Measuring servicification: What tax and e-invoice data can tell us

Discussant remarks on UNCTAD's report *Measuring servicification and impacts of services trade and policy*

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The views expressed are strictly those of the author and should not be attributed to the IDB, its executive directors, or its member countries.

The report

It makes valuable contributions

1. **A practical question.** How can a developing country learn what services trade does for its economy using the data it already has?

2. **Data exist and are underused.** National administrative datasets can support policy-relevant analysis.

3. **Evidence from developing countries.** Cases such as Ecuador, Uruguay, Rwanda and Uganda link measurement to effects.

Services exports and servicification

The increasing importance of trade in services

19 to 27.5%

Share of services trade in total global trade, 2000 to 2025

4x

Growth of digitally delivered services exports since 2005 (nearly fivefold for Latin America and the Caribbean)

about 1/3

Services share of value added in global goods trade, and in the report's words at the low end of the true contribution

Sources: WTO, International Trade Statistics 2001 and World Trade Statistics 2025; UNCTAD (2026), p. 21; IDB, World Bank and WTO (2026), Digital Trade in Latin America and the Caribbean.

Servicification reaches far beyond services exports



Farms and factories buy and use more and more services: transport, finance, software, engineering.



Much of this never appears in services export statistics: the service is sold to a domestic firm that then exports a good.



Services policy is a productivity and export policy

A restriction or inefficiency works like a tax on every firm that relies on the service, and unlike a tariff nobody sees it on a customs form. The costs fall on the export sector as a whole.

No customs for services: the tax office steps in

Goods trade

Customs records every shipment, every firm, every year. Firm-level studies exist almost everywhere.

Services trade

No customs, no tariff line, no officer at the border. Firm-level studies exist for a handful of countries, mostly advanced economies.

Every formal firm files tax returns, and a growing number of countries run economy-wide electronic invoice systems. Four features make these records powerful:



Whole population

All formal firms, not a sample



Basic statistics

How many firms export and import services, and in which sectors



Same firms over time

What happens after a firm starts exporting or selling to an exporter



Linkable

Through the tax ID to customs, ***social security*** and ownership registers

Every invoice is a line in a ledger of the whole economy

Put all the lines together and you get a map of how the economy produces, drawn by the firms themselves. Four things become possible:



1. Servicification, firm by firm

Input-output tables assume every firm in a sector buys the same mix of services. Invoices show what each firm buys, and from whom.



2. Indirect exports and multipliers

Many services firms never export directly. They sell to firms that do, and their reach can be traced through the network.



3. Who supplies services matters

Gains depend on how much firms spend on services, and on who supplies them and how good they are.

