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Enhancing productive capacity through services

Note by the UNCTAD secretariat

Executive summary

Increasing productive capacity may ultimately assist developing countries and least developed countries in implementing the 2030 Agenda for Sustainable Development and achieving the Sustainable Development Goals regarding poverty reduction, sustainable economic growth, the reduction of inequality, the increasing of exports from developing countries and the doubling of the least developed countries' share of global exports. The services sector accounts for more economic activity than any other and for a growing share of gross domestic product, trade and employment. Services also contribute to productive capacity enhancement by providing productive resources in the form of inputs to other sectors and by creating production linkages. With the advent of digitalization in production and logistics processes, industry is set to be transformed. Developing countries that fail to recognize this reality risk being left behind. The persistent services trade deficit in such countries could be reduced by, among other things, increasing domestic services provision capacity and reducing market barriers for their services exports. Furthermore, services could be imported to make up for shortfall in critical services provision within their countries. Greater efforts should also be made regarding services data collection and the sharing of knowledge among countries, including through South–South cooperation. Many developing countries are at similar or not too distant stages of development and are consequently in a position to share valuable best practices.

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I. Introduction

1. Enhanced productive capacity in developing countries and least developed countries is necessary to achieve the ambitious Sustainable Development Goals set out in the 2030 Agenda for Sustainable Development, including Goal 1 (poverty reduction), Goal 8 (sustainable economic growth), Goal 10 (reducing inequality) and Goal 17 (increasing exports of developing countries and doubling the least developed countries' share of global exports), which will be reviewed by the Member States of the United Nations in 2019.

2. UNCTAD defines productive capacity as "the productive resources, entrepreneurial capabilities and production linkages which together determine the capacity of a country to produce goods and services and enable it to grow and develop".[1]

3. The services sector is a major component of today's global economy, accounting for a growing share of gross domestic product (GDP, trade and employment. The development of the sector contributes to economy-wide improvements in productive capacity through both its direct importance in the economy and its input effects in all sectors, including agriculture and manufacturing.

4. This note provides a brief background to the discussions at the forthcoming seventh session of the Multi-year Expert Meeting on Trade, Services and Development, which will focus on the role of services in enhancing productive capacity.

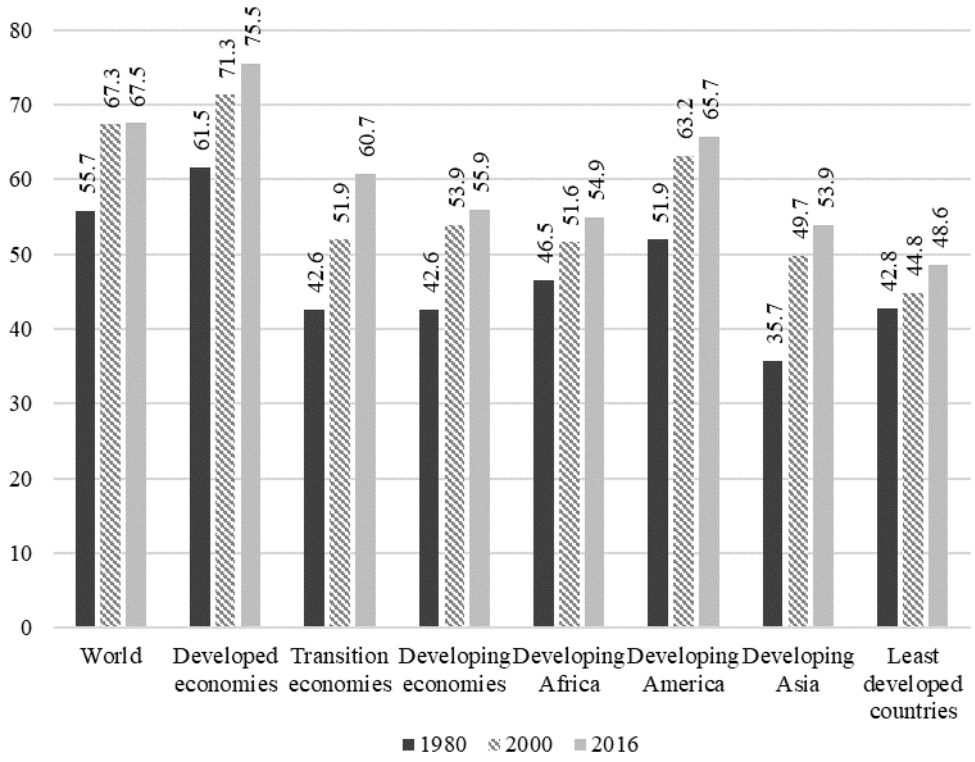
II. The role of services in the economy and trade

A. Services in gross domestic product, employment and foreign direct investments

5. The services sector accounts for more economic activity than any other sector in the world, with its contribution to world GDP in 2016 amounting to $48.3 trillion, about 68 per cent of the total (see figure 1). While services has become the major sector in nearly all countries, its share in output varies considerably between developed and developing countries and between the developing regions of the world. As shown in figure 1, that share stands at 76 per cent in developed countries, 56 per cent in developing countries and under 50 per cent in the least developed countries, suggesting that there is considerable potential for the latter two groups to develop their services sector. Since 1980, the sector's share in global output has increased by 12 percentage points, while manufacturing and agriculture have declined in almost all regions of the world. It appears that the rise in the services sector's share in output was stronger during the 1980s and 1990s but is slower for both developed and developing countries in the new millennium. This may be due to the 2008 financial crisis and the ensuing world economic crisis. Major services such as finance, transport, telecommunications, energy, water supply and business services (i.e. "producer services") are indispensable inputs for other economic sectors.

[1] UNCTAD, 2006, *The Least Developed Countries Report 2006: Developing Productive Capacities* (United Nations publication, Sales No. E.06.II.D.9, New York and Geneva), p. 61.

Figure 1
Share of services sector in gross domestic product by development status
(Percentage)



Source: UNCTADstat database.

6. Developed countries are the world's main services suppliers, accounting for about 65 per cent of world services output in 2016. Meanwhile, developing countries only captured about 32 per cent of the total (see table 1), despite doubling their share in world services output over the last 10 years. Transition economies witnessed the fasted-growing share of services in their GDP, 9 percentage points higher in 2016 than in 2000. However, their economies (along with services) did not grow as fast as the world economy. Similarly, developing countries in Latin America had about the same economic growth rate as the world output. Thus, transition economies' share in world services declined significantly, while Latin America's share increased only slightly during the period in question.

Table 1
Distribution of world services output by economic region,
(Percentage)

	1980	*2000*	*2016*
Developed economies	76.7	81.9	65.6
Transition economies	6.5	0.8	2.1
Developing economies	16.8	17.3	32.4
Developing Africa	3.6	1.5	2.3
Developing America	5.9	6.0	6.2
Developing Asia	7.2	9.8	23.7
Least developed countries	0.8	0.4	0.9

Source: UNCTADstat database.

7. The services sector is the main source of employment in the world; as of 2017, it employed 1.7 billion persons, accounting for 51.1 per cent of global employment. During the period 2000–2017, services emerged as the main source of employment growth, achieving 3 per cent annual growth, higher than that for both agriculture (-1.2 per cent) and industry (1.5 per cent).[2]

8. Despite robust employment growth, the services sector's contribution to total employment varies widely between developed and developing countries.[3] While it is the main source of employment in developed countries (about 75 per cent) and developing countries (about 46 per cent), in 2017, it absorbed only 27.2 per cent of the employees in least developed countries, where agriculture still accounts for about 60 per cent of employment. However, the services sector has made significant progress in job creation over the last 17 years in both developing countries and least developed countries. Its contribution has increased by about 15 percentage points and 9 percentage points in developing countries and least developed countries respectively.

9. The services sector has played an important role in counteracting the deterioration in gender parity in employment in industry and agriculture, where the global shares of women employees have declined considerably since 2000.[4] As growth in women's employment in these sectors has been absent, services has emerged as the only sector in which jobs are being created for women workers, with 3.5 per cent annual growth. As of 2017, services account for about 57.4 per cent of women's employment in the world. In least developed countries, where productive resources in general are being reallocated from agriculture to services, about 66 per cent of women are employed in agriculture, while only 24.8 per cent work in services, indicating the important role that they play in the agricultural sector.

