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**ADB Working Paper Series**

**RESTRICTIVENESS OF SERVICES TRADE POLICY  
AND THE SUSTAINABLE DEVELOPMENT GOALS**

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**Abstract**

The realization of many of the United Nations (UN) sustainable development goals (SDGs) depends on bolstering the performance of service sectors and improving access to specific services in developing countries. We show that prevailing services, trade, and investment policies affect access to services that matter for the realization of a number of SDGs: lower trade restrictiveness is an instrument that can enhance the performance of domestic services sectors. This implies that pursuit of the UN's SDGs should include a focus on facilitating trade and investment in services.

**Keywords:** services, trade policy, sustainable development goals

**JEL Classification:** L8, O10, O24

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## 1. INTRODUCTION

The United Nations (UN) sustainable development goals (SDGs) are a major focal point for international efforts to promote global welfare for the next decade (United Nations 2015). The SDGs span 17 broad objectives, ranging from poverty reduction to improving public health and protecting the environment.<sup>1</sup> International trade and trade policy is one means of implementing the SDGs. A number of goals explicitly reference trade-related measures as instruments that can help to attain the objective concerned. Thus, Goal 2 (ending hunger) includes a call to correct and prevent distortions in world agricultural markets, including through the elimination of all forms of agricultural export subsidies and measures with equivalent effect. Goal 8 (decent work and economic growth) recognizes the role of Aid for Trade's support for developing countries, especially for the least developed countries (LDCs). Goal 9 (resilient infrastructure and inclusive industrialization) notes the need for trans-border connectivity and increasing the integration of small-scale industrial and other enterprises into international value chains. Goal 10 (reducing inequality) emphasizes the importance of special and differential treatment for trade in developing countries, in accordance with WTO agreements. Goal 14 (conservation of maritime resources) points to the need to reduce fishery subsidies to rich countries.

The main link between the SDGs and trade policy is made in Goal 17 (strengthening the global partnership for sustainable development). This stresses the importance of a universal, rules-based, open, non-discriminatory and equitable multilateral trading system; the timely implementation of duty- and quota-free market access on a lasting basis for all LDCs, supported by rules of origin that are transparent, simple and facilitate market access; and respect for national policy space and leadership to establish and implement policies to realize the goals.

The trade policies that are referenced in the text of the SDGs center on actions that importing countries could (should) take to facilitate market access for export firms in developing countries, policy space for developing countries and technical and financial assistance to bolster productive supply capacity and address infrastructure weaknesses. Preferential market access, removing policies that distort global markets and create incentives for the excessive exploitation of non-renewable natural resources, and aid to enhance the capacity to use trade for sustainable development can contribute significantly to achieving a number of the SDGs. It is important, however, to note the conceptualization of the role of trade in the wording of the SDGs. Implicitly if not explicitly, the emphasis is on measures to facilitate merchandise exports in developing countries. Low-income countries may have a comparative advantage in services such as transport, travel and tourism-related activities or business process outsourcing. Services of all types are becoming easier to trade as a result of technological change, creating opportunities for firms in developing countries to expand trade in nontraditional products, including services as well as goods. Approximately one quarter of all LDCs are net exporters of services. For the LDCs as a group, services exports grew more rapidly than for the world as a whole during the 2000s. LDCs increased their share of global trade in services from 0.4% in 2005 to 0.8% in 2015, with commercial services exports growing by 14% over this period, more than twice the rate of other countries, and services exports as a whole represented some 20% of total LDC exports of goods and services in 2015 (WTO 2016).

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<sup>1</sup> Appendix A lists all the SDGs.

Services matter for the realization of the SDGs, not just because they are a potential source of foreign exchange revenue and associated employment and household income, but also because realization of many of the SDGs is conditional on enhancing the performance of a range of specific services sectors in developing countries. Attaining the SDGs is, to a significant extent, a services agenda. Eliminating poverty and hunger, improving health and educational outcomes, and reducing regional inequalities will require increased services capacity, and the productivity of a range of services activities, including transport, distribution, logistics, ICT, vocational training and medical services.

This paper provides a conceptual framework for considering the role of trade in services in the effort to attain the SDGs. We make a case for devoting greater efforts to identifying at country-level whether and how actions to promote trade in services can support the achievement of some of the SDGs. We focus on two dimensions of the role that services trade policy can play in attainment of the SDGs. The first is the link between service sector performance and economic growth and incomes. Increasing per capita income is critical in realizing many SDGs, both directly – such as in the case of reducing the incidence of poverty and hunger – and indirectly, by generating additional domestic resources that can be allocated to measures targeting specific SDGs. Given that services account for a significant share of employment and GDP in all countries, improving service sector productivity is one avenue to increasing real incomes (fostering economic growth). Greater trade in services, in turn, is potentially an instrument for generating higher growth rates. The second part of the role that services trade policy may play in helping to realize SDGs involves bolstering access to specific types of services that are either important “inputs” for some of the SDGs or “outputs” that are highly correlated with achieving a specific goal. Many of the SDGs require better access to higher quality services. Others call for improving connectivity-providing service networks.<sup>2</sup>

Whether and how changes to services trade and investment policy can enhance overall economic growth performance (per capita incomes) and access to services that matter for specific SDGs is an empirical question. The analysis in this paper is illustrative. The aim is to discuss the potential role that trade in services can play in the context of achieving the SDGs and to undertake an initial empirical assessment of the salience of the alternative channels through which trade policies towards services can impact the SDGs. The feasibility of a rigorous cross-country quantitative study of the channels through which services trade and services trade policies may impact SDGs is limited by data constraints. The absence of comparable time series information on services trade policies severely impedes empirical analysis that can appropriately consider endogeneity and identification issues. We are therefore limited to an exploratory investigation that uses available data on services trade policy to assess the extent to which such policies are associated with outcomes that matter from an SDG perspective.

The findings suggest that services trade and investment policy may matter more for enhancing access to services than for increasing overall economic growth, although we find that more liberal trade policies towards transport services are positively associated with per capita income levels. Services trade policies appear to have a stronger association with measures of the availability of (access to) a number of services that figure prominently in the text of several SDGs: financial, ICT and transport services. We also find that the relationship between services trade policy regimes and access to (performance of) the services sectors is affected by the quality of prevailing regulatory

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<sup>2</sup> This part of the paper draws on Fiorini and Hoekman (2018).

institutions. A policy implication of the analysis is that more attention should be paid to trade policies for services and related regulatory and economic governance institutions in the international effort to attain the SDGs. Which types of services matter more for different SDGs requires country-specific analysis, which is likely to be less affected by the data limitations that constrain cross-country analysis of the impact of services trade policy on SDGs. We hope that our findings will motivate such research and more generally stimulate greater consideration of services trade policies in country-level efforts to identify and implement measures that will help attain the SDGs.

## 2. SERVICES AND THE SDGS

The performance of services sectors in an economy may impact the prospects of attaining the SDGs through two main channels. The first is indirect, through the impact on per capita income, as more efficient and productive services sectors can increase economic growth which in turn is important for the overall achievement of the SDGs. The second channel is direct: improving access to, and the quality of, specific types of services is central to a number of the SDGs.

### 2.1 Services and Economic Development

One of the stylized facts of economic development is that the share of services in GDP and employment rises as per capita income increases.<sup>3</sup> In the lowest-income countries, services generate some 35%–40% of GDP. This rises to over 75% of national income and employment in many OECD countries. An increasing share of services in GDP and employment is part and parcel of economic development. The expansion in the services-intensity of economies as they become wealthier is driven by a number of factors.<sup>4</sup> Standard explanations involve both demand and supply side factors. Growth in the share of services as countries grow richer is in part a function of changes in final demand patterns and higher average income elasticities of demand for services than for goods. It also reflects differential labor productivity growth across sectors, technological changes that support greater specialization by firms through the outsourcing of services tasks, and an associated growth in demand for coordination and intermediation services (Backer, Desnoyers-James, and Moussiégt 2015; Francois and Hoekman 2010; Schettkat and Yocarini 2006).

