing economies. While such strategies should remain an objective for all countries, which ultimately will benefit from their implementation, their introduction in international commitments should be carefully evaluated.

A friendlier business environment, where compliance is lest costly, can promote formalization of services' micro, small and medium-sized enterprises (MSMEs). Formalized firms can achieve higher level of revenue and profits and employ more workers (Fajnzylber et al. 2009, pp.19-20). Higher levels of formalization in services' MSMEs, a type of firms heavily affected by informality, can contribute to create stronger linkages of services with the rest of the economy. Incentives to formalization of services' MSMEs should be considered, including by reducing the tax burden on firms becoming formalized and by extending social protection coverage (UNCTAD 2015, p.20).

Further to the positive effects of simplifying tax procedures, taxation design can affect the provision of intermediate services inputs. Taxation can therefore influence how the development potential of services value-added is used to improve productivity and competitiveness. In Brazil, a simplified tax regime limited the booking of tax credits regarding intermediate inputs, putting servicification mechanisms at a disadvantage. As another example, a municipal indirect tax on services could not be exempted or remitted even when the service was an intermediate input to a good.

Applying the destination principle to indirect taxation would allow collecting an indirect tax only in the destination market by applying it to imports and rebating it on exports. This would avoid a detrimental effect on utilizing services value-added in exports. The WTO agreement on subsidies and countervailing measures (SCM) provides the framework for the appropriate revision of taxation design. The SCM allows for the exemption or remission of indirect taxes, including prior stage[16] cumulative indirect taxes, when similarly applied to exported and domestically consumed products (WTO 1994, pp.263-267).

3.2. Where there is a service there is a policy need. The role of industrial policy

Industrial policies can also be instrumental for services. This is especially important when the economic efficient viability depends on scale, learning (Mamede 2017, p.75) and experience (Rodrik 2007, pp.104-107) as in the case of many services activities with network effects. Moreover, services development necessitates a collective accumulation of formal and tacit knowledge and skills, which in turn requires collaborative approaches facilitated by industrial policies.

Industrial policies are also important when there are barriers to investment related to technological and information uncertainty (Rodrik 2007, pp.104-107). For technology and process R&D and engineering services, there is a strong case for government support through information campaigns, equipment, training and finance. This can include technology development funds (Scholtès 1998, p.202).

Industrial policies are also relevant when it is necessary to coordinate multiple investments at the same time (Mamede 2017, p.75; Rodrik 2007, pp.107-109). This is relevant in services, and hence to servicification, which often entail simultaneous efforts in infrastructure, research, suppliers and education among others.

A multi-stakeholder collaboration can be catalysed by productive clusters that facilitate scale economies to reduce operational costs. Coalitions of services industries can have a particularly relevant role in supporting collaborative networks of services providers. Efforts to achieve scale and collaboration in services will also contribute to provide demand for services' support activities. These may include, for example, education services, applied research, and customized financing products and services.

[16] As per the WTO agreement on SCM, prior stage indirect taxes are those levied on goods or services used directly or indirectly in making the product, and therefore of particular relevance to the analysis of services value-added in exports.

Hence, more collaboration and scale will bring efficiency to services, effectiveness to the environment critical to strengthening services, and higher ability to provide value-added to the whole economy. Such a virtuous circle should include stronger linkages between services' providers, the government, academia, and other civil society organizations towards more technology development and innovation.

3.3. The road to success is paved with innovation

Services have growing opportunities for innovation (Niembro 2017, pp.65-67), but these are not automatic. These opportunities require public policy efforts that actively consider the specificities of services.

Promote innovation in services benefits from initiatives to stimulate their demand by all sectors in the economy. This demand promotion can build on the potential that some services have to generate innovation themselves in downstream sectors. Innovation can result from the provision of new or more efficient knowledge-intensive services (Miles et al. 2019, p.378).

Although many companies see services as useful for their innovation strategies, it remains necessary to raise awareness about this role. This need stems to some extent from the fact that many small companies consider the use of knowledge-intensive services as out of their reach or as a secondary alternative to technological innovation (OECD 2006, p.13).

Promoting demand also requires that firms from various economic sectors are better prepared to take advantage of the potential benefits provided by services. This involves better prepared human resources and increased absorptive capacity. The latter can occur when knowledge-intensive services are used as part of purchasing packages of other goods and services. For example, engineering, after-sales services or ICT services can be included in the sale of an equipment to customize its use.

The public sector can play a relevant part in stimulating demand for services. This can include financing to knowledge-intensive services to create a market or an illustration of the importance of using these services for innovation strategies. The public sector can also support certification of knowledge-intensive services to reduce information asymmetries between the providers of these services and firms in general (OECD 2006, p.15).

Supply-side policies can also promote innovation in services. These comprise strengthening the regulatory and institutional frameworks that create the conditions for the desired performance of services, including their innovation. These frameworks should avoid generalizations that do not consider the heterogeneity between categories of services. Regulations and institutions should promote sectoral innovation regimes that recognize the specific nature of the innovation pattern of each services category.

The dynamism of innovation in services should be especially stimulated in services sectors that spread knowledge-intensive inputs to the rest of the economy (Evangelista 2006, p.666). Policies must also recognize that each service activity can focus on different types of innovation, each with different determinants. For example, technological innovation is associated with company size, while non-technological innovation is associated with export capacity and proximity to urban centres (Doloreux and Frigon 2019), where collaborative networks can be denser.