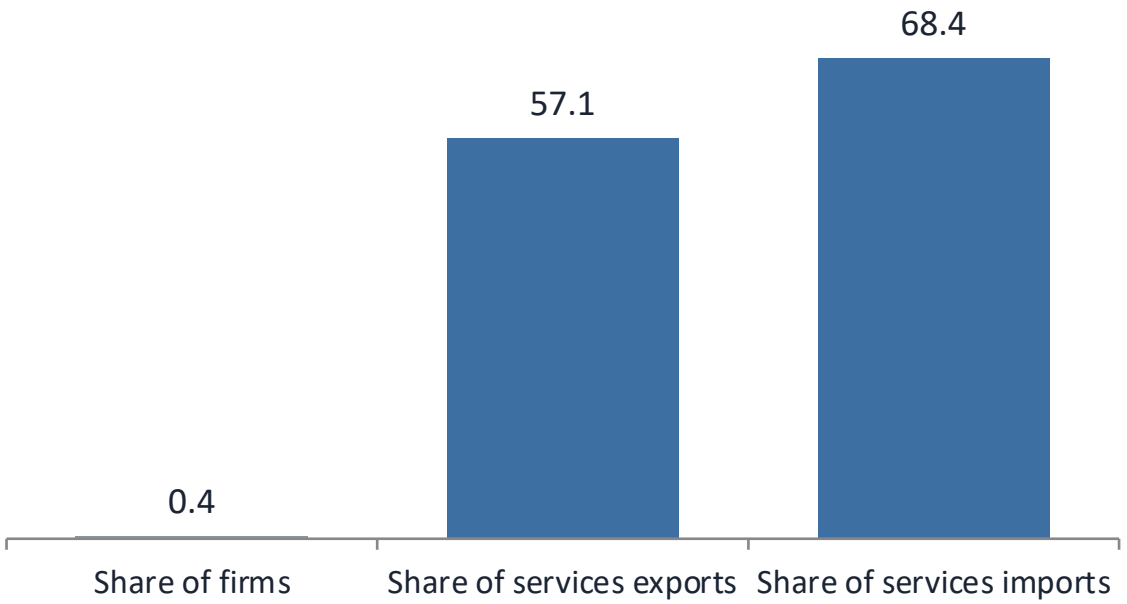


4. Firms and workers

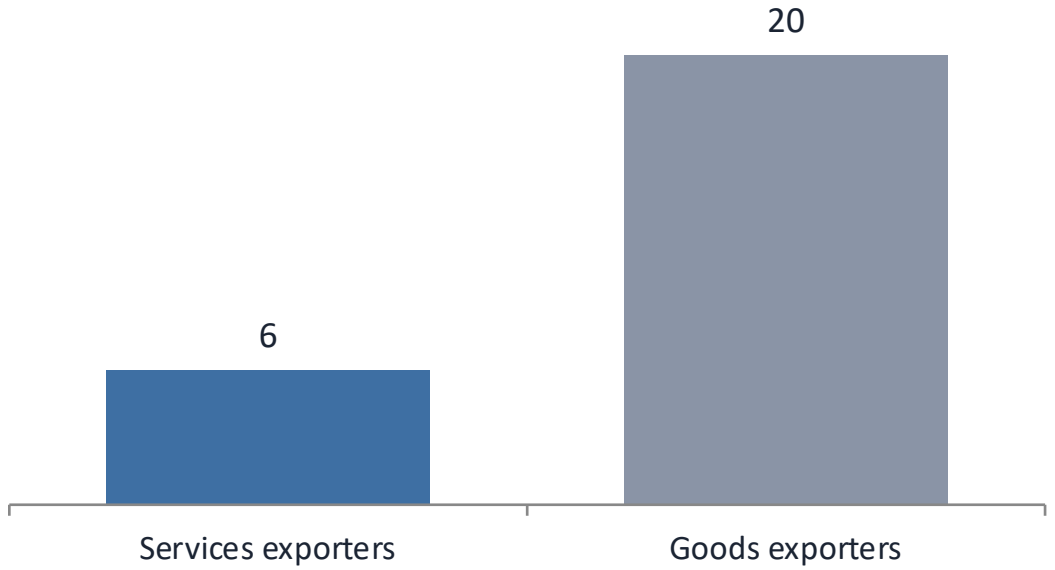
Linked ***social security records*** show how workers move between firms and who benefits (more below).

Firm records reveal what aggregates hide

Foreign affiliates in Ecuador, 2018 (per cent)



Median number of employees, Uruguay, 2016



The balance of payments gives the total. Only firm records show who carries it:

Services exporting involves many small firms, a story that stays untold when using balance of payments statistics alone.

Sources: Marra de Artiñano and Volpe Martincus (2023a,b).

What happens to firms and workers

Ecuador: firms that start exporting services are afterwards about

7%

larger in domestic sales

5%

larger in employment

1.4%

more productive

Sources: Marra de Artiñano and Volpe Martincus (2023a).

Linkages carry the effects of services trade

48%

of Uruguayan firms that do not export themselves sell to at least one exporter

46 cents

of domestic sales per beef export dollar, 10 cents in services; a third via indirect links

+0.5 pp

chance of starting to export services for Ecuadorian firms that start selling to a services exporter

Uruguay beef boom: As a result of the export boom to China, aggregate input sales rose 1.8 per cent, the largest effects arising in services.

Rwanda: Forward linkages, buying from foreign-owned firms, are substantially greater than backward linkages, especially through purchases of services inputs.

Costa Rica (not services specific): Firms that became suppliers of multinationals employed 26 per cent more workers and were 4 to 9 per cent more productive four years later.

Sources: Marra de Artiñano and Volpe Martincus (2023a,b); Amodio, Chiovelli and Frache (2025); Alfaro-Ureña, Manelici and Vásquez (2022); Prosi, Hoekman, Sanfilippo and Ticku (2026).
pp = percentage points.

Social security records add the labor market channel

Linked to VAT and customs data through the tax ID, they show who gains and how effects travel through workers

Labor turnover as a channel

When a firm wins a client or starts exporting, whom does it hire, from which firms, and who leaves? Moving workers carry gains and shocks beyond the firm directly affected.

Who benefits

Linked records show how different type of workers and regions are affected.

Four limits to state openly

Coverage

Tax and social security data are limited to formal firms. Informal firms and individuals do not appear.

In-house services

Invoices show what a firm buys, not what it does itself. Internal services can be up to half of manufacturing costs.

Content

Today's forms say little about which service, to whom and from where. That is a form design problem, not a technology problem.

Measurement

Backing out services exports from tax and customs records is imperfect, so estimates of how many firms trade services are not comparable across countries.

Priorities for international cooperation

The report asks us to audit, link and open data. I would add four things.

1. **Make relevant administrative records statistics-ready**
   Type of service, counterpart country on cross-border sales and purchases, and a common firm identifier. Even small changes to forms dramatically improve detection and measurement of services trade.

2. **Apply it consistently, within and across countries**
   The same fields, definitions and unique identifiers within and across countries. This is what turns scattered records into consistent, comparable and comprehensive data on services exports.

3. **Link to other administrative records and program registers to evaluate policies and how they interact**
   Link tax, social security, and customs records and innovation, export, investment, and training program registers. These programs typically reach the same firms yet are almost always evaluated one by one.

4. **Run a small cross-country pilot**
   Three to five countries that already have the pieces run the same code inside each country's secure environment, so that no microdata move. Common code, standards and technical support from international organizations and development banks.

With this data, policy interactions can be evaluated

Uruguay

+3 pp

Firms assisted by the national trade and investment promotion agency are about 3 percentage points more likely to become services exporters.

Chile

+0.5 pp

Tax and customs records linked to five public agencies' registers. Around half of services exporters received assistance from one agency, more than one in five from two or more.

Peru (goods)

+10.5 pp

Export promotion one year after innovation support raises the chance of exporting beyond the two programs' separate effects. Innovation support alone leaves it essentially unchanged.



The Peru study is about goods, but the logic may apply to services: a services firm may need to upgrade skills, certification or digital tools before introductions to buyers pay off. That is a hypothesis, not yet a result. **Indirect effects, through suppliers, clients and workers, require firm-to-firm tax or e-invoice records and social security records.**

Sources: Marra de Artiñano and Volpe Martincus (2023b); Álvarez, Carballo, and Volpe Martincus (2021); and Crespi, Di Iorio, and Volpe Martincus (2026).

Data are public infrastructure, and the constraint is increasingly institutional

The report calls data and statistical capacity gaps arguably the binding constraint. Many records already exist. What is missing is a mandate: who turns administrative records into public knowledge, under which legal safeguards?

Redesign administrative forms with a statistician in the room, and the next report on servicification will not have to say that evidence is sparse.

Thank you

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