While an expanding share of services in total output and employment for the world as a whole is nothing new (see for example Kravis, Heston, and Summers 1983), for any level of economic development or per capita income, the role of services in the economy is today more important than in the past as a result of advances in information and communication technologies and transport. Growth in the share of services in GDP is part of the process of structural transformation that is associated with rising per capita income levels. In part it reflects the inter-sectoral reallocation of factors of production from low-productivity agriculture and informal services to higher-productivity activities in the formal sector (industry and services). Just as salient are shifts within sectors, including increasing demand for intermediate services (Berlingieri 2015). Resource allocation shifts within services sectors are a driver of productivity growth in the same way as in goods-producing sectors (Young 2014).

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<sup>3</sup> (Buera and Kaboski 2009) suggest that the relationship between the share of services in GDP and log per capita income is linear.

<sup>4</sup> See, e.g. (Baumol 1967), (Fuchs 1968).



Efficient services are critical for economic development because they are determinants of the productivity of capital and labor. Financial services intermediaries are critical in providing funds to firms that have been generated by households seeking to invest their savings. Health and education services are key ‘inputs’ that help determine the skills and quality of life of workers. Other services are the backbone of connectivity, ‘facilitating’ the physical movement of goods and people (transport services) and the exchange of knowledge and information (communications services).<sup>5</sup> Telecommunications are crucial to the dissemination and diffusion of knowledge, including through the internet. ICT services are a transport mechanism for information services and other products that can be digitized. Similarly, transport services affect the cost of shipping goods and the movement of workers within and between countries. Business services such as accounting, engineering, consulting and legal services reduce the transaction costs associated with the operation of financial markets and the enforcement of contracts, and are a channel through which process innovations are transmitted across firms in an industry and across industries. Health and education services are key inputs into, and determinants of, the stock and growth of human capital. In short, the performance of the services sector matters for economic growth and the overall productivity of the economy as a whole. From an SDG perspective this implies that the income channel is the first channel through which services performance matters.

## 2.2 Services and Sustainable Development

The indirect link between services and economic development that operates through the effect of service sector performance on economy-wide productivity and real income growth is just one channel through which services are relevant to the SDGs. While it is an important channel, as, for example, per capita income growth will help achieve the poverty reduction SDG, service sector performance is very salient for many “non-income” dimensions of the SDGs and their associated specific targets.<sup>6</sup> Some SDGs directly depend on the performance of specific services sectors (e.g. health services in SDG 3 and education services in SDG 4). Eleven of the 17 SDGs explicitly refer to (or imply) at least one distinct service sector as a means of attaining the goal in question. This generally spans one or more of the following three elements:

- **Access to services:** expanding access or improving the affordability of a given services activity, output or product;
- **Quality of services:** enhancing the quality, efficiency, capacity or resilience of a service sector;
- **Environmental services:** reducing the environmental footprint (negative spillover effects) of an economic activity.

Table 1 illustrates some of the connections between services and SDGs. It reports the services sectors to which various SDGs refer, based on a text search of the keywords embodied in the description of the SDGs and the focal point for action implied by (needed to attain) the respective goals.

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<sup>5</sup> (OECD/WTO 2017) offers an excellent discussion of the role of services and services trade for connectivity.

<sup>6</sup> Annex 1 lists the 17 main SDGs. See <https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals> for the more detailed targets for each SDG. In what follows we consider both the SDGs and the more detailed targets that are associated with the respective SDGs insofar as they involve specific services activities.

**Table 1: Services Referenced in the SDGs**

Services Sector	SDG	Activity Given in Respective SDG	Focal Point
Health services	1	Basic services	A
	3	Health services/Sexual and reproductive health services	A and Q
Education services	1	Basic services	A
	4	Pre-primary/Primary/Secondary/Vocational/Tertiary education	A and Q
Sanitation services	1	Basic services	A
	6	Sanitation	A, Q and EF
ICT services	1	New technology	A
Financial services	1	Financial services/Microfinance	A
	2	Financial services	A
	3	Financial risk protection	A
	8	Financial services	A
	9	Financial services	A
R&D services	2	Seeds; climate resistance	A and Q
	3	R&D of vaccines and medicines	Q
	8	Technological innovation	Q
	9	Scientific research/Technological capabilities/Innovation/R&D workers	Q
Water services	6	Drinking water/Water quality/Water use and management	A, Q and EF
Energy services	7	Distribution of energy	A, Q and EF
Tourism	8	Sustainable tourism	Q and EF
Transport services	9	Infrastructure	A, Q and EF
	10	Transport systems/Public transport	A, Q and EF
Construction services	9	Infrastructure	Q and EF
Waste management services	11	Waste management	Q
	12	Recycling/Reuse	Q and EF

Notes: Focal points comprise access (A), quality (Q) and environmental footprint (EF).

This text-based mapping exercise illustrates that the intersection between the SDGs and the performance of services sectors is substantial. Services matter for attaining specific SDGs. Beyond access to basic services in the areas of health, education, sanitation, water and energy, access to financial services is identified in five SDGs (the most frequent reference across services sub-sectors). Other services that are mentioned include ICT services; the improved quality, efficiency, capacity and resilience of R&D services; tourism, transport, construction and waste management services. SDGs that aim to reduce the negative environmental footprint of economic activity also identify specific services sectors, including sanitation, water and energy related distribution services, transport, construction, and waste management services.

Services are also relevant for SDGs that do not explicitly refer to services, and for that reason are not listed in Table 1. This is the case for SDG 5 (gender equality) and SDGs addressing environmental sustainability (13, 14 and 15). Services are in general not energy intensive, with the notable exception of transport.<sup>7</sup> This makes services activities relevant for the sustainability of development strategies – an increase in the services share or intensity of economic activity will be associated with a lower carbon footprint. Moreover, services are also relevant for improving environmental sustainability and the implementation of green development strategies because achieving these goals will require technological progress and innovation: lowering environmental footprints of production and consumption processes calls for basic research, engineering and R&D services, and so-called environmental services<sup>8</sup> such as the elimination of exhaust gases, noise abatement services, nature and landscape protection services and so on. Other services sectors such as finance and insurance are important ‘facilitators’, helping to mobilize and channel the resources needed to fund the investments required to reduce environmental footprints across economic sectors more generally.

The services sector plays an important role in gender equality, as it offers greater opportunities for employment and empowerment. Ngai and Petrongolo (2017) document the evolution of what they call the comparative advantage of women in the services sector. In the early 20th century services involved safer, cleaner working conditions and shorter working hours than jobs in factories (Goldin 2006). While these factors may have become less relevant over time, many service sector activities require a greater use of communication skills than manufacturing and do not involve heavy manual labor (Galor and Weil 1996; Rendall 2010).

Connections between the development of services sectors and female labor force participation have been empirically supported in the context of mature services economies.<sup>9</sup> Data for LDCs suggest that the potential of services is particularly high in regions where female participation in primary and secondary sectors appears ‘inefficiently’ high. In LDCs for which data are available, women account for more than 50% of total employment in agriculture and manufacturing. Table 2 reports, for the latest available year, employment shares across sectors<sup>10</sup> for a number of LDCs and the United States. The US has lower employment shares for women in both agriculture (ISIC Sector A) and manufacturing (D) and generally higher shares in services sectors. The highest shares of female employment in services sectors in LDCs are in the wholesale and retail trade (G) and hotel and restaurants (H). For other services sectors the differences compared to employment shares observed in the US are significant.

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<sup>7</sup> Technically, the production of electricity is not mapped to the services sector in the national accounts. The same is true for mining.