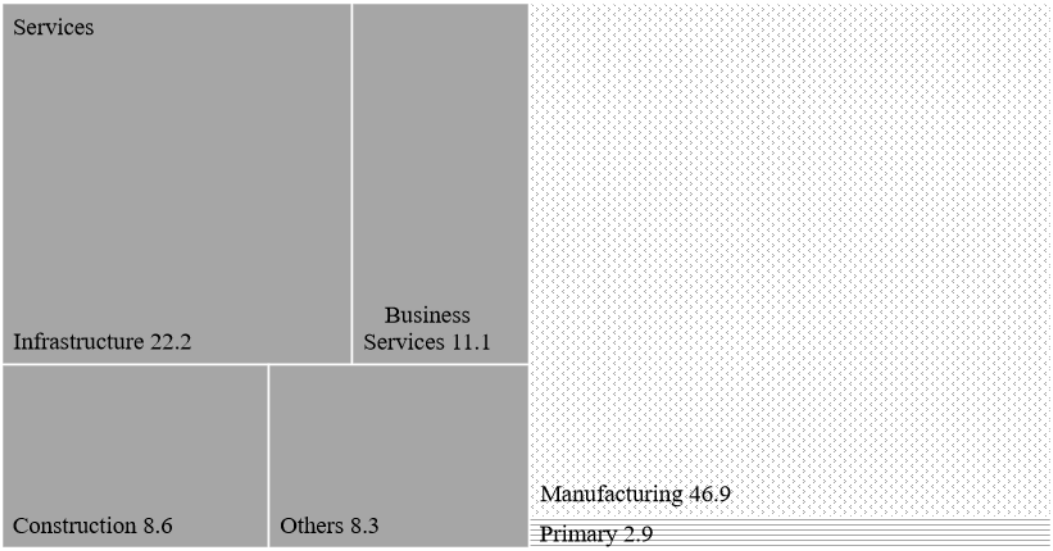
10. The services sector has been the major destination for foreign direct investments. In 2017, the sector received $362 billion-worth of such investments, about half of the world total (see figure 2). Within the services sector, infrastructure services (energy, transportation, communications and finance) accounted for the biggest share, at 22.2 per cent. In general, greenfield investments have been declining since the global recession. The fall has been felt more severely in the primary sector, while services have remained relatively robust during this period.

[2] UNCTAD calculations based on International Labour Organization labour statistics (ILOSTAT) database.

[3] ILOSTAT database.

[4] Ibid.

Figure 2
Distribution of greenfield investments by sector, 2017
(Percentage)



Source: UNCTAD secretariat calculations, based on UNCTAD, 2018, World Investment Report Annex tables. Available at https://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx.

B. Trade in services

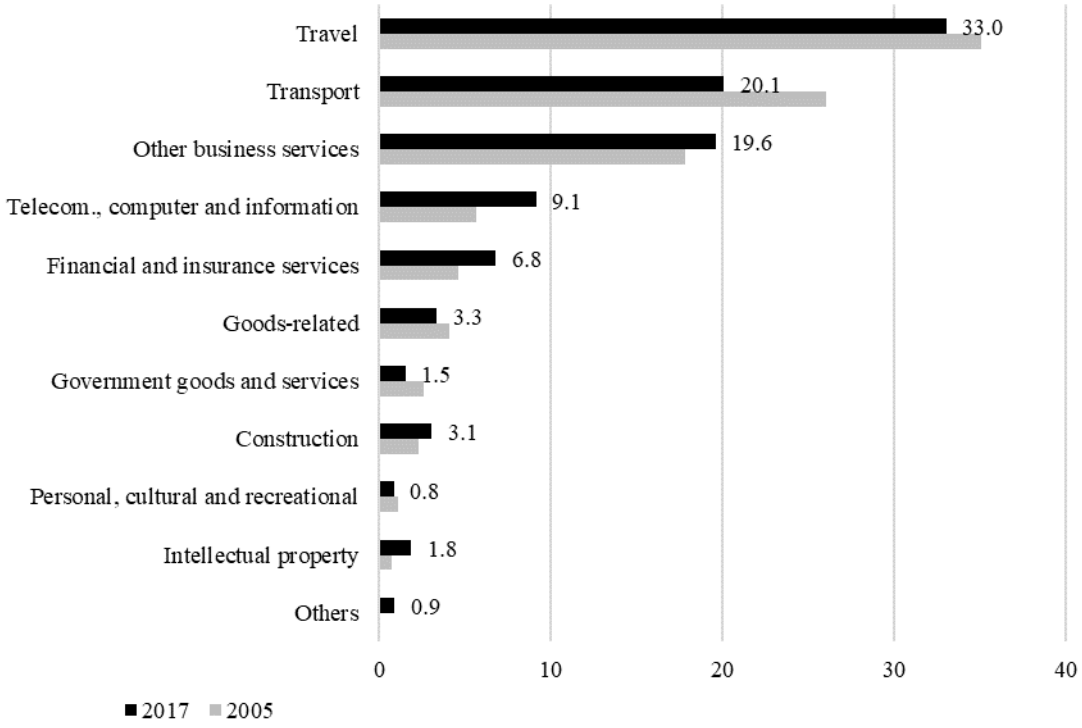
11. At $5.4 trillion, the value of services sector exports accounted for 23.5 per cent of global trade in 2017.[5] The sector achieved robust annual export growth (5.4 per cent) over the period 2005–2017 compared with merchandise trade (3.9 per cent). Moreover, it remained relatively resilient during both the 2009 global recession and the 2015–2016 trade slowdown, easing the adverse effects of commodity price falls on the export revenues of many countries. While merchandise trade fell by 22 per cent in 2009 and 16 per cent cumulatively during the period 2015–2016, falls in services trade were less pronounced, at 11 per cent and 5 per cent, respectively.

12. Globally, travel, transport and other business services (including research and development, professions and management consulting and technical and trade-related services) are the three main services export categories, jointly accounting for about 64.1 per cent of global services export revenues.[6] Countries show different export compositions by development status. While developed countries specialize in finance, intellectual property and other business services that require highly skilled labour, developing countries and least developed countries rely heavily on travel and transport revenues, which accounted for 53.1 per cent and 66.4 per cent of their respective total exports in 2017, in contrast to 35.5 per cent for developed countries.

13. Nevertheless, since 2005, three sectors have emerged as prominent export activities: telecommunications, computer and information services; financial and insurance services; and other business services (see figure 3). With a combined share in total exports of 35.5 per cent in 2017, up from 28.1 per cent in 2005, these sectors are helping developing countries to diversify export revenues away from traditional activities such as travel and transportation. This is an encouraging development in the structure of services exports from developing countries.

[5] UNCTADstat database.
[6] Ibid.

Figure 3
Distribution of trade in services in developing countries
(Percentage)



Source: UNCTADstat database.

14. Despite progress in recent years, the trade gap between developed and developing countries is striking when measured in per capita terms.[7] African countries and least developed countries trade the least, with, on average, a mere $39 for exports and $72 for imports per person in 2017. In comparison, the figures for developed countries amounted to $3,457 for exports and $2,921 for imports per person. A persistent imbalance exists in the global trade in services. While the combined trade surplus of developed countries stands at about 3 per cent of the total services trade, all developing regions, without exception, have trade deficits. In the absence of demand from developed markets during the global recession, and due to weak recovery, developing markets became the engine of world trade, including services. Thus, global imbalances in services trade further worsened. The deficit widened during the period beginning after the global crisis and ending in 2014, especially in the developing countries of Africa and Asia. Since then, the global imbalance has partially decreased as economic growth has slowed in some parts of the developing world, particularly in Latin America and the Caribbean and Southern, West and Central Africa.

15. While developing countries have narrowed the gap between their share in the world trade in goods and that of developed countries, a huge gap exists between the share that developed countries capture in world services trade and that captured by developing countries.[8] Developed countries accounted for 68.2 per cent of services trade in 2017, whereas developing countries and least developed countries captured 29.5 per cent and 0.7 per cent respectively. Developing countries' share in services trade is about 15 percentage points lower when compared with their share in merchandise trade. While this suggests significant potential for these countries in services trade, it may also indicate sector-specific obstacles in their domestic and export markets, as well as their competitiveness in expanding market shares in services. On the positive side, least developed countries and Asian developing countries registered the fastest export growth rates during the period 2015–2017.