Education and training policies improve the knowledge level of workers and contribute to strengthening services, particularly, knowledge-intensive services, and innovation in these sectors. These policies are also relevant to improve management capacity, with a focus on innovation management. This type of innovation is relevant for organizational change, which is frequent in services innovation processes. Additionally, better management skills can facilitate risk analysis in innovation investment decisions, contributing to reducing uncertainty and encouraging investments (Abreu et al. 2010, p.109).

Policies related to R&D are particularly important for knowledge-intensive services as many of these translate R&D-based knowledge into practical applications (OECD 2006, p.14). For example, a public research centre in Mexico, the *Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, A.C.* (CIATEJ), provides R&D services and training to increase agroindustry's competitiveness (United Nations 2021, pp.55-56). Establishing a national policy for science and technology was found important for innovation in business services (Scholtès 1998, p.202-203).

Non-technological innovation and collaborative models, which characterize many services, must be considered in innovation policies. For the same reason, innovation policies must be coordinated with productive development policies given the need to develop collaborative networks. These networks are essential for knowledge-intensive services as they allow to incorporate market feedback, most notably from customers and suppliers, into innovative processes.

The importance of these networks confirms the relevance of innovation systems for services. Strengthening national innovation system contributes to the upgrading of services inputs and therefore of their capacity to support economic integration in higher value-added segments of international value chains.

Networks should rely on the participation of the public and private sector, universities and other educational institutions, and civil society. In supporting services innovation, the role of universities can go beyond technology transfer and include education, research, community service and support for networking. This broader scope of intervention by universities can allow more effective links between the diverse categories of services and the multiple areas of knowledge available at universities (Abreu et al. 2010, p.115). In the case of knowledge-intensive services, there may be a transfer of tacit knowledge from universities to services providers, supporting non-technological innovation (Doloreux and Frigon 2019).

Public and private financing is also necessary due to the high cost of innovation processes. This is especially relevant for services as a bias of innovation policies towards manufacturing implies, to some extent, less funding for service innovation (Evangelista 2006, pp.659-660). Financing policies should be adapted to investments in intangibles that may be necessary for innovation processes in services. This implies, for example, not limiting these policies to support R&D, which may have a limited scope in several services.

From the point of view of return on public investment, the financing of innovation in knowledge-intensive services can have a greater potential. The direct promotion of innovation in these services is accompanied by the indirect promotion of innovation in all the economic sectors that rely on inputs from knowledge-intensive services.

Protection of intellectual property is a relevant dimension of innovation strategies. The low appropriability conditions of innovation in services diminish the preference for the protection through patents. Intellectual property protection preferences in services tend towards the use of trademarks, copyright, design complexity and lead-time (Evangelista 2006, p.660). The coverage of these dimensions needs the support of an adequate legal framework.

Innovation measurement models need to be adapted to support these policies. This calls for better data which, in turn, would benefit from indicators and surveys that consider the specificities of services and the heterogeneity of their different categories. Surveys should cover more categories of services and dimensions such as strengthening human resources and training. This would facilitate a better understanding of the skills needed in each sector. Surveys should also focus on network collaboration and organizational innovation, recognize non-technological innovation and the adequate protection of the appropriability of innovation.

The need to involve multiple policy areas in promoting innovation in services requires institutional coordination and policy coherence. This can include establishing an inter-institutional mechanism that brings together decision makers from various policy areas, with representatives from the private sector, academia and civil society. This mechanism would aim to improve services' innovative performance by coherently combining education and training, R&D, networking, financing and other policies. This articulation would promote stakeholder involvement and their buy-in to those initiatives and their objectives.

3.4. Services are always greener on the other side? The role of trade

Trade policy remains an important part of the policy mix needed to harvest the development potential of servicification. Trade policy comprises in itself several different dimensions, such as negotiation and administration of agreements, market intelligence, trade promotion, trade facilitation and supply capacity building. The relevance of the contributions of services value-added in exports of all economic sectors needs to be considered in all these dimensions, to ensure a coherent outcome.

A foundation to pursue this coherence is institutional coordination in trade policymaking. This is a challenging endeavour because servicification involves policies related to services providing value-added to goods or services. It further involves policies related to producing or importing the services value-added and to incorporating and exporting this value-added under the umbrella of a different sector.

Servicification blurs the frontiers between services and goods, imports and exports, and sectors contributing to the same export item. This means that the policies with an impact on servicification depend on several institutions that may not have a tradition in pursuing coordination. Moreover, this coordination needs to overcome the bias existing in some countries prioritizing goods-related trade policy. This focus may be explained by the possible higher weight of goods in direct exports, but it does not consider how exports significantly rely on services value-added.

The cross-cutting nature of servicification may justify the existence of a cross-ministerial coordination body in the government for services-related policies. The same applies to coordinate servicification-related trade policies. For example, a central team can coordinate trade teams in the foreign affairs ministry working on commercial diplomacy, in the trade or economy ministry working on negotiation and administration of agreements and in export promotion agencies working on market intelligence and trade promotion, among others.

Furthermore, some countries have different teams working on trade in services and on trade in goods, but teams working on both could be better prepared to address their interlinkages. This would also raise awareness in government trade experts regarding the effects of services value-added in all trade. However, specific issues remain in each area and institutional design should aim for a balance between promoting the interlinkages among trade in services and trade in goods and preserving the specialized knowledge in those issues.