<sup>8</sup> See Dihel (2010) for a detailed discussion of environmental services and trade in environmental services.

<sup>9</sup> Ngai and Petrongolo (2017) discuss the case of the US and provide a review of the literature.

<sup>10</sup> Sectors are given by ISIC Rev. 3 1-digit categories. A corresponds to agriculture, hunting and forestry; D to manufacturing; F to construction; G to wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods; H to hotels and restaurants; I to transport, storage and communications; J to financial intermediation; K to real estate, renting and business activities; M to education and N to health and social work. Data is from the ILO KILM's database.

**Table 2: Female Employment Share by Sector (ISIC Rev. 3 Categories)**

Country	Year	Total	A	D	F	G	H	I	J	K	M	N
Burundi	1998	55.6	58.3	24.3	0	28		4	45.8	26.1	13.1	
Bangladesh	2005	23.8	34.6	24.8	6.8	5.7	7.2	1.7	22.7	4.6	26.3	33.7
Bhutan	2012	51	61.6	59.8	12.5	54.2	58.6	12.3	35.5	34.8	38.4	32.3
Ethiopia	2006	50.1	32.1	50.4	13.9	48.4	80.2	7.1	29.7	31.6	44.3	
Cambodia	2001	51.7	53.3	69	11.8	72.6	56.6	3.7	45	40.1	37.3	37.3
Lao PDR	1995	51.8	54.1	54.2	9.2	63	54.5	5.4	40.2	25.9	42.1	58
Lesotho	1999	43.9	39.3	63.5	35.8	61.7	79.4	12.8	43.8	37.4	61.2	58.3
Madagascar	2005	49.4	50	23.3	6.9	63	52.4	6.3	34.1		58.4	48.5
Mali	2006	45.1	45.3		2.6	67.2		6.9	34.5		31.9	
Nepal	2001	43.4	48.1	47.6	17.8	39.6	34.5	3.6	14.5	13.7	26	29.4
Senegal	2006	35	35.9	17	3.7	50.6	57.5	4.1	29.4			
Sierra Leone	2004	48.9	51.4	21.4	27.7	62.1	46.9	8	42.4	49.2	32.8	50.3
United States	2008	46.7	23.9	29.3	9.7	45	53.1	23.8	58	43.1	69.7	79.1

Notes: Data from ILO KILM's database.

### 3. SERVICES TRADE POLICY AND THE SDGS

Given the presumption that services performance matters for the attainment of many SDGs, the policy challenge is to encourage improvement in service sector performance. This is a multi-faceted issue that in practice will be inherently sector-specific. National specialist agencies responsible for the operation and regulation of health, education, transport, finance and other services sectors will need to undertake diagnostic analysis and identify binding constraints and priorities for action. This sector-level engagement constitutes a major dimension of the activities of governments and the support that is provided by development agencies (e.g., Abbott, Sapsford, and Binagwaho 2017; Joshi, Hughes, and Sisk 2015; Koehler, Thomson, and Hope 2015; Ssozi and Amlani 2015). Our focus in what follows is on the supportive role that services trade and investment policy can play in complementing sector-specific interventions and policy reforms to improve the productivity performance of services sectors and enhance access to services.

Historically many services were characterized as non-tradable, reflecting their non-storable and intangible nature. An implication was that international trade in services often required the cross-border movement of providers or consumers, in turn involving the movement of capital and labor. The need for such factor movement has been declining as technical change has allowed services to be digitized and exchanged cross-border through ICT networks and air transportation and information services that facilitate the identification of market opportunities. Information and telecommunications advances have increased direct exports of services by allowing the sale/provision of services over ICT networks, and suppliers/customers to physically move to satisfy the proximity constraint that frequently still impedes cross-border services transactions. While developments in areas such as software and apps, business process outsourcing and the like attract much attention, these activities are all dependent on a variety of services inputs that determine the ability of entrepreneurs to participate in international value chains or to sell products directly to clients through B2B or B2C e-commerce platforms. The quality, price and availability of such inputs is determined in part by a country's services trade and investment policies.

Trade costs for services remain much higher than trade costs for goods, and the rate of decline in such costs has been much less than for goods (Miroudot and Shepherd 2016). The result is to reduce the volume of trade in services by compromising the ability of firms to exploit their competitive advantages on world markets. High services trade costs imply that many services tend to be traded indirectly. Recent initiatives such as the OECD and WTO project to measure trade in value added (TiVA) have demonstrated that services account for a significant share of the value added in all sectors in the economy. As this value added is embedded in traded goods, services play a much larger role in international exchange than is measured by a nation's balance of payments (BOP). At least 50% of global trade on a value-added basis comprises services: the sum of the value of services output that is traded directly and is captured in BOP statistics (some 20 to 25% of total exports), plus the value of services that is embedded in traded goods (another 25 to 35%). Some of these embedded services are provided by foreign-owned firms. Often the most efficient way for foreign firms to provide services in a market is to establish a commercial presence: to engage in foreign direct investment (FDI).<sup>11</sup>

There is substantial empirical evidence that services FDI has positive effects on productivity by inducing greater competition and providing access to higher-quality, more varied, and cheaper services (Francois and Hoekman 2010). Many studies and reports have analyzed the role of services trade and related policies from an economic development perspective (see for instance Balchin et al. 2016; Cali, Ellis, and te Velde 2008; N. Dihel and Goswami 2016; Mattoo and Payton 2007; Saez et al. 2015; World Bank 2010), complementing research on developed economies (Breinlich and Criscuolo 2011; e.g. Wagner 2012). This literature demonstrates that firm heterogeneity plays an important role in shaping patterns of services trade, much as is the case for trade in goods. A robust finding is that an important determinant of service sector performance, and thus economy-wide productivity, is the role that many services play as an input into the production of both goods and other services.

In the remainder of this paper we explore empirically whether services trade policy can be a tool to support achievement of the SDGs. Consistent with the foregoing discussion, we start by assessing the relationship between services trade policy regimes and economic development (per capita income growth) using a cross-section regression framework. We then go on to investigate the empirical relationship between services trade policy and access to a subset of the services that are highlighted in the various SDGs. In particular, we look at access to financial, ICT and transport services. These three services are frequently referenced in the text of the SDGs and associated targets (Table 1).

### **3.1 Services Trade Policy and Per Capita Income Growth**

We construct a cross-section growth regression framework to estimate the connections between services trade policy and economic growth. The main database used in this exercise is the World Bank's Services Trade Restrictiveness Database (STRD), which covers 103 countries and provides information on services trade policy for many services sectors including finance, telecommunications, transport and professional

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<sup>11</sup> The importance of FDI as a "mode of supply" implies that the adjustment costs of trade in services may differ from those when trade comprises goods. Because the services are produced locally, greater foreign competition through FDI will generally involve less reallocation of employment across sectors than in the case of liberalization of trade in goods (Konan and Maskus 2006).

services. The indexes in the STRD capture the trade policy regime prevailing in a country from 2007 to 2010.<sup>12</sup>