[7] Ibid.
[8] Ibid.

Least developed countries, however, started from a very low base and sustainability depends, among other things, on the countries' success in facilitating structural transformations through development polices and diversification of export revenues beyond the tourism sector.

16. The services trade development gap is also visible in trade concentration indicators, with the 10 largest service trading countries accounting for more than half of the world total.[9] Developed countries (France, Germany, Ireland, Japan, the Netherlands, the United Kingdom of Great Britain and Northern Ireland and the United States of America) are among the main exporters and importers. The United States of America is by far the world's largest services exporter and importer, accounting for 14.6 per cent and 10.4 per cent of the total respectively. China, India and Singapore are the developing countries that trade the most in services in the world, either by export or import. These figures suggest that the import of services is no less important than the export of services.

III. Enhancing productive capacity through services

A. A brief theoretical perspective

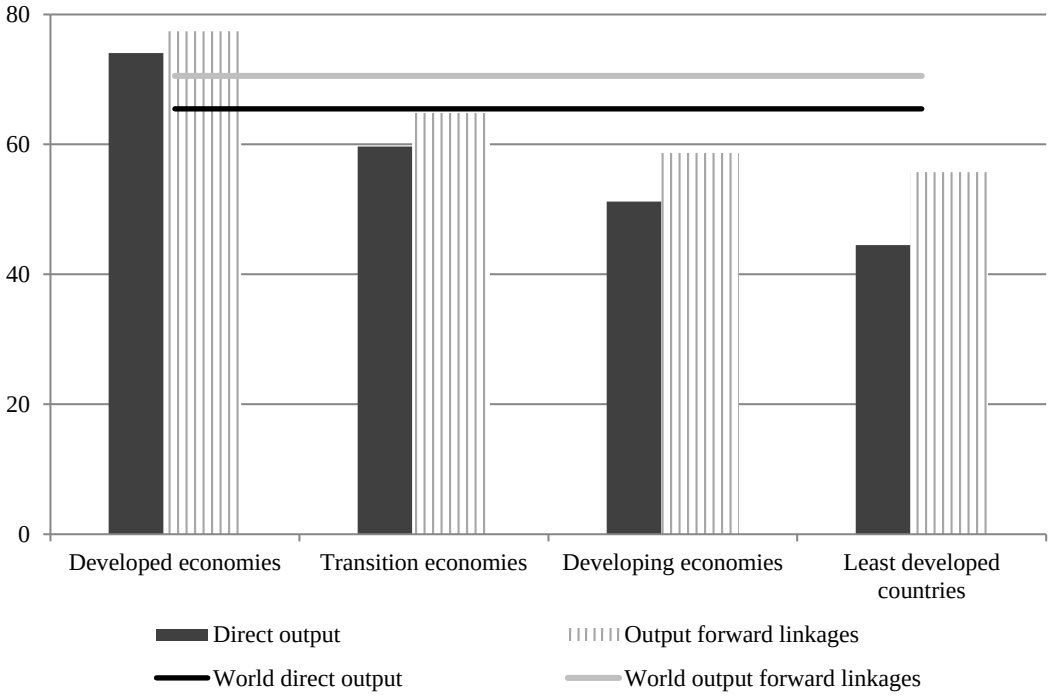
17. Further to the important dynamics revealed by services in output, employment and trade, most notably in developing economies, the relevance of services to economic performance relies on their intersections with other economic activities. Services provide productive resources as inputs to other economic sectors and create linkages with production in other sectors. For example, an analysis of the construction machinery production value chain reveals that a large number of services activities are distributed throughout various stages of the value chain: establishment; pre-production; production; post-production and sales; aftersales and support; and back-office and recurrent services.[10] This presence of services activities in support of other sectors confirms their importance in implementing and facilitating productive export processes. Services are often bundled with goods, for example, in the case of manufacturing firms that also provide distribution services, or of industrial machinery, where maintenance, repair and installation services may be provided.

18. Such effects imply that there is value added of services included in output and exports of all economic sectors, the forward linkages of services. In 2011, the direct output of services represented 74 per cent and 51 per cent of total output in developed and developing economies, respectively. The forward linkages of services accounted for higher contributions of 77 per cent and 59 per cent to the value added in total output of developed and developing economies, respectively (see figure 4).

[9] Ibid.

[10] Tait K and Gereffi G, 2015, Remanufacturing services in the construction machinery value chain, in: Low P and Pasadilla GO, eds., *Services in Global Value Chains: Manufacturing-Related Services*, Asia-Pacific Economic Cooperation, November: 412–440.

Figure 4
Participation of services in total direct output and in total forward linkages in output by income level, 2011
(Percentage)



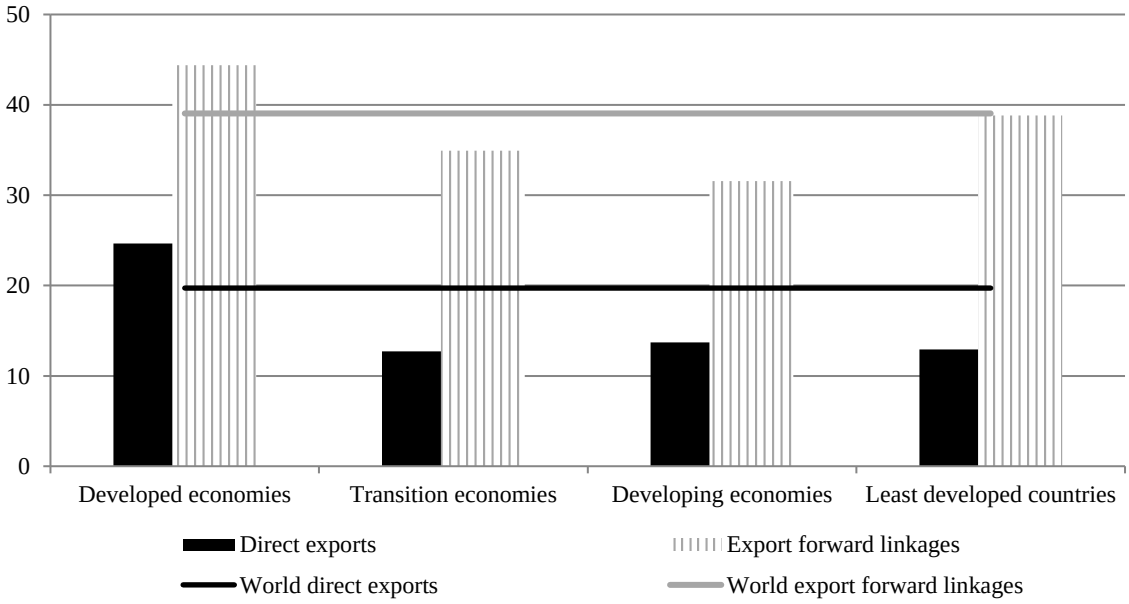
Source: UNCTAD, based on World Bank export value added database.

19. The magnitude of the nexus between services and other sectors reveals the multifold importance of the role of the services sector for all activities. Services provide the means for different activities to interact. This linkage creation is especially apparent in infrastructure services such as telecommunications and information and communications technology, which enable cooperation between different activities and participants in the production process. Knowledge and technology-based services have an intermediation function, facilitating specialization and upgrading. Services can thereby induce efficiency and effectiveness, and thus increase productivity and enhance productive and export capacity.

20. By inducing higher efficiency and productivity, and by reducing costs, services' contributions change relative prices in the economy. This also affects consumption, production, employment, investment and trade decisions, as it creates services-led changes in economic structure. Some sectors benefit more from the value added of services, the backward linkages.

21. The linkage is significant when it comes to international trade. In 2011, the latest year with data available for measuring value added of services in exports, while direct exports of services represented 25 per cent and 14 per cent of total exports in developed and developing economies, respectively, services accounted for 44 per cent and 32 per cent of their value added in total exports (see figure 5). This highlights the fact that servicification trends, where services have significant contributions to output, employment and investment, also exist in international trade.