Trade policy should be informed by data on the value-added in exports. This will highlight the role of services in all trade. For example, exports of agricultural products rely importantly on transport services. Taking into account intermediate inputs, and other sources of services value-added if they can be estimated, trade policymakers may conclude that priority should be given both to strengthening services inputs and any of the final products being exported.

Further to the immediate priorities, in which existing trade strengths are explored, the estimation of trade gains should have a forward-looking perspective and go beyond the mere verification of the current leading exports and comparative advantages. Current specializations may reflect structural economic fragilities in several developing economies. As such, insisting on the same trade opportunities may entrench these economies in the dependence from the activities that may have contributed to placing them at a structural disadvantage.

Trade policymakers should challenge current comparative advantages and assess which activities and value-added backward and forward linkages would be part of a more diversified and upgraded economy and trade. This is necessary to design the policies that pursue that structural transformation (UNCTAD 2017, p.68). Data and information on services value-added in exports is critical for this endeavour as it will inform what are the inputs required to promote the activities in the envisaged economic and trade structure.

Market intelligence and trade promotion need to build on data on services value-added in exports to attend to such immediate and forward-looking priorities. Intelligence on this data will inform, for example, what are the services that need to be available to meet current and envisaged demand by exports of all economic sectors in the country. This would explicitly detail the opportunities for insertion of services providers in international value chains. These can participate by providing intermediate services inputs to exports, services to be bundled with exports, or direct exports. Trade promotion initiatives should follow and support achieving all these opportunities for services to integrate directly and indirectly in international trade.

Trade negotiations need to consider opportunities and challenges linked to services value-added. The challenges relate to what is the specialization pattern of this services value-added and whether the negotiation will contribute to a pattern of services value-added in exports which may be conducive to development benefits. Trade negotiators need to address the immediate and forward-looking priorities, those that respectively address the potential export gains associated to services value-added with the current and with the envisaged trade structure.

Servicification reveals that exports of several sectors need services inputs, and these can originate from domestic and foreign markets. Hence, both services exports and imports contribute to export performance. Servicification should be considered by trade policies through a holistic value-chain approach that recognises domestic and foreign services, and direct and indirect services.

In this context, restrictions in trade in services need to be addressed as trade costs for services are high and declining less quickly than trade costs for goods (UNCTAD, 2017b, pp. 2-10). More research would be welcomed on the measurement and ranking of the possible discriminatory potential of policies with effects on foreign providers of services. This should include on the foreign provision through commercial presence and requirements on ownership and operation (Francois and Hoekman, 2010).

3.5. In services we trust? Let us look at development asymmetries

The policies that seize to harvest the development benefits from services intersectoral linkages should consider that servicification patterns are different between developed and developing economies. This section will focus on how the differences in development levels can be self-sustained, which can affect the ability to benefit from the potential of servicification.

Developed economies have specialized more in services intensive in skilled human capital, innovation, and new technologies, such as finance and insurance, business services, and telecommunications. These activities allow for services-powered industry 4.0 and ICT services-enabled trade, which can create formal, qualified, and high-quality jobs. These services can also have an intermediation role in the diversification and upgrading of productive and export capacity. Conversely, several developing economies have relied more in traditional services with low productivity.

Countries specializing in providing high-skilled and high-technology services inputs have been developing self-reinforced agglomeration effects. These encompass, *inter alia*, collaborative knowledge and information networks, specialized labour market and availability of specialized suppliers. These economies of scale isolate first mover economies in sustained competitive positions.

These mechanisms tend to make servicification and trade patterns persistent. For example, even when a developing economy can offer cost advantages in certain factors relevant for knowledge-intensive services, for example specialized education, these may well be offset by cost efficiencies of established advantages gained by a developed economy (Krugman et al. 2012, pp.146-148).

Further to these barriers to economic transformation, increasing the reliance in knowledge-intensive services will imply important adjustment costs for many developing economies. According to a study from the International Labour Organization (ILO) and WTO, re-skilling is not only a costly and long process, but also involves adjustment costs targeted at those with more difficulty to adjust (ILO and WTO 2017, p.70).

International trade allows to source intermediate services inputs, including of knowledge-intensive services. Foreign intermediate services inputs may be relevant as a matter of cost efficiency, and to have access to some inputs unavailable otherwise. This could provide an option for developing economies to address the domestic constraints in the availability of these services inputs.

Be that as it may, trade openness may also have distorting effects due to the already mentioned first mover advantages from foreign service providers. Although domestic providers could potentially attain lower costs in delivering some services after acquiring sufficient experience, they may be prematurely displaced off the market by foreign suppliers already benefitting from scale economies (Krugman et al. 2012, pp.146-148).

3.6. One for all, all for one. The role of policy coherence and coordination

Developing economies need to carefully design their development strategies in a way that allows them to benefit from the important potential of servicification, while managing the related risks. This requires a coherent approach to a policy mix that directly impacts these development objectives: trade negotiations, trade supply capacity and competitiveness building, regional integration and regulatory cooperation, and strategies related to specific services categories such as digital transformation and financial inclusion.