**Table 3: Services Trade Policy and Economic Growth**

	Dependent Variable: Per Capita GDP Growth					
	(1)	(2)	(3)	(4)	(5)	(6)
STRI overall	0.013 (0.015)					
STRI finance		0.010 (0.012)				0.009 (0.014)
STRI telecommunications			0.011 (0.009)			0.013 (0.009)
STRI transport				-0.017 (0.011)		-0.028*** (0.010)
STRI professional					0.012 (0.011)	0.020 (0.012)
Log initial pc GDP	-0.938*** (0.192)	-0.916*** (0.197)	-0.914*** (0.196)	-0.855*** (0.188)	-0.973*** (0.183)	-1.023*** (0.186)
Education	0.025** (0.010)	0.025** (0.010)	0.028*** (0.010)	0.026*** (0.010)	0.025** (0.010)	0.032*** (0.009)
Investment	0.121*** (0.028)	0.122*** (0.028)	0.119*** (0.029)	0.133*** (0.026)	0.124*** (0.027)	0.127*** (0.025)
Crisis	-0.303 (0.458)	-0.302 (0.457)	-0.238 (0.458)	-0.505 (0.416)	-0.289 (0.443)	0.034 (0.453)
Political stability	0.636** (0.313)	0.630** (0.305)	0.529* (0.267)	0.407 (0.306)	0.670** (0.290)	0.598** (0.291)
GVT consumption	-0.048 (0.035)	-0.046 (0.038)	-0.041 (0.036)	-0.051 (0.038)	-0.050 (0.036)	-0.041 (0.039)
Share of tropical land	0.007 (0.006)	0.008 (0.005)	0.007 (0.005)	0.008 (0.006)	0.006 (0.006)	0.006 (0.006)
SSA dummy	-0.437 (0.463)	-0.429 (0.458)	-0.481 (0.489)	-0.463 (0.438)	-0.429 (0.453)	-0.611 (0.506)
LAC dummy	0.684 (0.604)	0.579 (0.529)	0.622 (0.538)	0.267 (0.604)	0.776 (0.601)	0.753 (0.638)
Constant	5.868*** -2.193	5.743*** -2.176	5.509** -2.116	5.786*** -2.170	5.888*** -2.192	5.721*** (2.108)
Observations	92	92	92	92	92	92
Adjusted Rsq	0.603	0.604	0.609	0.613	0.606	0.635

Notes: Robust standard errors in parenthesis. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

The dependent variable is the average growth rate of per capita GDP (PPP) for the six year period between 2008 and 2013. We use a standard growth empirical model with the initial level of economic development, education and investment share of GDP plus a number of additional variables in the spirit of (Mattoo, Rathindran, and Subramanian 2006). In particular we control for the degree of political stability, the level

<sup>12</sup> For a detailed description of the STRD see (Borchert, Gootiiz, and Mattoo 2014).

of government consumption, the share of tropical land within the country territory,<sup>13</sup> and Sub-Saharan Africa (SSA) and Latin America (LAC) regional dummy variables. We also add a dummy control variable taking the value of one if the country has experienced a systemic financial crisis as measured by the Laeven-Valencia Systemic Banking Crisis Database in the 2007–2011 period.<sup>14</sup>

The estimation sample contains 92 countries spanning all income categories and geographical regions. Countries are listed in Table B1, and Table B2 contains summary statistics, definitions and sources for all the variables used in the estimation. Results are presented in Table 3. In the first five columns the services trade restrictiveness indices (STRIs) are introduced one at a time, starting with the STRI that aggregates trade policy information across the four services sectors used for the analysis. The last column includes all the sector-specific STRIs jointly. The estimated coefficients for the initial level of economic development, education and investment share of GDP have the expected signs and are statistically significant across all the specifications in Table 3.<sup>15</sup> All the other growth controls have the expected signs, except for share of tropical land and the Latin America dummy, however, neither of these is statistically significant.

Turning to the services trade policy coefficient estimates, the overall STRI does not appear to have any effect on growth performance. The same is true when sector-specific STRIs are included separately: coefficients are never statistically significant. Only for transport services is the sign of the coefficient estimate suggestive that less restrictive trade policy regimes are associated with higher economic growth (Column 4), however, the estimate is not statistically different from zero. These patterns remain robust when we include all the sector-specific STRIs in the growth equation (Column 6), with the exception of the coefficient for the STRI for transport, which becomes statistically significant and doubles in magnitude. The estimate implies that reducing restrictions to trade in transport services by the equivalent of half of one standard deviation is associated with an 0.25% point increase in the average growth rate. Analogous results are obtained if we replicate the estimation using only data for STRIs pertaining to establishment of a commercial presence (i.e. restrictions on inward FDI or Mode 3 of the GATS) Table 4. This reveals that the finding is mostly due to barriers to establishment.<sup>16</sup>

Tables C1 and C2 in Appendix C replicate the regression results for a sample limited to the 61 non-high-income countries covered in the dataset. The transport result and other findings remain very similar. Thus, these results are not driven by differences in economic development.

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<sup>13</sup> We are grateful to Ulrich Sperling for providing the climate data. In particular, the shares of tropical land within the country territory were computed by the Geographical Institute of the University of Bern using the Köppen-Geiger climate classification data.

<sup>14</sup> The findings presented below are stable if only data for the 2010–2013 period is used so as to reduce the potential effects of the global financial crisis. Results remain qualitatively robust when restricting the estimation sample to non-high-income countries. Regression results are available upon request.

<sup>15</sup> The initial level of economic development, education and investment share of GDP are those determinants of growth identified as empirically robust by (Levine and Renelt 1992).

<sup>16</sup> Since the STRI score for Telecommunication in Table 3 reflects only Mode 3 policy measures, the results of the model when STRI Telecommunication is introduced in isolation (Column 3 of Table 3) are not replicated in Table 4.

**Table 4: Mode 3 Services Trade Policy and Economic Growth**

	Dependent Variable: Per Capita GDP Growth				
	(1)	(2)	(3)	(4)	(5)
STRI overall	0.012 (0.013)				
STRI finance		0.010 (0.011)			0.007 (0.013)
STRI telecommunications					0.012 (0.010)
STRI transport			-0.012 (0.009)		-0.020** (0.009)
STRI professional				0.006 (0.007)	0.009 (0.008)
Log initial pc GDP	-0.955*** (0.195)	-0.924*** (0.198)	-0.830*** (0.193)	-0.965*** (0.189)	-0.963*** (0.195)
Education	0.025** (0.010)	0.025** (0.010)	0.026*** (0.010)	0.024** (0.010)	0.031*** (0.009)
Investment	0.122*** (0.028)	0.123*** (0.028)	0.129*** (0.026)	0.124*** (0.027)	0.122*** (0.026)
Crisis	-0.287 (0.458)	-0.302 (0.454)	-0.527 (0.425)	-0.305 (0.435)	-0.082 (0.462)
Political stability	0.645** (0.314)	0.637** (0.305)	0.435 (0.303)	0.645** (0.293)	0.591** (0.285)
GVT consumption	-0.048 (0.036)	-0.047 (0.038)	-0.049 (0.037)	-0.048 (0.036)	-0.036 (0.038)
Share of tropical land	0.006 (0.006)	0.007 (0.005)	0.008 (0.006)	0.007 (0.006)	0.007 (0.006)
SSA dummy	-0.458 (0.462)	-0.448 (0.458)	-0.505 (0.439)	-0.493 (0.440)	-0.771 (0.487)
LAC dummy	0.700 (0.611)	0.616 (0.538)	0.309 (0.605)	0.691 (0.596)	0.682 (0.633)
Constant	6.053*** -2.205	5.789*** -2.177	5.496** -2.229	6.169*** -2.177	5.731** -2.174
Observations	92	92	92	92	92
Adjusted Rsq	0.604	0.604	0.610	0.603	0.622

Notes: Robust standard errors in parenthesis. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Overall, the regression results suggest that as far as raising per capita incomes is concerned, most services trade policies are not particularly salient, however, this is not necessarily the case. One explanation for the finding that, apart from the transport sector, services trade policy does not appear to be a determinant of the cross-country variation in average economic growth is that STRIs by themselves may not fully capture the policy factors that constrain services trade and investment.



In practice a variety of product market regulation measures and the quality of a country's investment climate and economic governance may have a greater impact on services trade and investment than the discriminatory policies that make up the STRIs. Recent research concludes that the effect of STRIs may be conditional on the incidence of other policies that affect the business environment, in particular the quality of domestic institutions and economic governance (see for instance Beverelli, Fiorini, and Hoekman 2017; Marel 2012).