Figure 5
Participation of services in total direct exports and in total forward linkages in exports by income level, 2011
(Percentage)



Source: UNCTAD, based on the World Bank export value added database.

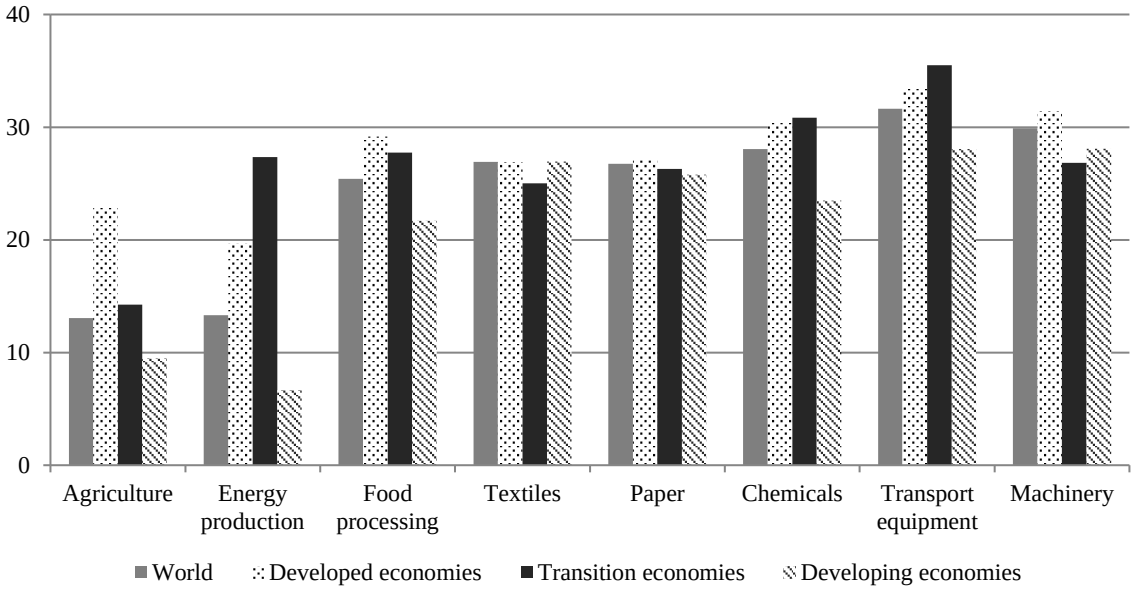
22. Such contributions of services can occur through services providers, in which case the analysis of value added can allow for the value estimation of services inputs. In addition, firms from all sectors can also develop service activities in-house to support their core business, as services are increasingly part of the strategic advantage for competitiveness. To estimate the importance of services within non-services firms, it is necessary to rely on firm-level data. As a part of a study of services support activities within manufacturing firms for a large sample of economies, it was concluded that, in 2015, services represented up to 60 per cent of jobs in manufacturing firms and that the contribution of services to overall exports was in fact close to two thirds.[11] Hence, the thorough consideration of the importance of services is critical for policymakers, as it reveals that trade in services is as important as service activities within a country for output, employment and investment.

B. Empirical evidence on value added of services to agriculture and manufacture

23. In 2011, value added of services represented 23 per cent of agricultural output in developed economies and 9 per cent in developing economies, as measured by the sector's backward linkages. This figure can be even higher in certain manufacturing sectors. In the same year, value added of services accounted for 27 per cent of textiles' output in both developed and developing economies (see figure 6). Developing countries incorporate less value added of services than developed countries in many sectors and are lagging behind in particular when it comes to exploiting the potential of services, especially in agriculture and energy production.

[11] Miroudot S and Cadestin C, 2017, Services In Global Value Chains: From Inputs to Value-Creating Activities, *[Organization for Economic Cooperation and Development] OECD Trade Policy Papers*, 197, OECD Publishing, Paris.

Figure 6
Participation of services in total backward linkages in output of selected sectors by income level, 2011
(Percentage)



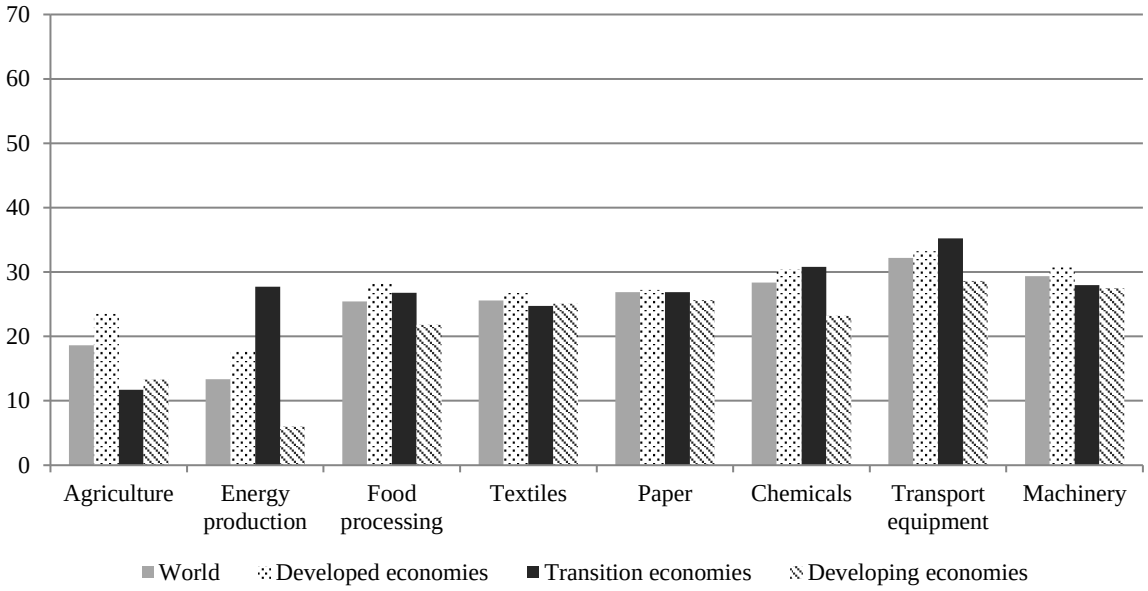
Source: UNCTAD, based on the World Bank export value added database.

C. Empirical evidence on the value added of services in exports

24. An analogous situation exists in exports. In 2011, value added of services represented 24 per cent of agricultural exports in developed economies and 13 per cent in developing economies. As an example, in the manufacturing sector, value added of services accounted for 27 per cent of textiles exports in developed economies and 25 per cent in developing economies (see figure 7). The gap between developed and developing economies in the usage of value added of services is wider in agriculture and energy production. This value added reflects servicification in international trade and is sometimes referred to as the "mode 5" of services trade.[12]

[12] Cernat L and Kutlina-Dimitrova Z, 2014, Thinking in a box: A "mode 5" approach to service trade, Directorate General for Trade Chief Economist Notes, 2014-1, European Commission.

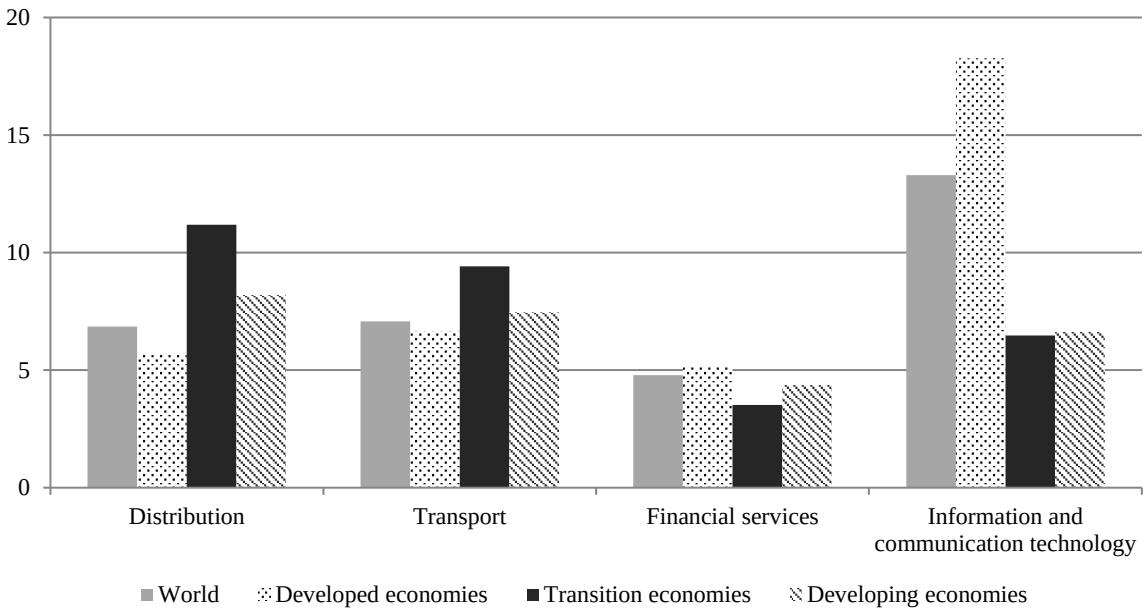
Figure 7
Participation of services in total backward linkages in exports of selected sectors by income level, 2011
(Percentage)



Source: UNCTAD, based on the World Bank export value added database.