This section will focus on how to pursue this coherence approach in policymaking. The comments apply to economies in all levels of development, unless otherwise stated. While the actions that seek coherence are beneficial for both developed and developing economies, they may be more urgent in several developing economies with more fragilities in their policy frameworks.

3.6.1. Coherence between industrial and trade policy

New generation industrial policies can be helpful to prepare developing economies for an adequate openness to trade. These policies have moved away from direct, sectoral, and trade-distorting support. From energizing specialized education to enabling multi-stakeholder collaboration, these policies do not need to go against international trade commitments. This requires overcoming the neoclassical perception that public policies are not relevant for some dimensions of economic development and the perception that productive development policies serve only to address economic externalities.

Instead of focusing policies on results, which are inherently uncertain, a modern approach focuses on a multi-stakeholder process where public and private stakeholders collaborate to identify barriers and solutions, while ensuring transparency and accountability to avoid rent-seeking behaviour and unintended trade barriers (Rodrik 2007, pp.117-118).

3.6.2. Coherence between regulatory frameworks and trade policy

In services, legitimate public policy objectives are translated into regulations. Better and less costly services depend on the quality of regulations, which are essential for strengthening competition and promote innovation.

A coherent approach to both domestic regulation and trade liberalization in the services sector is critically important (UNCTAD 2017b, pp.6-7). For instance, institutional quality mattered for the impact of services on trade policy (Beverelli et al. 2017). Investments alone, especially in infrastructure, might yield low returns if policies that restrict competition among services' providers remained in place (Borchert et al. 2017). Excessive regulation can restrict market access from foreign suppliers but can be even more effective in preventing domestic suppliers from entering foreign markets (Kox and Nordås 2007, pp.5-6).

Regulations impact access to markets through the traditional types of entry barriers, such as bans and licensing. With technological advancements, market access is also influenced by other regulatory requirements such as the ability to connect to networks at reasonable prices (Francois and Hoekman 2010).

In addition to unintended trade restrictive effects, obstacles to trade can derive from regulatory divergence that services providers bear in supplying several markets. This calls for accountable regulators that decide with clarity to reduce arbitrariness, facilitate compliance and promote predictability.

Regulatory frameworks can support trade policies when regulations commit exporters to safeguard consumers in importing countries. This comprises deposit protection in financial services and data privacy requirements in some distribution services (Heuser and Mattoo 2017, p.21).

Regulatory cooperation contributes to improving regulations' quality, by incorporating more views, and to addressing regulatory divergence. This cooperation should build on multi-stakeholder consultations and sharing of best practices. Smart regulations should consider international or regional standards through harmonization or recognition, be performance based rather than prescriptive, promote innovation, and allow for lower compliance costs.

Regulatory impact assessments should promote the avoidance of unnecessary economic burdens, including trade barriers. Transparent enforcement and evaluation need to be part of such a smart regulatory cycle (UNCTAD 2020a, pp.16-17).

Services trade liberalization and domestic regulation impact each other to the extent both can determine if and how international competition is allowed in the domestic market. In this context, services trade openness influences the ability of governments to regulate and promote the strengthening of services and services inputs.

Trade liberalization in services should therefore have the adequate content, pace and sequencing that allows regulatory and institutional frameworks to be effectively in place as a precondition to market opening. Furthermore, regulations should keep the possibility to adapt, including in face of the challenges from more liberalized markets. This is especially important for developing economies, considering the challenges in many of them to devise services regulation (UNCTAD 2016a, p.14).

A pro-development trade policy framework for services should use special and differential treatment, inclusive rules of origin, and be complemented by capacity-building and aid for trade (UNCTAD 2017b, pp.9-10). Trade policies and regulatory frameworks need to be mutually reinforcing. For example, the digital transformation strategy for Africa recognises this by highlighting the need to align services negotiations and regulatory cooperation frameworks (UNCTAD 2020b, p.4).

3.6.3. Coherence between trade and other policies, a political economy dimension

The political economy on whether to pursue services-related policies through multilateral or regional cooperation, or unilaterally, is especially relevant on strategies for trade in services. Liberalization has mostly been unilateral or autonomous (Francois and Hoekman 2010), but the decision on how to liberalize depends on the coordination of trade policies with other policy areas.

The multilateral trading system produced concrete results in trade liberalization of industrial goods for many years. This was arguably because trade negotiators may have anticipated that negotiation rounds would lead to further trade integration, resulting from path dependency on initial iterations.

The liberal intergovernmental theory cautions that bargaining among countries produces incomplete results corresponding to the lowest common ground. Neofunctionalism affirms that progress in a round of negotiations produces functional spillovers in adjacent areas and thus incentives for further cooperation. Together, these theories provide an explanation for the momentum that existed in multilateral trade negotiations up to the Doha Round (Jones et al. 2016, pp.3-4).

Furthermore, governments negotiate simultaneously with other governments and with domestic interest groups such as importers' competitors and exporters, and the pressure from these groups was more and more in favour of this tariff liberalization. This may have been due to a possible increased strength of exporters and diminished strength of importers' competitors, which resulted from the liberalization achieved in the previous rounds of negotiations. The negotiation of governments with other governments and domestic groups of exporters and importers is a two-level game approach, in which tariff cuts strengthened exporters and weakened importers' competitors, thus increasing the pressure for additional tariff cuts (Baldwin 2016b, pp.101-102).