### 3.2 Services Trade Policy and Access to Services

In this section we investigate the effects of STRIs on the indicators of access to services that are relevant to various SDGs. In particular, we focus on access to financial, ICT and transport services, three sectors for which there is STRI data and that appear frequently in the texts of the different SDGs. We use a simple bivariate regression model to estimate the conditional expectation function of a services-related SDG-outcome given the prevailing services trade policy regime for the respective services sectors. As discussed previously, the presumption is that less restrictive trade policies should be associated with better services performance (access to or availability of services) which in turn supports the realization of the relevant SDGs.<sup>17</sup> We take into account particular features of the economic environment that are likely to affect the relationship between access to services that matter for SDG outcomes and services trade policy.

The following sector-specific interaction model is estimated:

$$\text{SDG-outcome}_i = \alpha + \beta \text{STRI}_i + \gamma \text{Moderator}_i + \delta (\text{STRI}_i \times \text{Moderator}_i) + \epsilon_i \quad (1)$$

Two moderator variables are used. The first is the level of economic development (GDP per capita). For many SDGs, increasing per capita income is important for the achievement of the goal, suggesting a need to test whether the relationship between services trade policy and services access-related performance indicators are moderated by the initial level of income. We expect a stronger relationship between STRIs and the realization of SDG performance indicators when the process of achieving the latter is less constrained by income levels. The second moderator variable is the quality of economic institutions in a country. This second exercise is in the spirit of Beverelli, Fiorini and Hoekman (2017), where economic governance is identified as a key shaping factor for the effect of services trade restrictiveness on the productivity of downstream manufacturing industries, controlling for the intensity of use of services inputs into production. The focus here is on access to services as a function of services trade policy, which will be affected by the same type of institutional interdependence relationships that have been found to be important by Beverelli, Fiorini and Hoekman (2017).

The non-storability and intangibility of most services gives rise to a proximity burden (Francois and Hoekman 2010): the agent providing a service must be in the same location as the buyer or consumer. As a consequence, exporters of services often must perform some stages of their economic activity in the importing country, and thus will be affected by local regulations and the prevailing business environment: the quality of economic governance and related institutions. Accordingly, better institutions should attract more productive services providers and support higher levels of services performance. We therefore expect a stronger positive relationship between services

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<sup>17</sup> See for example (D'Amelio, Garrone, and Piscitello 2016).

trade openness and access to services in countries with higher quality regulatory institutions.

Data on access to financial services was obtained from the Global Financial Development Database (GFDD) of the World Bank. As a proxy for access we take the share of population that is at least 15 years of age and has an account at a formal financial institution.<sup>18</sup> In the case of access to ICT services we consider the number individuals per 100 people who have used the internet in the last 12 months (from any location and via any device). This data is collected by the International Telecommunication Union and is reported in the World Bank's Millennium Development Goals (MDG) database. Finally, we measure access to transport services using the World Bank Logistics Performance Index. The index reflects the perceptions that professionals (freight forwarders) have of a country's logistics situation, based on the efficiency of the customs clearance process, the quality of trade and transport-related infrastructure, ease of arranging competitively priced shipments and the quality of services (ability to track and trace consignments; frequency with which shipments reach the consignee within the scheduled time). The index ranges from 1 to 5, with a higher score representing better performance.

Information on services trade policy is again taken from the STRD described in Section 3.1. For each access variable introduced above we use the corresponding sector-specific STRI. We take the overall-modes STRI which, in the case of communication services, corresponds to the Mode 3 STRI. As the STRI data is for policies prevailing from 2007 to 2010, for each access variable we use the average of the available values for the 2010-2012 period.<sup>19</sup> Merging the services access and quality indicators and the trade policy data by sector, we end up with three cross-section datasets where the number of countries (observations) is determined by the intersection of the country coverage of the source databases.

Finally, we use data on institutional regimes from the Worldwide Governance Indicators (WGI) database. We use the WGI measure of regulatory quality as a proxy for the prevailing institutional framework.<sup>20</sup> The dependent variable is constructed as an average for the three year period from 2010 to 2012. Table B3 presents the summary statistics by sector.

Table 5 reports the estimation results. The negative signs of the estimated coefficients in the bivariate models (Columns 1, 4 and 7) indicate that – *ceteris paribus* – a lower level of trade restrictiveness for a sector is associated with better access to the services concerned or, in other words, with a higher level of performance in helping to attain the respective SDGs. This relationship is statistically significant for all three services sectors, with levels of significance ranging from the 1% (ICT) to the 10% (transport) level of statistical significance. These results are consistent with the hypothesized positive role of international trade in improving access to services.

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<sup>18</sup> The results reported below are robust to using other measures of consumer access to basic financial services. The results also hold for proxies for firm access to financial services, which is an important determinant of firm performance (Chauvet and Jacolin 2017).

<sup>19</sup> Detailed information on the years covered for each variable is given in Table B3. The results reported below are robust to modifications of the average time period, in particular taking into account the years 2008, 2009 and 2013 when these are available.

<sup>20</sup> Our results are robust to using other indicators such as the rule of law, control of corruption and political stability.

**Table 5: Services Trade Policy and Services Components of SDGs**

Sector <i>s</i>	Finance			ICT		Transport			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
STRI <i>s</i>	-0.432** (0.191)	1.921*** (0.448)	0.142 (0.128)	-0.342*** (0.109)	0.280* (0.150)	-0.008 (0.083)	-0.005* (0.003)	0.028*** (0.007)	0.002 (0.002)
Log pc GDP		21.274*** -1.490			16.563*** (0.953)			0.388*** (0.033)	
STRI <i>s</i> x log pc GDP		-0.226*** (0.045)			-0.039** (0.017)			-0.004*** (0.001)	
Institutions			37.302*** -2.890			26.631*** -2.650			0.586*** (0.068)
STRI <i>s</i> x Institutions			-0.539*** (0.083)			-0.111 (0.079)			-0.004** (0.002)
Observations	100	100	100	103	103	103	102	102	102
Rsq	0.066	0.753	0.638	0.105	0.849	0.651	0.025	0.734	0.641

Notes: Institutions are proxied with the WGI measure of regulatory quality. Robust standard errors in parenthesis. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

In the interaction models, the coefficient estimates for the direct effects of GDP per capita and regulatory quality are positive and strongly significant, meaning that higher levels of economic development and a better quality of institutions are positively associated with services access indicators. More interestingly, the coefficient for the interaction term is always negative. When statistically significant, this reflects a moderating role – of either economic development (per capita income) or quality of institutions – in shaping the relationship between services trade policy and measures of access to services that are relevant for the SDGs. In particular, the negative sign implies that the positive association between trade openness and services performance (an input into SDG progress) is stronger for higher values of the moderator variable. The interaction term between GDP per capita and the sectoral STRI is statistically different from 0 for all three sectors, while the interaction between STRI and the quality of domestic institutions is significant for finance and for transport.<sup>21</sup>