25. The highest contribution of services to the world's total export value added comes from information and telecommunications technology services (13 per cent), confirming their critical role in enabling trade. Other important services categories contributing to this total export value added are distribution (7 per cent), transport (7 per cent) and financial and insurance (5 per cent). The different trade profiles of direct exports, where developing economies rely more on services categories, such as transport, and developed economies rely more on higher value added categories, such as information and telecommunications and financial services, are also reflected in the value added analyses. While developed economies incorporated 18 per cent value added of information and telecommunications services in total exports, transition and developing economies only incorporated 6 per cent and 7 per cent respectively. Conversely, transition and developing economies tend to incorporate more value added of distribution and transport services in total exports (see figure 8).

Figure 8
Participation of selected services sectors in total forward linkages in exports by income level, 2011
(Percentage)



Source: UNCTAD, based on the World Bank export value added database.

26. Even though direct exports of services have increased in recent years, close to two thirds of the growth of value added of services in exports derives from an increase in services embodied in exports of other sectors.[13] This is particularly due to foreign services, revealing the growing importance of global value chains and the increased tradability of services, especially when linked to inherently tradable goods and services.[14] Global value chains have led to the increased use of imported inputs in production and thus to international trade. The share of foreign value added increased from about 17.3 per cent to 23.2 per cent from 1995 to 2011 (see table 2). Similarly, the contribution of foreign inputs to services exports increased during that period.

[13] UNCTAD, 2017, *Services and Structural Transformation for Development*, UNCTAD/DITC/TNCD/2017/2 (United Nations publication, New York and Geneva).

[14] Low P, 2017, What we can learn from case studies on services, in: Hoekman B and Willem te Velde D, eds., *Trade in Services and Economic Transformation: A New Development Policy Priority*, essay series, February, [Supporting Economic Transformation-Overseas Development Institute] SET-ODI, London: 17–18.

Table 2
Share of foreign value added in gross exports by sector
(Percentage)

	1995	*2000*	*2011*
Total	**17.3**	**20.7**	**23.2**
Agriculture	8.6	9.6	12.2
Industry	21.6	25.3	28.0
Services (including construction and energy)	9.9	11.6	13.4

Source: UNCTAD calculations based on Organization for Economic Cooperation and Development (OECD)–World Trade Organization (WTO) trade in value added database.

27. The fragmentation of production and technological progress in the global value chain context also boost servicification of manufacturing activities. First, a fragmented production structure requires more transportation and logistics services, as well as coordination. Second, regulatory requirements such as recycling have increased, as has the need for specialized service companies working on these requirements. Management and information technology services have been outsourced to specialized companies and the importance of research and development and marketing has increased. Hence, the share of foreign services in total gross exports increased from 8.5 per cent to 11.3 per cent from 1995 to 2011 (see table 3). The effects of outsourcing and offshoring are more visible in manufacturing; 14.6 per cent of gross exports include value added from foreign services. These foreign inputs are therefore also central to export capacity and, to some extent, may legitimate the abovementioned trade deficit in services.

Table 3
Share of value added of foreign services in gross exports by sector
(Percentage)

	1995	*2000*	*2011*
Total	**8.6**	**10.2**	**11.3**
Agriculture	4.8	5.3	6.6
Mining and quarrying	3.1	3.0	2.6
Manufactures	10.7	13.1	14.6
Electricity, gas and water supply	4.8	6.2	10.0
Services, including construction	5.5	6.8	8.4

Source: OECD–WTO trade in value added database.

28. The contribution of services to world trade goes beyond what conventional statistics measure when the value addition of both foreign and domestic services is considered. While services, including construction and energy, accounted for about 30 per cent of world gross exports in 2011, when the indirect contributions of both domestic and foreign services are added, the sector's contribution increases to 49 per cent.[15]

D. Services and economic digitalization

29. With advances in technology, the world economy is entering a digital era, with actors relying on data analytics services applied to cross-cutting strategic business areas such as

[15] OECD trade in value added database. The latest available data on the value added of services' share of gross exports are from 2011 and include data from OECD and non-OECD member countries. According to the International Standard Industrial Classification of All Economic Activities (Rev.3, Divisions 45–95), service industries include: construction; wholesale and retail; hotels and restaurants; transport and communications; finance; real estate; business services; and public services.

business optimization, better manufacturing, and improvement of customer relationships.[16] Telecommunications and information and communications technology services will remain fundamental for the digital transformation of economies. Digitalization can increase efficiency and productivity, while reducing production, transaction and trade costs. A survey[17] of the private sector in 28 countries found that companies expect to reduce operational costs by 3.6 per cent annually and to increase efficiency by 4.1 per cent. High levels of cost reduction are expected in every industry sector. Two notable examples are digital financial services and e-commerce. Digital financial services play a key role in financial inclusion, building on information and telecommunications services to reduce infrastructure costs and increase coverage. E-commerce platforms can convey critical services, such as information matching, transaction, credit scoring, payments and logistics services.

30. More intensive use, by developed economies, of value added of information and telecommunications services as a proxy for the digital transformation occurs in both agriculture and manufacturing exports. Least developed countries are particularly lagging behind when it comes to benefiting from the potential of information and telecommunications services to enable international trade. In 2011,[18] agricultural exports incorporated 10 per cent of value added of information and telecommunications services in developed economies, but only 2 per cent in both transition and developing economies and less than 1 per cent in least developed countries. In manufacturing, exports of transport equipment in the same year incorporated 15 per cent of value added of information and telecommunications services in developed economies, 7 per cent in transition economies and 6 per cent in developing economies. In least developed countries, value added of information and telecommunications services in exports of transport equipment was only 3 per cent.

IV. Enhancing productivity through services: some examples

A. Arab countries

31. Most Arab countries face the challenge of diversifying their respective economic bases to mitigate their heavy reliance on oil and other traditional sectors, such as agriculture and extractive industries. To achieve this goal, in the light of the past decades of economic and trade policy reforms, including in the context of their World Trade Organization accession commitments, some Arab countries have increasingly moved towards a services economy to develop efficient and competitive industries. Their trade policies have shifted to promote high value added services sectors, such as finance and information and telecommunications services, which are also important inputs to other economic sectors.

32. The share of the services sector in total output in the Arab countries is relatively low overall, although there are differences from one subregion to another. However, the services sector has steadily gained ground since 1990. For the Gulf Cooperation Council countries, which are overwhelmingly reliant on the sale of natural resources, the share of services in total output is rather low, although it has increased significantly since 2000. Some Arab Maghreb Union countries[19] and Arab least developed countries also had low shares of services in GDP as compared to some other more diversified economies in the region (Egypt, Jordan, Lebanon, Morocco and Tunisia).[20]

[16] Botha T and Theron P, 2016, How are companies around the world really embracing digital? 12 May, World Economic Forum. Available at https://www.weforum.org/agenda/2016/05/industry-4-0/ (accessed 5 February 2019).

[17] AliResearch, 2017, Inclusive growth and e-commerce: China's experience, April, available at https://unctad.org/meetings/en/Contribution/dtl_eWeek2017c11-aliresearch_en.pdf.