The multilateral trading system has not been able to achieve meaningful results in the Doha round. The mechanisms hypothesized in the previous paragraphs did not deliver, with loss of momentum in nearly all fronts. After the liberalization in industrial goods, several developing economies had the expectation that multilateral negotiations could focus on their products of interest. However, rather than focusing on agriculture and labour-intensive industry, discussions moved to a relevant extent towards dimensions such as services, investment, and intellectual property, that underly the functioning of international value chains.

In addition to coming short of addressing their hopes, several developing economies recognised their fragilities in terms of specialization patterns, infrastructure, skillset, among others, which are *de facto* barriers to the involvement in the new negotiation dimensions. Compounded by reduced special and differential treatment, this implied lower engagement of several developing economies which, under the single undertaking, meant no significant progress in multilateral liberalization (Baldwin 2016b, pp.109-111).

Exporters of final products, which rely on the value-added of services (e.g., services' intermediate inputs), will pressure towards more availability and competition on upstream services' markets. Hence, exporters of final products will pressure for less barriers of access to the national market by foreign services' providers. The pressure to liberalize services will be higher with a higher intensity of services inputs. Governments will have an incentive to use services trade agreements as a commitment tool to avoid political pressure from domestic services providers for protectionism, which would lead to inefficiencies in downstream industries exporting final products (Fiorini and Lebrand 2016, p.8).

Despite this additional potential impetus for liberalization, the motives for protection remain important in several developing economies. The fragility in their capacities to address the new issues on services, including services for the digital and greener economy, separates them from developed economies. Lack of progress in liberalization is therefore linked to political economy drivers beyond the balance between export and import-competing interests, such as the concerns regarding adjustment costs and limitations on policy space to regulate and generate supply capacity (Hoekman et al. 2007, p.368).

In this context, to progress in liberalization it remains necessary to reconcile the interests of different countries. This calls for regulatory cooperation and inclusiveness enhancing strategies, such as special and differential treatment, capacity building, and technology transfer, which contribute to address the challenges in developing economies and their concerns about engaging in services trade liberalization.

3.6.4. Coherence between sectors and policy areas

The need for coherence and coordination extends beyond the links between domestic regulation and trade liberalization. The input-output analyses in the previous chapter confirmed that services have linkages with all economic sectors. Thus, policies to strengthen services can have positive effects on other sectors and, for example, can be an important dimension of industrialization strategies.

This also holds between different services categories, as in the case of digital financial services which are shaped by policies related to either financial or ICT services. This value-chain holistic mindset also implies that to promote the development benefits of servicification it is necessary to have a coherent approach to sectoral policies, may they be targeted at agriculture, manufacturing, services, or any specific services category.

Sectoral studies point to the importance of considering also sector specificities in policymaking, rather than speaking only of the services sector. Each sector has a different role in the economy and the way in which trade and regulations may overlap is different (Francois and Hoekman 2010), influencing how coherence should be pursued.

The considerations on policy coherence on trade and industrial policies, regulatory frameworks and other areas need to be translated at sectoral level. This means that policy coherence needs to be incorporated in the design and implementation of sector-specific policy and regulatory frameworks. Beyond the distinct regional, national, and local features, this specificity needs to incorporate the particular characteristics of the sector, which is beyond the scope of this study.

The contributions of services to the whole economy produce effects through different mechanisms, as mentioned in chapter 2. These mechanisms depend on a broad range of policy areas, with which services development policies need to be consistent. This includes trade, investment, competition, industrial, macroeconomic, and social policies.

In the Republic of Korea, the development of ICT services required proactive public policy interventions in improving infrastructure and technology, creating demand, and strengthening ICT-related education. This was in tandem with cooperation with the private sector to promote investment and competition (UNCTAD 2015, pp.18-19). In Bangladesh, the improvement of ICT services required addressing persistent bottlenecks coherently, such as foreign exchange regulation, obstacles to licensing, work permits, and bandwidth prices (UNCTAD 2016b, pp.xi-xiv).

3.6.5. Institutional coordination for policy coherence

A coherent services policy framework requires vertical coordination of different levels of decision making. This includes local, sub-national, national, regional, and international levels, when applicable. The example in the Republic of Korea shows that good governance mechanisms also require cross-ministerial (in the example of the last paragraph of the previous subsection, a combination of innovation, infrastructure development, and education policies) and multi-stakeholder coordination.

This whole-of-government and whole-of-society approach brings together several branches of government, private sector, business and professional associations (including coalitions of services industries), academia, and civil society. It is a key element to build transparency and trust on services policies, as well as to ensure commitment from all stakeholders. Most importantly, a multi-stakeholder approach will decrease instability that could otherwise derive from political electoral cycles and the risk of focusing on short-term objectives.

Sectoral regulators need to coordinate with each other, and with competition and other cross-cutting regulators, to deliver on their key role of strengthening services. This is especially relevant in infrastructure services. More broadly, digitalization of economies and trade has called for a closer cooperation of telecommunications and ICT services regulators with other regulators, comprising the adjustment in the scope of regulatory mandates. Regardless of the choice of institutional model, regulators should be able to have independent actions to ensure a neutral and effective regulatory framework.

In Uganda, telecommunications, financial and competition regulators had to improve their coordination levels to face the challenge of digital financial services, which brought together several regulatory issues such as consumer protection, interoperability and roaming (UNCTAD 2014, p.35).

3.6.6. Harmonization and standardization for policy coherence

The importance of streamlining technical requirements along value chains and international markets have brought harmonization, recognition, and standardization under international standard-setting bodies to the forefront of services-related policies. This underlines the need for regulators to interact at the international level to discuss and negotiate such standards. The International Organization for Standardization (ISO) had already developed around 700 standards for services (UNCTAD 2017d, p.5).

Certification services are important to assess compliance with standards. This includes quality standards, which are relevant for business services (Scholtès 1998, p.203). The quality standards from the ISO 9000 family envisage continuous improvement objectives which favour several policy objectives, namely some related to innovation.

Developing economies need to be supported to be able to fully participate in these efforts and have a say in areas that contribute to shape international trade in services. Regional regulatory cooperation can be a steppingstone to international regulatory collaboration. This cooperation can also be increasingly important to develop regional standards that support services and their inputs to all economic sectors.

In Central America, the Regional Technical Commission on Telecommunications (COMTELCA) develops a binding legal framework to harmonize the telecommunications regulations of each country, with a view to coordinate and promote the integration and development of telecommunications services in the region (UNCTAD 2013, p.47).

3.6.7. Coherence depends on coordinated implementation

A coherent design must be followed by a coordinated implementation. For example, writing the several services' policy proposals in a single document will promote coherence. The consolidation of the several policies and institutional arrangements will shed light to possible misalignments, paving the way for their resolution. This unification is instrumental to promote the mutual reinforcement potential of policies, to align strategic objectives and priorities, and to optimize their overall impact.

This coordination also allows to ascertain and ensure allocation of the required resources for implementation, be they human, financial, or other. Furthermore, an effective multi-stakeholder coordination mechanism for services requires a high-level political endorsement and its institutionalization with a clear legal mandate, capabilities, and resources.

3.7. In sum

In chapter 1, this study reviewed holistically the literature on several of the policy areas relevant to harvest this development potential of services value-added in exports. The relevance of pursuing these policies was supported by the information on chapter 2 on the magnitude of this value-added provided by different mechanisms of servicification. Chapter 3 added more operational aspects in selected services-related policy areas. This chapter then built on these aspects and on the first two chapters to complement the existing literature with an examination of the role of policy coordination and coherence.

This was done with a view to pursue the potential of services value-added for development objectives. Consideration for the necessary levels of coordination and policy coherence will contribute to the improved effectiveness of policy measures that envisage development benefits from servicification.

Conclusions

Services provide meaningful contributions to the economy. The services sector accounts for major shares in global GDP, employment and FDI. When the value of services intermediate inputs, services developed internally in firms of all sectors and services included in sales' bundles with goods is considered, rather than the mere role of services as final products, the services sector also accounts for the major share in global exports.

In developing economies, in 2014, services provided 33 per cent of the value of total exports. This is a much higher contribution than what is measured by balance of payment statistics which indicate, for the same year, that services as final products accounted for 15 per cent of total exports. When the value-added of services intermediate inputs and of in-house services is taken into account, the services sector can explain two thirds of total exports.

This supports the need to consider the potential of services to shape the performance of downstream sectors. The literature highlights the role of services in influencing innovation, productivity and competitiveness of all sectors. In addition, the literature underscores the role of several policy areas in influencing this potential of services. These policy areas comprise education, data, infrastructure, technology, innovation, regulatory frameworks, competition, business facilitation, institutional frameworks, regional cooperation and trade.

The broad range of policy areas that condition the role of services value-added in exports of all sectors points to the need of policy coordination and coherence. The need for this coherence exists between different policy areas, most notably between industrial and trade policy and between regulatory frameworks ad trade policy. Policy coherence is also required between different sectors. Institutional coordination, harmonization and standardization and implementation strategies play a role in policy coherence.

The necessary levels of coordination and policy coherence will contribute to improve the effectiveness of policy measures that envisage development benefits from servicification. While economies in all development levels will benefit from an increased focus on policy coherence, the call for policy coherence left by this study may be more urgent in several developing economies with more fragilities in their policy frameworks.

This study is constrained by the limitations on data availability for services and for the value-added they provide through the several servicification mechanisms. Further research on the role of policy coherence, with more empirical data and case-studies, would be welcomed.

In addition, more research is necessary to assess the net effects of strengthening services in other sectors. Improving services can enhance the positive effects of intermediate inputs from services to other sectors. Conversely, developing services can have a cost in other sectors when these compete with services for resources (Liu et al. 2019, p.1).

The result may depend on how intensively a downstream sector uses inputs from services. For example, manufacturing sectors that use more services increase their revealed comparative advantages with the development of services. Conversely, manufacturing sectors that use services less intensively can see a reduction in their revealed comparative advantages with stronger services (Liu et al. 2019, pp.1-4). More imports of business services have positive effects in the competitiveness of skill and technology intensive industries in the OECD while negative effects were found in sectors that use services less intensively (Francois and Wörz 2008).

In this context, more research would also be welcomed regarding if the positive effects of services are more likely to occur when other sectors also exhibit high productivity. This would call for a balanced growth strategy where linkages between sectors are explored in a mutually supportive approach (UNCTAD 2017a, p.11). For example, facilitating trade in goods by reducing non-tariff barriers and streamlining customs procedures will increase demand for intermediate inputs of services (Miroudot 2017, p.29) and influence performance of services sectors.