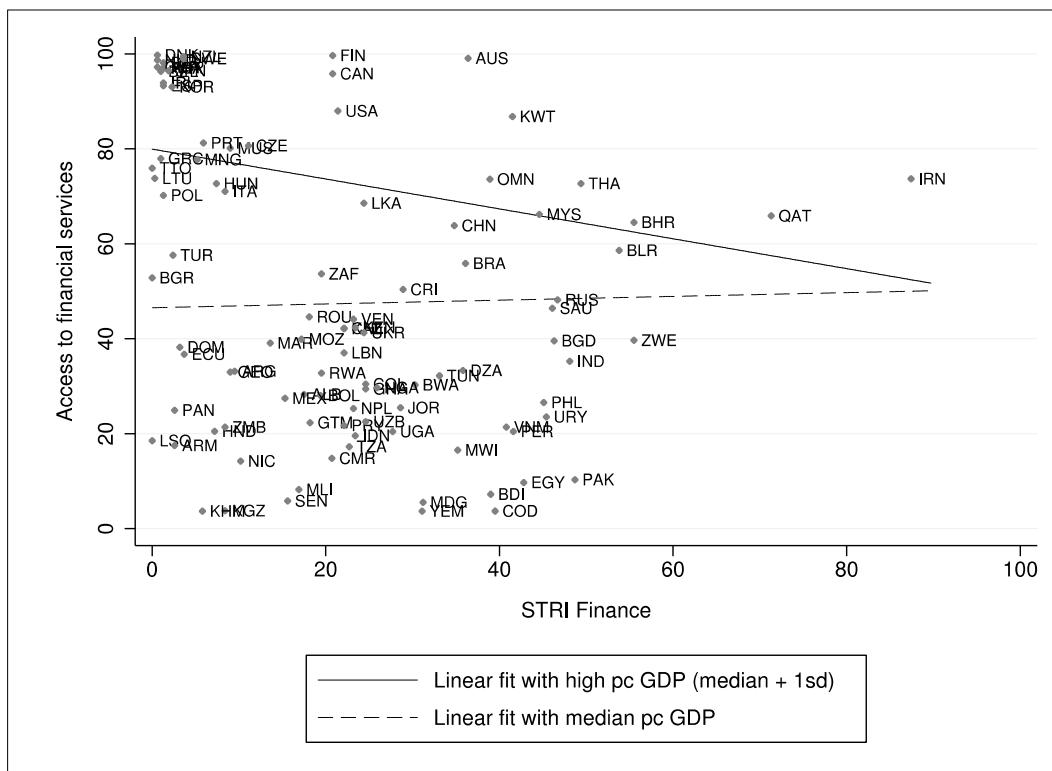
To get a sense of the behavior of the STRI-services access relationship as a function of the moderator variable we calculate the estimated partial derivative of equation (1) with respect to STRI, which is given by  $\hat{\beta} + \hat{\delta} \times \text{Moderator}$ . Consider for example the link between financial services trade restrictiveness and access to financial services.<sup>22</sup> Figures 1 and 2 plot this relationship at two different levels of per capita GDP and institutional quality, respectively.<sup>23</sup>

<sup>21</sup> The moderating role of institutions suggested by our estimates is consistent with the literature on the complementarities between trade (policy) and institutions (Ahsan 2013; see for instance Beverelli, Fiorini, and Hoekman 2017; Freund and Bolaky 2008; Rodriguez and Rodrik 2014).

<sup>22</sup> The same patterns emerge for ICT and transport but are not reported for space considerations.

<sup>23</sup> The regression lines in Figure 1 (Figure 2) are obtained fitting the interaction model for per capita GDP and the institutional variables, respectively. We use the estimation from Column 2 and Column 3 of Table 5, respectively.

**Figure 1: Access to Financial Services and STRI Finance:  
The Role of Initial Conditions**

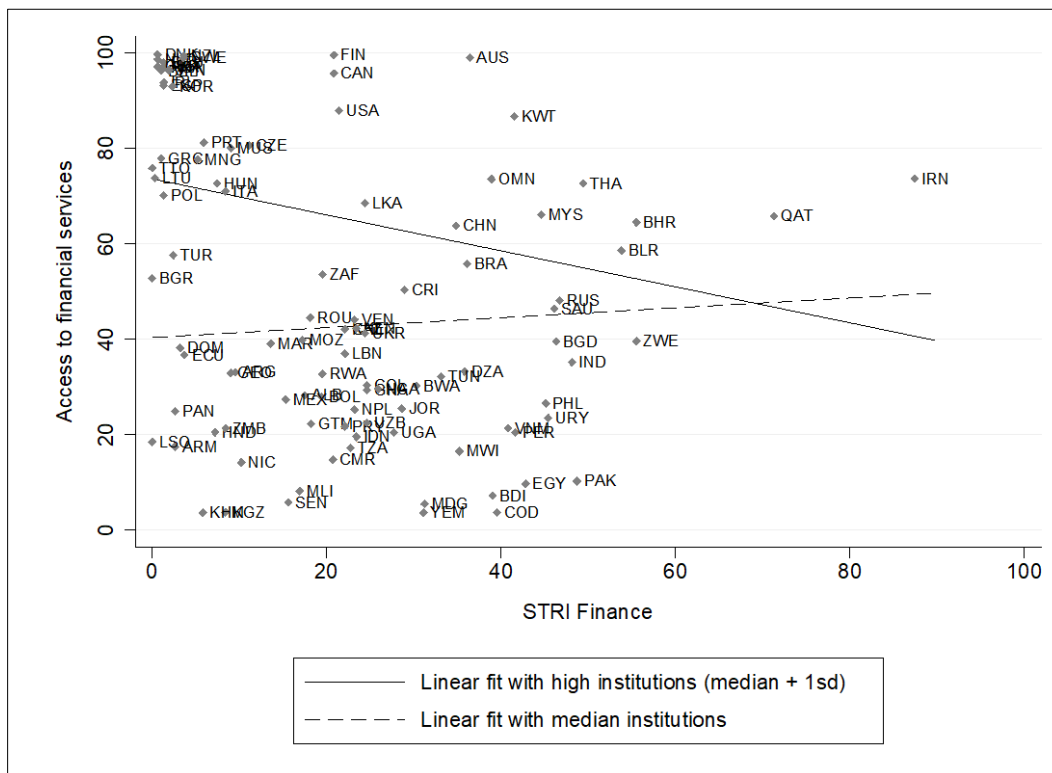


The solid line in both figures represents the fitted linear relationship when the level of economic development (quality of institutions) is at its median value plus one standard deviation. In that case, lower services trade restrictiveness is associated with better access indicators. More precisely, when per capita GDP (quality of institutions) is used as the moderator, a reduction in the sectoral STRI of one half of a standard deviation is associated with an increase in access of 2.8 (3.6) units.<sup>24</sup> In contrast, when the level of per capita GDP or the quality of institutions are at their median levels, such a positive relationship between lower services trade restrictiveness and better access might not exist. Indeed, the estimated slope of the dashed line in both figures is not statistically different from 0.<sup>25</sup>

<sup>24</sup> The estimated slope coefficient and the robust standard error for the solid line are  $-0.315$  and  $0.086$  in Figure 1;  $-0.4$  and  $0.159$  in Figure 2.

<sup>25</sup> The estimated slope coefficient and its robust standard error for the dashed line are  $0.04$  and  $0.105$  in Figure 1; in Figure 2 the respective numbers are  $0.081$  and  $0.130$ .

**Figure 2: Access to Financial Services and STRI Finance: The Role of Institutions**



#### 4. CONCLUSION

The realization of many of the SDGs depends in part on bolstering the performance of services sectors and improving access to specific services in developing countries. Conceptually services trade policy can contribute to the SDGs by helping to increase the productivity performance of services sectors and thus impact economic growth, which is an important necessary condition for realizing many of the SDGs. Services trade policy can also affect the availability and quality of a variety of services that will determine the attainment of specific SDGs. We have shown that prevailing services trade and investment policies are associated with indicators of access to services that matter for the realization of a number of SDGs, and our data suggests that, with the exception of transport-related trade policies, their association with per capita income growth is weak. The available data suggests that reducing levels of services trade and investment restrictiveness is primarily a potential instrument to enhance the access to services sectors that are important to the SDGs. An implication is that policy research should focus on the direct channels between services trade policy and services performance as opposed to the indirect channels between trade openness and growth.