[18] UNCTAD, based on the World Bank export value added database.

[19] Comprised of Algeria, Libya, Mauritania, Morocco and Tunisia.

[20] Economic and Social Commission for Western Asia (ESCWA), 2018, *Assessing Arab Economic Integration: Trade in Services as a Driver of Growth and Development*, E/ESWCA/EDID/2017/6 (United Nations publication, Beirut).

33. Recent studies[21] highlight the growing importance in Arab countries of key services sectors, such as health and education, transportation, tourism, financial services, construction, consulting, architectural and managerial services. Energy and exploration services (oil and other natural resources) continue to be a major strategic trade indicator and an important component of trade in services.

34. Like many other developing countries, Arab developing countries' overall supply capacity of services remains limited. Most Arab countries are still net importers of commercial services and their exports are still relatively concentrated in certain sectors. Consequently, foreign services are an important component of manufacturing exports (see table 4), particularly in Tunisia, where foreign services content reached 23 per cent in 2011. A significant part of the value added of services (including imported services) content of gross exports in Arab countries comes from business sector services.[22] This phenomenon is more pronounced for Saudi Arabia. As of 2011, almost all of the value added of services content of Saudi Arabian exports came from the business services sector. In Morocco, business sector services, particularly real estate, renting and business activities, have driven the value added of services content of total exports. Other main services imports in the three countries include: franchising (royalty and licence fees); reinsurance and retrocession; services auxiliary to insurance (including broking and agency services); maritime transport services; and pipeline transport.

35. The situation described above points to the importance of services in building productive capacity in all sectors of the economy. In the Arab region, infrastructure services and education and financial services have a central role to play in economic development. Therefore, it remains crucial to increase supply capacity in services themselves to allow countries to benefit from their enabling potential. According to some studies, strategies for services development in the Arab region need to consider, among other things, strengthening regulatory and institutional frameworks, competition policies and liberalization of trade in services.[23] It is also necessary to include services in the development plan for manufacturing. For example, in Malaysia, services have been included in the Industrial Master Plan in recognition of their role in building supply capacity in manufacturing.[24]

Table 4
Value added of services content in the manufacturing and agricultural exports in selected countries
(Percentage)

		Agriculture			*Manufacturing*		
		1995	*2005*	*2011*	*1995*	*2005*	*2011*
Morocco	Domestic	7.8	8.4	6.0	10.2	10.1	9.1
	Foreign	2.5	2.9	2.3	8.7	13.0	12.6
Saudi Arabia	Domestic	12.5	10.9	12.8	12.9	11.8	7.4
	Foreign	4.9	5.1	7.4	7.0	7.7	6.4
Tunisia	Domestic	4.5	6.7	4.1	10.3	12.0	10.2
	Foreign	2.7	5.1	6.1	18.9	22.0	23.0

Source: OECD–WTO trade in value added database.

[21] See Economic diversification in oil-exporting Arab countries, prepared by staff of the International Monetary Fund on the occasion of the annual meeting of Arab Ministers of Finance, April 2016, Manama; and ESCWA, 2018, *Assessing Arab Economic Integration*.

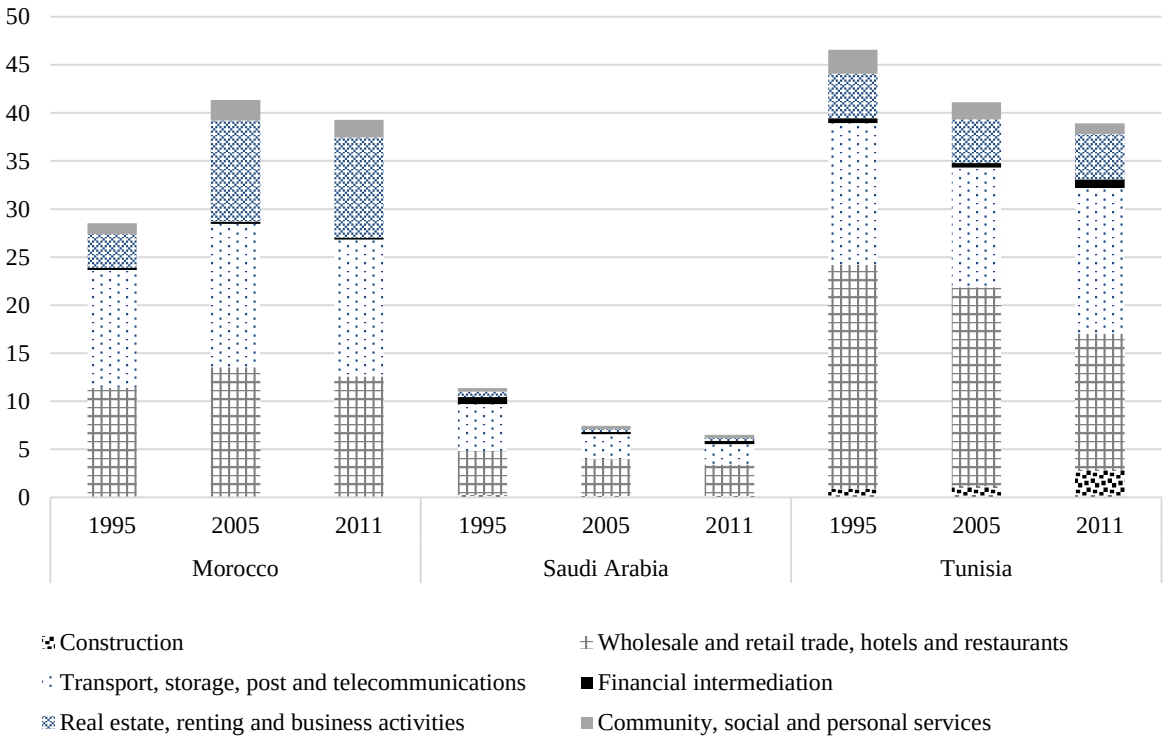
[22] Such as technical testing and analysis services, services incidental to mining, computer and related services (for example, software implementation services, data processing services), rental/leasing services (relating to ship/aircraft/ transport equipment without operators, related scientific and technical consulting services, maintenance and repair of equipment).

[23] Economic diversification in oil-exporting Arab countries, prepared by staff of the International Monetary Fund on the occasion of the annual meeting of Arab Ministers of Finance, April 2016, Manama.

[24] Ibid.

36. Figure 9 illustrates the share of value added by services sectors in the total exports for Saudi Arabia, a major oil-exporting country, and that of two non-oil exporting countries, Morocco and Tunisia, for the period 1995–2011. The share of services was greater in the two non-oil exporting countries, ranging on average from 30 to 45 per cent, while in Saudi Arabia, the value added of services was not only three times lower, but had declined even further for the same period. This indicates a low level of value added of services in the oil exports on which Saudi Arabia relies heavily.

Figure 9
Value added of services in total gross exports by services subsectors in some Arab countries and selected country groups
(Percentage)



Source: UNCTAD calculations based on OECD–WTO trade in value added database.

B. Experience of the Republic of Korea in supporting small and medium-sized enterprises

37. The services sector provides opportunities to enhance the productive capacity of microenterprises and small and medium-sized enterprises, which are estimated to represent 95 per cent of firms globally, 50 per cent of output and 60 per cent of employment. There is a productivity gap – wider in developing economies – between such enterprises, which focus on low value added production and have higher trade costs, and larger firms.[25] Services, particularly information and telecommunications services, can help microenterprises and small and medium-sized enterprises move to high value added production and reduce their trade costs.

38. More and more microenterprises and small and medium-sized enterprises are using digital tools to some extent. However, the benefits of using digital tools and services are not

[25] Edinburgh Group, 2013, Growing the global economy through [small and medium-sized enterprises] SMEs. Available at http://www.edinburgh-group.org/media/2776/edinburgh_group_research_-_growing_the_global_economy_through_smes.pdf.

yet being fully exploited. For example, one study[26] found that, although small businesses in the United States of America typically attribute increased sales and revenue to the use of digital tools, few use data analytics and more sophisticated online tools.