Achieving the adequate mix of domestic and foreign provision of services is another area where more research is necessary. The effects of services in domestic downstream sectors may depend on whether services from domestic and foreign origin are substitutes or complements (Liu et al. 2019, p.4). With more liberalized services, the domestic availability of services may reduce. This may result to some extent from standards shifting towards possibly higher international levels (Hoekman and Mattoo 2008, p.29).

Another area that calls for more research is on the political economy factors related to the desired pace of transformation envisaged by policies to harvest the potential benefits of servicification. This is relevant in services where policy framework requires a coherent mix of different policy areas, such as industrial policy, regulatory frameworks and trade policy.

A radical change can be useful to achieve results more quickly, to gain scale on the after-change scenario, to reduce the chances of creation of counter-lobbies and to maximize consensus that would be harder to accomplish in sequential changes. This would be due to time-inconsistencies (Wei 1997, p.1235).

An incremental approach to change could be important to dilute costs and to allow for trial-and-error adjustments (Wei 1997, p.1235). The gradual approach could also facilitate building on intermediate successes (Roland 2002, p.29) and evaluating the contributions of concrete policy measures (Francois and Hoekman 2010).

This study concludes that policy coherence can improve the effectiveness of the public policy mix necessary to harvest the development benefits of services value-added in exports of all sectors. This conclusion may contribute to the research avenues that still need to be explored on the role of policy coherence.

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ANNEX A

Taxonomy of services sectors

Services sectors are depicted by different classifications. The taxonomy *Nomenclature des Activités Économiques dans la Communauté Européenne* (NACE) is used by the European Commission to register the output of services activities. NACE finds a high correspondence with the International Standard Industrial Classification (ISIC), in its revision 4, which is the taxonomy used for example by the Organisation for Economic Co-operation and Development (OECD). The Balance of Payments and International Investment Position Manual (BPM6) was published by the International Monetary Fund (IMF) in 2014 to register international trade in services activities.

Figure A.1 presents a summary of the main linkages between NACE, ISIC and the BPM6 list for services activities. These are mostly presented at the first level of aggregation.

ISIC / NACE	BPM6
Repair of motor vehicles and motorcycles Other services activities	Manufacturing services on physical inputs owned by other Maintenance and repair services
Construction	Construction
Electricity, gas, steam and air conditioning supply Water supply Transporting and storage	Transport
Accommodation and food service activities	Travel
Information and communication	Telecommunications, computer, and information services
Financial and insurance activities	Insurance and pension services Financial services
Real estate activities Professional, scientific and technical activities Wholesale and retail trade Sewerage; waste management and remediation activities Administrative and support service activities	Other business services
Public administration and defence; compulsory social security	Government goods and service
Education Human health and social work activities Arts, entertainment and recreation Administrative and support service activities Other services activities	Personal, cultural, and recreational services

Figure A.1. Main linkages of NACE and ISIC lists with the BPM6 list, for services activities.

Source: Author's elaboration with information from the European Commission, IMF and the United Nations Statistics Division. Information accessed on November 2021.
Note: The figure was designed merely to illustrate the broad array of services sectors and should not be used for correspondences, as the main linkages were established mostly at the first level of aggregation.

The figure illustrates the broad and heterogenic array of services sectors. In this document, input-output data is mostly based on ISIC lists and final services export data is mostly based on the BPM6 list.

ANNEX B

Knowledge-intensive services

Services include a broad array of heterogeneous sectors, in which only some are more specialized in knowledge. These comprise telecommunications and ICT services, other business services – including professional services – (Evangelista 2000, p.184) and financial services.

This higher specialization can be inferred from the higher intensity of these categories in occupations defined by ILOSTAT as having a high level of skills, which is depicted in figure B.1. Globally, in 2019, the knowledge-intensity of the overall economy was 26 per cent and of the broad services sector was 37 per cent. In information and communication services, the global contribution to employment of the high-skill occupations was, in 2019, 79 per cent. Other business services followed with 75 per cent and financial services with 65 per cent. Grouping these three categories would result in a set of knowledge-intensive services with a knowledge-intensity of 73 per cent.

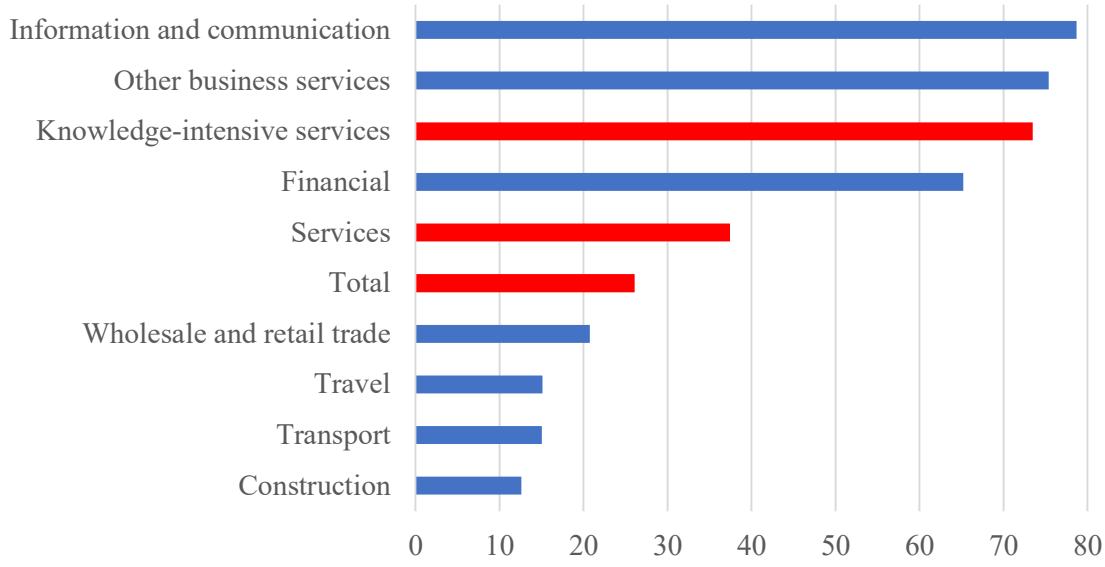

Figure B.1. World: Share of high-skill occupations in the number of workers in selected services sectors, 2019 (Percentage)

Source: Author's elaboration with information from ILOSTAT. Information accessed on November 2021.

ANNEX C

Modes of supply of services

Services can be supplied through different modes, as illustrated by figure C.1. The figure lists the four modes of supply of services according to the World Trade Organization (WTO) General Agreement on Trade in Services (GATS).

Mode of supply	How the service is supplied
Mode 1 – Cross border trade	From the territory of one WTO Member into the territory of any other WTO Member.
Mode 2 – Consumption abroad	In the territory of one WTO Member to the service consumer of any other WTO Member.
Mode 3 – Commercial presence	By a service supplier of one WTO Member, through commercial presence in the territory of any other WTO Member.
Mode 4 – Presence of natural persons	By a service supplier of one WTO Member, through presence of natural persons of a WTO Member in the territory of any other WTO Member.

Figure C.1. Modes of supply of services according to the General Agreement on Trade in Services

Source: Author's elaboration with information from the WTO website (https://www.wto.org/) and WTO, 1995, *General Agreement on Trade in Services*. Information accessed on November 2021.

The example of health services can be explored to further illustrate the differences between the modes of supply. A telemedicine medical appointment in which the medical doctor is providing the service from one country to the patient in another country consists in the provision of health services through Mode 1.

When a patient travels to another country to have a medical appointment, in something also known as health tourism, the health service is consumed in another country and thus provided through Mode 2.

The provision through Mode 3 occurs when a patient has a medical appointment in a clinic that is a subsidiary of a foreign health services firm.

If it is the medical doctor that travels to give a medical appointment to a patient in another country, then the service is supplied by the temporary presence of a natural person in another country, which means it is provided through Mode 4.

ANNEX D

Use of the Export Value-Added Database

The Export Value Added Database (EVAD) from the World Integrated Trade Solution (WITS) provides information on value-added content of final output and exports, including both direct and indirect value added, for 27 sectors and 118 economies for several years up to 2014.

The database uses data from the Global Trade Analysis Project (GTAP), produced by a consortium that includes the Organisation for Economic Co-operation and Development (OECD), the United Nations Conference on Trade and Development (UNCTAD), the World Bank, the World Trade Organization (WTO) as well as other organizations, universities and research institutes.

The data points used refer to the value-added that flows from each sector *i* to another sector *j* in a matrix of the export structure for each economy *c* and for each year *y*. This study focuses on the most recent year, with calculations based on the cross-section for 2014.

Since this study is a development-focused analysis, the aggregates for developed and developing countries were manually calculated. This calculation applied the standard country or area codes for statistical use to the country data available.[17] The calculated data points for each aggregate results from the following sum:

$$\sum_{c\ (developed\ or\ developing)} x_{ijc} \tag{1}$$

For each aggregate, a transformation defined by formula (2) is applied to each data point resulting from (1) to operate with percentages. With this operation, the matrices for each aggregate are obtained.

$$z_{ij} = \frac{x_{ij}}{\sum_i \sum_j x_{ij}} \times 100 \tag{2}$$

Each line will correspond to the contributions of sector *i* to the value-added in the export structure. The intersection of the line of sector *i* with the column of sector j will provide the contribution of sector *i* to the value-added of sector *j*.

The sum of the values of the line will provide the contribution of sector *i* to the total value-added in the export structure of the aggregate, according to formula (3). The lines provide the forward linkages upon which figure 2.1[18] and figure 2.3 were built.

[17] See https://unstats.un.org/unsd/methodology/m49/ for more information on the classification.
[18] Additionally, figure 2.1 also draws from balance of payment data.

$$Total\ forward\ linkages\ of\ sector\ i = \sum_j z_{ij} \quad (3)$$

Each column will correspond to the contributions that sector j receives to its value-added in the export structure. The intersection of the column of sector *j* with the line of sector *i* will provide the contribution of sector *j* received from sector *i*. A transformation defined by formula (4) is applied to each column to operate with percentages:

$$\frac{z_{ij}}{\sum_i z_{ij}} \times 100 \quad (4)$$

The sum of the values of the column, before the transformation, will provide the total value-added received by sector *j* in the export structure of the aggregate, according to formula (5). The columns provide the backward linkages upon which figure 2.2 and figure 2.4 were built.

$$Total\ backward\ linkages\ of\ sector\ j = \sum_i z_{ij} \quad (5)$$