Undoubtedly other policies will be more important in affecting the performance of services, most obviously sector-specific policies and sector-specific regulatory regimes. These, appropriately, are the focus of SDG-related analysis and projects around the developing world. The focus of attention on the trade front is on measures to facilitate trade in goods with developing countries and to enhance productive capacity. This is also appropriate and important: the aim of this paper is not to argue the contrary. Instead the goal is simply to highlight that trade policies for services can make a contribution to the attainment of the SDGs, and that analysis of the potential role of services trade policies should be part of country-level diagnostics and prioritization efforts. Most discussion on the scope of leveraging the potential of trade to support the achievement of the SDGs is restricted to merchandise trade. This is exemplified in the Agenda 2030 document that incorporates the SDGs, which highlights measures to increase merchandise exports from developing countries (through duty-free, quota-free access, liberal rules of origin, and giving countries space to pursue industrial policies (United Nations 2015)). The main policy implication of this paper is that the focus on trade policies should span services trade and investment regimes and not just (or primarily) merchandise trade.

Reducing services trade costs is a neglected dimension of the challenge of realizing the SDGs. Lowering services trade costs will involve more than reducing formal (explicit) barriers to trade (as captured in the STRIs). It is important to recognize that the STRIs that were used for the empirical analysis are just one element of the set of policies that impact the level of competition on services markets and thus prices and availability of services. When it comes to services trade, the quality of economic governance institutions is likely to be particularly important, given that FDI is a major vehicle for foreign suppliers to provide services. Attention must also focus on improving regulatory regimes and on actions to lower the costs for firms in demonstrating compliance with applicable regulatory policies: services trade facilitation.

The identification of trade policy-related priorities from the perspective of specific SDGs clearly requires country-level analysis and detailed investigation of the services performance measures that are most salient to a given country context. In this respect the results reported in this paper are intended to be illustrative – suggesting that such analysis is worth undertaking as part of the broader effort to pursue the SDGs.

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## APPENDIX A

**Goal 1:** End poverty in all its forms everywhere

**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture

**Goal 3:** Ensure healthy lives and promote well-being for all at all ages

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

**Goal 5:** Achieve gender equality and empower all women and girls

**Goal 6:** Ensure availability and sustainable management of water and sanitation for all

**Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all

**Goal 8:** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

**Goal 9:** Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

**Goal 10:** Reduce inequality within and among countries

**Goal 11:** Make cities and human settlements inclusive, safe, resilient and sustainable

**Goal 12:** Ensure sustainable consumption and production patterns

**Goal 13:** Take urgent action to combat climate change and its impacts

**Goal 14:** Conserve and sustainably use the oceans, seas and marine resources for sustainable development

**Goal 15:** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

**Goal 16:** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

**Goal 17:** Strengthen the means of implementation and revitalize the global partnership for sustainable development

## APPENDIX B

**Table B1: STRI Countries and Estimation Sample Coverages**

HIC OECD		HIC Non OECD		Upper MIC		Lower MIC		LIC	
CODE	Samples	CODE	Samples	CODE	Samples	CODE	Samples	CODE	Samples
AUS	G, F, C, T	BHR	G, F, C, T	ALB	G, F, C, T	ARM	G, F, C, T	BDI	G, F, C, T
AUT	G, F, C, T	KWT	G, F, C, T	ARG	F, C, T	BOL	G, F, C, T	BGD	G, F, C, T
BEL	G, F, C, T	LTU	G, F, C, T	BGR	G, F, C, T	CIV	G, C, T	COD	G, F, C, T
CAN	G, F, C, T	OMN	F, C, T	BLR	F, C, T	CMR	G, F, C, T	ETH	F, C, T
CHL	G, F, C, T	QAT	G, F, C, T	BRA	G, F, C, T	EGY	G, F, C, T	KEN	G, F, C, T
CZE	G, F, C, T	RUS	G, F, C, T	BWA	G, F, C, T	GEO	F, C, T	KHM	G, F, C, T
DEU	G, F, C, T	SAU	G, F, C, T	CHN	G, F, C, T	GHA	G, F, C, T	MDG	F, C, T
DNK	G, F, C, T	TTO	G, F, C	COL	G, F, C, T	GTM	G, F, C, T	MLI	G, F, C, T
ESP	G, F, C, T	URY	G, F, C, T	CRI	G, F, C, T	HND	G, F, C, T	MOZ	G, F, C, T
FIN	G, F, C, T			DOM	G, F, C, T	IDN	G, F, C, T	MWI	G, F, C, T
FRA	G, F, C, T			DZA	G, F, C, T	IND	G, F, C, T	NPL	G, F, C, T
GBR	G, F, C, T			ECU	G, F, C, T	KGZ	G, C, T	RWA	G, F, C, T
GRC	G, F, C, T			HUN	G, F, C, T	LKA	G, F, C, T	TZA	G, F, C, T
IRL	G, F, C, T			IRN	F, C, T	LSO	G, F, C, T	UGA	G, F, C, T
ITA	G, F, C, T			JOR	G, F, C, T	MAR	G, F, C, T	ZWE	G, F, C, T
JPN	G, F, C, T			KAZ	G, F, C, T	MNG	G, F, C, T		
KOR	G, F, C, T			LBN	F, C, T	NGA	F, C, T		
NLD	G, F, C, T			MEX	G, F, C, T	NIC	G, F, C, T		
NZL	G, F, C, T			MUS	G, F, C, T	PAK	G, F, C, T		
POL	G, F, C, T			MYS	G, F, C, T	PHL	G, F, C, T		
PRT	G, F, C, T			NAM	G, C, T	PRY	G, F, C, T		
SWE	G, F, C, T			PAN	G, F, C, T	SEN	G, F, C, T		
USA	G, F, C, T			PER	G, F, C, T	UKR	G, F, C, T		
				ROU	G, F, C, T	UZB	F, C, T		
				THA	G, F, C, T	VNM	G, F, C, T		
				TUN	G, F, C, T	YEM	F, C, T		
				TUR	G, F, C, T	ZMB	G, F, C, T		
				VEN	G, F, C, T				
				ZAF	G, F, C, T				

Notes: CODE refers to 3 digits ISO CODE. Samples are: G for growth regression (Table 3); F for SDG Finance regression (Columns 1–3 in Table 5); C for SDG ITC regression (Columns 4–6 in Table 5); T for SDG Transport regression (Columns 7–9 in Table 5).

**Table B2: Summary Statistics: Growth Regressions**

Variable	Source	#	Mean	Median	SD	Min.	Max.
<b>Dependent Variable</b>							
Growth of GDP per capita (PPP), average 2008–2013	WDI, World Bank	92	1,946	1,931	2.3	–4,656	8,452
<b>STRI Variables (All Modes available)</b>							
All sectors	Services Trade Restrictiveness Database, World Bank	92	27,316	23.4	13,562	6.2	65.7
Finance	Services Trade Restrictiveness Database, World Bank	92	20,609	19.5	16,927	0	71.3
Telecom	Services Trade Restrictiveness Database, World Bank	92	25,136	25	24,197	0	100
Transport	Services Trade Restrictiveness Database, World Bank	92	30,398	28.9	17,374	3.1	79.8
Professional	Services Trade Restrictiveness Database, World Bank	92	47,842	45	17,047	11	90
<b>STRI Variables (Mode 3)</b>							
All sectors	Services Trade Restrictiveness Database, World Bank	92	25,652	21.29	15,386	0	69.34
Finance	Services Trade Restrictiveness Database, World Bank	92	19,574	18,965	18,271	0	75
Transport	Services Trade Restrictiveness Database, World Bank	92	31,433	30.56	19,959	0	81.25
Professional	Services Trade Restrictiveness Database, World Bank	92	39,348	37.5	26,984	0	100
<b>Other growth controls</b>							
Log initial GDP per capita (PPP), 2008	WDI, World Bank	92	8,315	8,336	1,622	5,012	10,958
Education, secondary school enrolment, 2005	Barro and Lee Educational Attainment Data	92	43,617	41,890	19,351	3,943	87,966
Investment, gross capital formation (% of GDP), average 2005–2013	WDI, World Bank	92	24,346	23,171	6,088	11,476	46,524
Crisis, =1 if systemic crisis b/w 2007 and 2011	Laeven-Valencia, Systemic Banking Crises Database	92	0.207	0	0.407	0	1
Political stability, average 2008–2013	World Governance Indicators, World Bank	92	–0.116	–0.068	0.870	–2,661	1,396
GVT consumption, general government final cons. (% of GDP), avg 2008–2013	WDI, World Bank	92	15,850	15,089	5,724	2,804	37,389
Share of tropical land, year 2000	Köppen-Geiger climate classification	92	37,297	6,151	43,355	0	100
Sub-Saharan Africa (SSA) dummy	World Bank region classification	92	0.217	0	0.415	0	1
Latin American Countries (LAC) dummy	World Bank region classification	92	0.185	0	0.39	0	1