39. The Republic of Korea is building world-class information and communications technology infrastructure. However, the rate of utilization of such technology for small and medium-sized enterprises is relatively low compared to that for large companies. That low rate is a major cause of the productivity gap between large enterprises and small and medium-sized enterprises. In this context, the Government of the Republic of Korea is actively pursuing the Smart Factories Support Policy, which utilizes information and communications technology services to enhance the productivity of small and medium-sized businesses, especially manufacturers. The Policy helps to accelerate manufacturing innovation and preparation for digitalization, and is designed to support 20,000 smart factories by 2022. This target corresponds to about 30 per cent of all small and medium-sized manufacturers with more than 10 employees (6.8 million firms).[27]

40. "Smart factories" is a term used to refer to a highly digitized manufacturing process that utilizes Internet-connected facilities to collect, monitor and analyse information used in processes such as planning, design, production, distribution and sales to create an optimal production environment. Smart factories are designed to achieve the highest possible productivity, labour safety and customized product production.[28] In order to promote the rapid expansion of smart factories, an institutional framework has been established, involving both public and private sectors.

41. Several ministries are involved in the Smart Factories Support Policy. The Ministry of Small and Medium-sized Enterprises and Startups, formerly the Small and Medium-sized Business Administration, plays a leading role in helping small and medium-sized manufacturers build smart factories. The Ministry of Trade, Industry and Energy and the Ministry of Science and Information and Communications Technology are mainly responsible for research and development and the development of human resources related to smart factories.

42. In June 2015, the Ministry of Trade, Industry and Energy and the Small and Medium-sized Business Administration established the Korea Smart Factory Foundation to effectively spread smart factories through collaboration with the private sector. The Foundation oversees the implementation of smart factory projects: selecting small and medium-sized manufacturers to be supported and monitoring their progress; planning research and development projects; managing human resource development programmes; and establishing cooperative systems between large and small businesses. Large corporations such as Samsung Electronics and organizations such as the Korea Institute of Industrial Technology, the Korea Federation of Small and Medium-sized Enterprises, the Korea Chamber of Commerce and Industry and local governments, participate in the Foundation's activities.

43. The Government of the Republic of Korea has learned that government-supported policies cannot succeed unless they encourage small and medium-sized enterprises to voluntarily invest in information and communications technology services. However, many such enterprises in the Republic of Korea lack the financial resources required for such investment or are not sufficiently aware of its importance. The Government of the Republic of Korea has worked to raise awareness of investment in information and communications technology among chief executive officers of small and medium-sized manufacturers, and to strengthen the financial support system that enables such manufacturers to smoothly secure

[26] Deloitte, 2017, *Connecting Small Businesses in the United States*, available at https://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-connected-small-businesses-Dec2017.pdf.

[27] During the four-year period from 2014 to 2017, the Government of the Republic of Korea spent ₩210.4 billion ($191 million) on this policy, and large corporations also provided about ₩57 billion ($52 million). The small and medium-sized manufacturers participating in this policy are those for which quality control is especially important, for example, component manufacturing and assembly companies in the electronics, machinery and automobile sectors and chemical and pharmaceutical industry companies.

[28] Republic of Korea, Ministry of Trade, Industry and Energy, 2017, 3 February, available at http://www.motie.go.kr (Korean language).

the necessary funds in accordance with the stages and features of the smart factories. In 2014, the Government began matching the funds of large corporations and small and medium-sized enterprise-related organizations to help build smart factories. Projects designed to modernize social overhead capital facilities around established industrial complexes are also being implemented.

44. As of 2017, a total of 5,003 small and medium-sized manufacturers had been supported. In addition, the Government supports research and development projects to develop facilities required to build and operate smart factories and to secure skilled workers. According to a Korea Smart Factory Foundation survey of the performance of 1,861 smart factories built by the end of 2016, productivity was improved by 23 per cent, while the defect rate was reduced by 46 per cent, and costs were reduced by 16 per cent.[29] The survey report also highlighted improvements in business performance, including the diversification of businesses, the development of new markets and the creation of jobs.

C. Transport services enable the creation of production centres

45. Infrastructure is a prerequisite for transport services, which facilitate trade. Although maritime transport operates for the most part using nature's "free highway", the sea, it invariably requires port infrastructure. Ports are transport nodes, where the main activity is the handling of the interchange of cargo from one transport mode to another, usually from ship to road or rail. Traditional gateway ports developed this way from simply importing and exporting goods. However, it is possible to build a port at a greenfield site that does not have a production or consumption centre, or any connecting transport infrastructure. Such a facility could enable the creation of a production centre.

46. Trans-shipment ports, specializing in twenty-foot equivalent unit container handling, can be built along maritime trade routes far from cities or towns. Their purpose is to provide a location for the unloading of cargo from one ship and its loading onto another, thereby forming a hub and spoke system of interconnectivity. This allows for 60 per cent of all countries to be able to trade with distant partners via no more than two connecting ports and, in 90 per cent of cases, no more than three.[30] Ports require both infrastructure, such as deep water berths, and superstructure, such as quayside gantry cranes. Connecting infrastructure, such as road or rail, is not necessary because goods will arrive and leave by sea. Consequently, islands can make good trans-shipment places, provided that other criteria mentioned below are present. Furthermore, container ports are suitable for automation and do not need a large workforce.

47. Trans-shipment ports must be close to a main shipping lane and may then become a gateway port, a logistics centre port, or, ideally, ideally all three (see figure 10). Once established, a trans-shipment port, backed up by the right government policies, can act as an enabler for other industries. Successful examples of container ports facilitating growth include Dalian container terminal in China, which is located far from the city centre but which has links with a nearby free trade zone that has spurred industrial development in the surrounding area. The port of Tanjung Pelepas, Malaysia, built 13 nautical miles from the port of Singapore, was able to win trans-shipment traffic from its neighbour and only later developed its airport and road connections to further other productive capacities. The same is true of Dubai, the United Arab Emirates, which also used free trade zones to enhance its trans-shipment port. The ports of Gioa Tauro, Italy, Kingston and Colombo were similarly able to promote trans-shipment traffic to become more significant than their local populations would otherwise warrant. However, the number of new greenfield port projects seems to be in decline due to changes in the global economy, or possibly because the sites with the greatest economic potential have already been developed. In one study, it was suggested that there are currently only 80 greenfield projects in the pipeline, compared to over 130 in the past.[31] In 2013, the container capacity under construction equalled around 20 per cent of the

[29] Ibid.

[30] Maritime Connectivity and Trade: Policy Issues in International Trade and Commodities, Research Study Series No. 70, UNCTAD/ITCD/TAB/72 (United Nations publication ISSN 1607-8291, New York and Geneva).

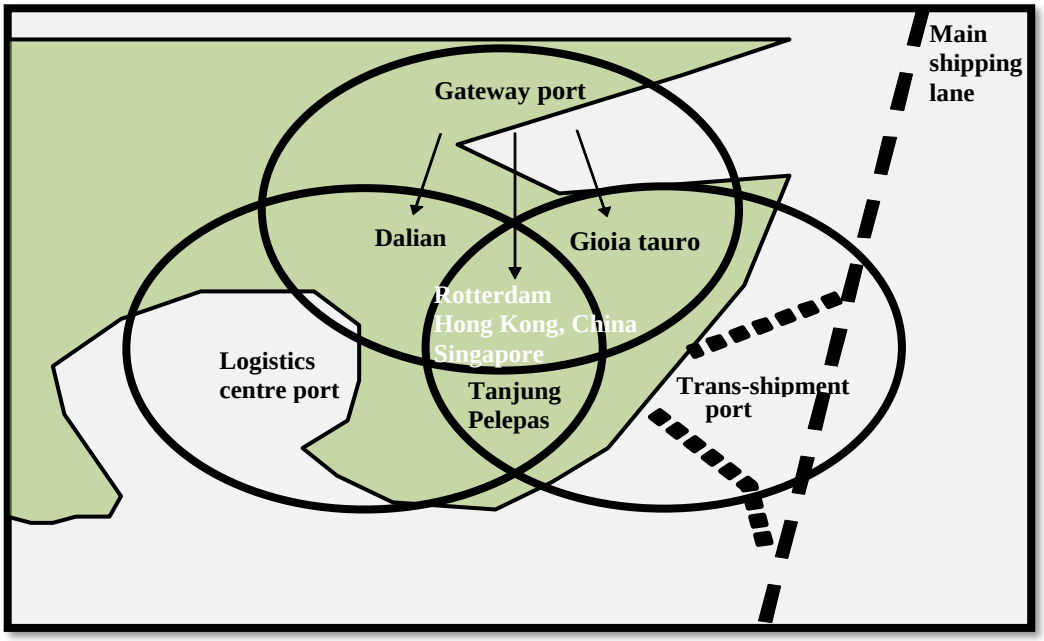
[31] PortStrategy, 2018, Drewry: Greenfield projects in decline, 18 September, available at

then-existing capacity. In 2018, that figure had fallen to 10 per cent, pointing to a potential rise in utilization rates and a possible increase in port congestion.[32]

48. The main advantage of trans-shipment ports is that, once productive centres have been established, they can subsidize the transport costs of local exporters, thus providing new markets for trade and valuable foreign earnings. Combined with suitable government policies (for example, temporary importation of goods, tax incentives, etc.) they can provide the means for a service industry to be established that can add value to goods for re-export.

49. Trans-shipment ports can be a catalyst for the development of production centres. However, greenfield sites are frequently home to wildlife and public opposition to construction can be strong. Trans-shipment traffic is often regarded as fickle; shipping lines can move their business elsewhere (for example, Tanjung Pelepas, Malaysia, and Singapore). Many natural deep water sites have already been developed and those that remain require costly, disruptive and ongoing dredging, which should invariably be financed by Government. The initial investment in infrastructure and superstructure may be substantial and is often financed upfront by the operator, in return for a concession lasting several decades that grants the sole right to operate the port. It may well be that the concession-holder, rather than the Government, sets the price for handling goods within the port and decides which shipping lines can call in there.

Figure 10
Conceptual model illustrating port policy options



Source: UNCTAD, adapted from Economic and Social Commission for Asia and the Pacific and Korea Maritime Institute, 2005, *Free Trade Zone and Port Hinterland Development*, ST/ESCAP/2377 (United Nations publication, Sales No. E.05.II.F.22, New York). Available at https://www.unescap.org/sites/default/files/pub_2377_fulltext.pdf.

https://www.portstrategy.com/news101/port-operations/port-performance/trade-wars-impacting-container-port-demand (accessed 5 February 2019).

[32] Ajot, 2018, Drewery: Where have all the greenfields gone? 22 October, available at https://www.ajot.com/news/drewry-where-have-all-the-greenfields-gone (accessed 5 February 2019).

V. Examples of enhancing productive capacity in developing countries through services: South–South cooperation

50. South–South cooperation is helping host countries to enhance productive capacity through services. In Egypt, a fibre optic cable and accessories factory was established in Bader Industrial City close to Cairo in early 2018[33] by a Egyptian and Chinese joint-venture company.[34] The plant has a production capacity of about 1 million km of fibre optic cable annually and a second plant is due to be built.[35] With an investment of $30 million over the next three years, the joint venture aims to cover the needs of the Egyptian market and other African markets by mid-2019. Aided by increasing production capacity, it is expected that 80 per cent of the components in the cable manufacturing process will be made locally by 2021. The joint-venture company will also produce microtrenching cables; a new technology that enables cables to be installed without having to dig deep underground (requiring only approximately 12 cm of depth). It is estimated that the value of the Egyptian fibre optic market will increase to $9 billion by 2023.[36] The long-term strategy of the joint-venture company is to make Egypt a main hub for expanding exports of fibre optic cables and, eventually, of technology and communications services to markets in Africa and the Middle East.

51. This project is helping the Government of Egypt to implement its plan to establish 16 new smart cities, with one of the objectives being to improve companies' productivity through high-speed Internet and data-transmission services.[37] In order to achieve this objective, there is a need for robust new information and communications-related supporting infrastructure, including fibre optic cables, which are of paramount importance.

52. In May 2015, a contract worth $155 million was signed between a Turkish construction company and a Chinese State-owned enterprise operating in the cement technology and engineering sectors.[38] The deal represents a new form of cooperation and of strategic partnership in the sector. Under the deal, the Chinese partner set up a cement and clinker production line in Ankara, providing design and procurement services, and the Turkish company built the factory. This partnership enabled a productive capacity of 5,000 tons per day, for utilization by the Turkish construction company.

53. The alliance between these companies represents a new division of labour and of strategic partnership among developing countries in the construction sector, through a type of engineering, procurement and construction services agreement commonplace in the construction industry. When integrated into the manufacture of goods such as cement, engineering, procurement and construction services may be regarded as a new form of South–South cooperation to enhance host countries' productive capacity. The engineering and construction contractor designs the project, procures the necessary equipment and materials globally and builds a production facility that its client then utilizes. The outcome is that the host country is equipped with productive capacity in important industries.

[33] Egypt, Ministry of Communications and Information Technology, [Information and communications technology] ICT minister opens optical-fibre cables factory in Bader City. Available at www.mcit.gov.eg/Media_Center/Press_Room/Press_Releases/13806 (accessed 18 February 2019).

[34] Egypt, by Hengtong Optic-Electric Co., Ltd. (China) and HitekNOFAL Group (a private Egyptian information and communications technology company).

[35] *Egypt Today*, 2018, Egypt inaugurates two fibre optic cable factories. 13 March, available at http://www.egypttoday.com/Article/3/45145/Egypt-inaugurates-2-fiber-optic-cable-factories (accessed 4 January 2019).

[36] *Xinhua*, 2018, First Egyptian-Chinese fibre optic cable factory inaugurated in Cairo, 7 March. Available at http://www.china.org.cn/world/Off_the_Wire/2018-03/07/content_50672224.htm (accessed 4 February 2019).

[37] Egypt, Ministry of Communications and Information Technology, [Information and communications technology] ICT minister opens optical-fibre cables factory in Bader City. Available at www.mcit.gov.eg/Media_Center/Press_Room/Press_Releases/13806 (accessed 18 February 2019).

[38] Limak (Turkish construction company) and Sinoma International Engineering (Chinese cement technology and engineering company).

54. As a part of the approach described above, the Chinese company builds cement and glass production lines through engineering, procurement and construction contracts, and provides testing, operation, maintenance, instruction and training services to cement companies.

VI. Conclusion

55. As the most significant economic activity in the world, which contributes a growing share of GDP, trade and employment, services benefit productive capacity enhancement by providing productive resources, as inputs to other sectors, and by creating production linkages. Services can enhance the productivity and growth of manufacturing and agriculture, thus contributing directly to domestic productive capacity enhancement and the competitiveness of a country in international markets.

56. Countries seeking to enable the services sector to play its role in enhancing their productive capacity might wish to: adopt and implement national policies and establish institutions that encourage the development of infrastructure, telecommunications, financial and business services, such as professional and research and development services; provide vital government support, including financial assistance, to help small and medium-sized enterprises to enhance their productive capacity through the use of information and communications technology services; consider creating production centres through the development of transport services, including through the establishment of a trans-shipment port, which could act as an enabler for other industries; improve transport infrastructure to foster tourism development, for instance, through a tourism development fund; import services (where a country has put proper regulations in place), including through foreign direct investments, an approach that could make up for the shortfall in critical services provision at the domestic level. Moreover, international cooperation and partnerships, including South–South cooperation, can help developing countries to enhance their productivity capacity through services.

57. The significant differences between direct services exports and value added of services in exports from all sectors highlight the limitations of merely using balance of payments-related data and statistics. UNCTAD is developing a country case-study project on the measurement of value added of services in exports and analysis of related services and trade policies. The aim is to systematize a methodology for measuring the “mode 5” in developing economies and assessing how it is affected by trade and services policies. The possibility of extending this technical assistance to other countries and regions could be explored.

58. Experts may wish to discuss the following questions (non-exhaustive list):

- How do services enhance a country’s productive capacity in terms of productive resources and production linkages?
- How can services help small and medium-sized enterprises to enhance productive capacity?
- What policy and institutional mix can increase the contribution of services to work to enhance productive and supply capacity in the economy?
- To what extent can South–South cooperation in services promote the role of services in enhancing productive capacity in developing economies?
- How can trade liberalization support developing countries in strengthening the contributions of their services sectors to overall productive and supply capacity?
- How can services data be improved in developing countries in support of the Sustainable Development Goals?