**Table B3: Summary Statistics: SDGs Regressions**

Variable	Source	#	Mean	Median	SD	Min.	Max.
<b>Financial services</b>							
Account at a formal financial institution (% age 15+), average 2010–2011	Global Financial Database, World Bank	100	48,683	40,584	30,301	3,660	99,737
STRI finance (all modes)	Services Trade Restrictiveness Database, World Bank	100	21,878	20.8	18,049	0	87.4
STRI finance (Mode 3)	Services Trade Restrictiveness Database, World Bank	100	20,993	25	19,791	0	100
Log of GDP per capita (constant 2005 US\$), average 2010–2012	World Development Indicators Database, World Bank	100	8,308	8,389	1,563	4,998	10,999
Regulatory quality, average 2010–2012	World Governance Indicators, World Bank	100	0.155	0.088	0.893	–1,935	1,872
<b>ICT services</b>							
Internet users (per 100 people), average 2010–2012	Millennium Development Indicators, World Bank	103	38,936	36,867	26,748	1,110	91,983
STRI telecommunication (all modes/Mode 3)	Services Trade Restrictiveness Database, World Bank	103	26,942	25	25,411	0	100
Log of GDP per capita (constant 2005 US\$), average 2010–2012	WDI, World Bank	103	8,268	8,335	1,570	4,998	10,999
Regulatory quality, average 2010–2012	World Governance Indicators, World Bank	103	0.133	0.071	0.892	–1,935	1,872
<b>Transport services</b>							
Logistic Performance Index, average 2010 and 2012	WDI, World Bank	102	2,957	2,825	0.527	1,610	4.07
STRI transport (all modes)	Services Trade Restrictiveness Database, World Bank	102	31,034	29.15	17,857	3.1	79.8
STRI transport (Mode 3)	Services Trade Restrictiveness Database, World Bank	102	31,759	29.17	20,945	0	87.5
Log of GDP per capita (constant 2005 US\$), average 2010–2012	World Development Indicators Database, World Bank	102	8,255	8,296	1,573	4,998	10,999
Regulatory quality, average 2010–2012	World Governance Indicators, World Bank	102	0.131	0.021	0.896	–1,935	1,872

## APPENDIX C

**Table C1: Services Trade Policy and Economic Growth in Developing Countries**

	Dependent Variable: Per Capita GDP Growth					
	(1)	(2)	(3)	(4)	(5)	(6)
STRI overall	0.016 (0.016)					
STRI finance		0.006 (0.016)				0.004 (0.019)
STRI telecommunications			0.013 (0.010)			0.016 (0.011)
STRI transport				-0.018 (0.012)		-0.026** (0.012)
STRI professional					0.012 (0.014)	0.015 (0.016)
Log initial pc GDP	-0.658** (0.278)	-0.599** (0.291)	-0.564* (0.285)	-0.512* (0.269)	-0.744** (0.297)	-0.622** (0.282)
Education	0.023* (0.013)	0.023* (0.012)	0.024* (0.012)	0.024** (0.011)	0.026** (0.012)	0.028** (0.011)
Investment	0.122*** (0.037)	0.123*** (0.037)	0.120*** (0.036)	0.130*** (0.034)	0.125*** (0.036)	0.133*** (0.031)
Crisis	-0.251 (0.807)	-0.366 (0.786)	-0.276 (0.803)	-0.457 (0.799)	-0.145 (0.831)	-0.038 (0.908)
Political stability	0.541 (0.353)	0.487 (0.336)	0.414 (0.310)	0.300 (0.342)	0.514 (0.333)	0.355 (0.314)
GVT consumption	-0.052 (0.043)	-0.050 (0.045)	-0.047 (0.042)	-0.045 (0.045)	-0.050 (0.044)	-0.044 (0.048)
Share of tropical land	0.011* (0.006)	0.013* (0.006)	0.011** (0.006)	0.015** (0.006)	0.012** (0.006)	0.012* (0.006)
SSA dummy	-0.288 (0.522)	-0.304 (0.509)	-0.361 (0.538)	-0.419 (0.504)	-0.245 (0.524)	-0.461 (0.587)
LAC dummy	0.218 (0.791)	-0.025 (0.694)	0.055 (0.683)	-0.507 (0.694)	0.301 (0.846)	-0.014 (0.856)
Constant	3.632 (2.748)	3.417 (2.764)	2.920 (2.672)	3.146 (2.599)	3.778 (2.701)	2.774 (2.434)
Observations	61	61	61	61	61	61
Adjusted Rsq	0.377	0.368	0.388	0.395	0.376	0.412

Notes: Robust standard errors in parenthesis. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Table C2: Mode 3 Services Trade Policy and Economic Growth  
in Developing Countries**

	Dependent Variable: Per Capita GDP Growth				
	(1)	(2)	(3)	(4)	(5)
STRI overall	0.013 (0.014)				
STRI finance		0.007 (0.015)			0.004 (0.019)
STRI telecommunications					0.016 (0.011)
STRI transport			-0.015 (0.010)		-0.020* (0.011)
STRI professional				0.005 (0.008)	0.006 (0.009)
Log initial pc GDP	-0.671** (0.277)	-0.603** (0.294)	-0.485* (0.267)	-0.696** (0.287)	-0.523* (0.264)
Education	0.023* (0.012)	0.023* (0.012)	0.025** (0.012)	0.025** (0.012)	0.027** (0.011)
Investment	0.122*** (0.036)	0.125*** (0.037)	0.126*** (0.034)	0.123*** (0.036)	0.126*** (0.033)
Crisis	-0.255 (0.818)	-0.391 (0.780)	-0.566 (0.811)	-0.244 (0.834)	-0.335 (0.919)
Political stability	0.544 (0.352)	0.501 (0.346)	0.314 (0.339)	0.512 (0.326)	0.384 (0.309)
GVT consumption	-0.052 (0.043)	-0.051 (0.046)	-0.043 (0.044)	-0.048 (0.044)	-0.040 (0.046)
Share of tropical land	0.011* (0.006)	0.012* (0.006)	0.015** (0.006)	0.013** (0.006)	0.013** (0.006)
SSA dummy	-0.316 (0.514)	-0.318 (0.501)	-0.475 (0.519)	-0.341 (0.496)	-0.651 (0.568)
LAC dummy	0.197 (0.800)	0.009 (0.727)	-0.477 (0.699)	0.137 (0.788)	-0.141 (0.820)
Constant	3.828 (2.718)	3.453 (2.762)	2.847 (2.608)	3.929 (2.655)	2.536 (2.451)
Observations	61	61	61	61	61
Adjusted Rsq	0.375	0.369	0.393	0.372	0.401

Notes: Robust standard errors in parenthesis. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .