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Services exporters and importers in Hungary

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ABSTRACT
This paper uses rich firm-level data from Hungary to present some stylized facts on services trade. We show that (i) services exporters are even more rare than goods exporters; (ii) services exports are highly concentrated; (iii) services exporters are more likely than goods exporters to be located in cities; (iv) services exports tend to be preceded by services imports; (v) manufacturing firms also export services with services exports following goods exports in terms of timing and destinations; and (vi) services exporters have comparable premia to goods exporters.

JEL codes: F14, L80
Keywords: trade in services, services exporters, servicification, Hungary

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Szolgáltatás exportőrök és importőrök Magyarországon

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ÖSSZEFOGLALÓ
Tanulmányunkban részletes magyar vállalati szintű adatok alapján vizsgáljuk a szolgáltatás külkereskedelem néhány jellemzőjét. Megmutatjuk, hogy (i) a szolgáltatás export ritkábban fordul elő, mint a termék export; (ii) a szolgáltatás export jelentősen koncentrált; (iii) a szolgáltatás exportőrök nagyobb arányban találhatók városokban, mint a termék exportőrök; (iv) a szolgáltatás exportot időben tipikusan megelőzi a szolgáltatás import; (v) felfoldozóipari vállalatok szintén exportálnak szolgáltatást, mely időben és célország tekintetében is gyakran követi a vállalat termék exportját; és (vi) a szolgáltatás exportőrök prémiuma hasonló a termék exportőrökéhez.

JEL: F14, L80
Kulcsszavak: szolgáltatás külkereskedelem, szolgáltatás exportőrök, szolgáltatások felé való eltolódás, Magyarország

Services exporters and importers in Hungary[1]

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Abstract

This paper uses rich firm-level data from Hungary to present some stylized facts on services trade. We show that (i) services exporters are even more rare than goods exporters; (ii) services exports are highly concentrated; (iii) services exporters are more likely than goods exporters to be located in cities; (iv) services exports tend to be preceded by services imports; (v) manufacturing firms also export services with services exports following goods exports in terms of timing and destinations; and (vi) services exporters have comparable premia to goods exporters.

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1. Introduction

Structural transformation process and, in particular, the shift from manufacturing to services is not very well understood. Similarly, while goods exporters have been studied extensively, we know relatively little about services exporters. This paper uses detailed firm-level data on goods and ser-

[1]The present study serves as a background paper for the Transition Report 2024-25 of the EBRD. It has been produced using the corporate financial statement, customs, trade in services and firm registry data files of the Hungarian Central Statistical Office. The calculations and the conclusions within the document are the intellectual product of the authors.

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vices trade as well as balance sheet and profit and loss statements data from Hungary to shed some light on these issues. It presents some novel stylized facts on services trade and confirms some patterns that have already been documented in other contexts. Hungary offers a good setting for studying development of services. As a post-communist country it had a legacy of underdeveloped services sector and has gone through a rapid transformation period.

We present nine stylized facts. First, we document that while most of services exports come from the services industry, manufacturing firms also have a non-negligible share in services exports. Second, we show that services exporters are more rare than goods exporters. The same is true of importers. Moreover, importing services is more common than exporting them, which is consistent with the pattern found for goods. Third, services exports in manufacturing are mostly coupled with goods exports.

Fourth, services exports are as concentrated as goods exports: the top 10 firms account for about 30% of all the exported value. Both goods and services exports are dominated by multinational firms, and in Hungary their share has been steadily increasing over time for services exports.

Fifth, among two-way services traders, manufacturing firms tend to import services first, while most of the firms operating in tradable services start exporting and importing services at the same time.

Sixth, the overwhelming majority of manufacturing firms exporting both goods and services start to export goods first and add services later on. In these firms, a large share of the exported value of services is destined for countries where the firm already exported goods before.

Seventh, services exports tend to go to closer and richer countries than goods exports. This pattern is even stronger in the manufacturing industry. This pattern is also true overall and within firms.

Eights, services exports are more concentrated in large cities and in the most populated local administrative units than goods exports.

Finally, exporter premia estimated following Bernard and Jensen (1999) for services exporters are typically larger than the ones for goods exporters. Services exporters are larger, more productive, pay higher wages on average and more likely to be foreign. Large, more productive and higher-paying firms select into exporting services, as these differences are also present three

years before the firm started to export services.

This paper is related to the literature on firm-level patterns of trade. The literature on goods exporters, which began with Bernard and Jensen (1999), is too extensive to be summarized here. Needless to say, patterns documented by Bernard and Jensen (1999) have been confirmed in data from many other countries. In contrast, studies of services exporters are rare, primarily due to scarcity of data. Notable exceptions include (Eppinger, 2019) who documented the increasing trade in services and its potential impacts on employment and Breinlich and Criscuolo (2011) who show stylized facts about services exporters in the UK. Breinlich and Criscuolo (2011) find similarities between goods and services traders. They show that only a fraction of firms trades services, but these firms have superior firm characteristics. We find similar patterns using data from a small open economy with a lower income. Our contribution lies in showing interactions between goods and services trade and demonstrating that services exports gains importance for manufacturing firms over time.

Interactions between exports and goods of services have been explored by Ariu et al. (2020). They show that exporting services is beneficial for goods exports, as both the quantity and the price of the latter increases when accompanying services are also provided. We show that an increasing fraction of goods export is accompanied with services export by the same firm to the same destination, yet (in unreported results) we fail to confirm their conclusion with respect to unit values.

2. Data and descriptives

2.1. Data

For our analysis, we use the services trade database from Hungary covering the period 2008-2019. It contains a sample of firms selected based on having a considerable amount of services imports or exports, determined based on the VAT statements and the corporate tax returns. The data contains all services exports and imports of the selected firms, by source/destination country, year and service category.[2] The data have a high coverage of total

[2]The data follows the Extended Balance of Payments / EBOPS 2010 classification with 62 service categories presented in Appendix Table A1.

services trade of Hungary, capturing about 70% of both services exports and imports, with no considerable change in terms of coverage over time (see Appendix Figure A1).

With the help of firm identifiers, we match services trade data to balance sheet and profit and loss statements data of all double-entry bookkeeping firms in Hungary, excluding financial and insurance service industries (NACE Rev 2 64-65). We keep the subsample of firms with at least 5 employees at any point in time within the period 2000-2021. Even with this restriction, the sample still covers 80-90% of the total value of exported and imported services in the services trade data.

We also match data on firms' headquarters from firm registry data. Finally, we merge data on trade in goods, available for the period of 2000-2021 by firm, HS6-level product category and source/destination country.

Throughout the analysis, we restrict our attention to trade in business services, including Business services and Maintenance and repair services n.i.e.. Our definition of business services includes telecommunications, construction, insurance, financial, computer and information, and other business services, and charges for the use of intellectual property n.i.e.; and it excludes personal, cultural and recreational services. In this way, we keep 54-60% of services exports and 70-75% of services imports within the restricted sample of firms (Appendix Figure A1).

In 2008, the destination countries with the highest services exports value were Germany, Great Britain, Japan, United States of America (USA), Spain, Italy, the Netherlands, Austria, Belgium and France. By 2019, the list of top 10 services export destinations included Switzerland, Ireland and Denmark instead of Japan, Spain and Italy. In both 2008 and 2019, the destinations with the largest number of firms exporting services include Germany, Great Britain, the Netherlands, Austria, France, Romania, Slovak Republic, Czechia and Poland. These largely overlap with the list of foreign investor countries which have the largest subsidiaries in Hungary: Germany, USA, Austria, France, Great Britain, Japan, the Netherlands, Switzerland, South Korea and Italy.[3]

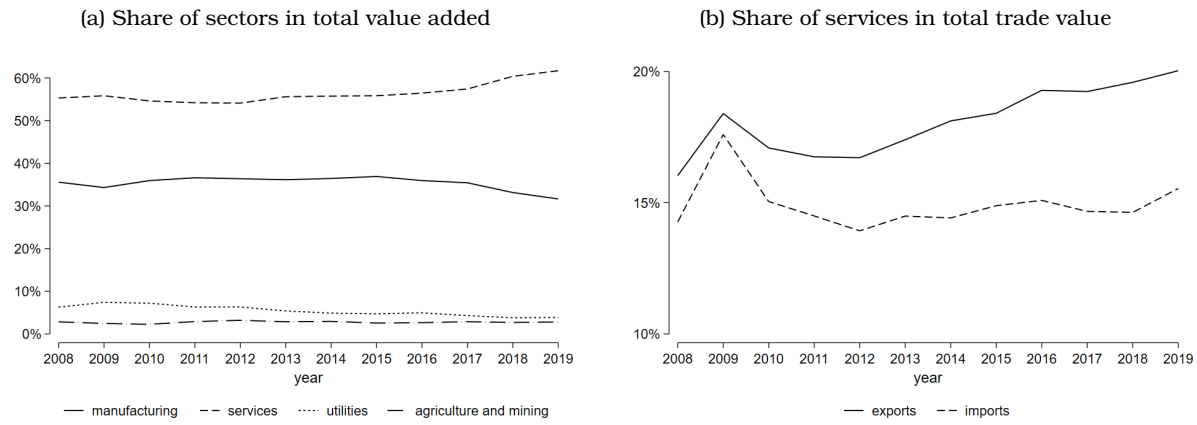
[3]Appendix Figure A2 presents the value share of different regions in services exports and imports over time.

In several cases, we look at the sub-sample of firms in manufacturing and tradable service industries. Manufacturing sectors include NACE Rev 2. categories 10-33., and tradable services industries include NACE Rev 2. categories 58-66, 69-82.[4] Firms with at least at least 50% foreign ownership share are classified as foreign owned.[5] The headquarters of firms are assigned to local administrative units, using the classification valid after 2013, with 174 units called *járás*.

3. Main patterns

Fact 1: The importance of services in exports has increased over time

Figure 1: The share of services in value added and in trade



Notes: Own calculations based on data from the Hungarian Central Statistical Office. (a) Structural business statistics data at legal unit level of enterprises classified in national economic sections A to J, L to N, P to S from the Hungarian Central Statistical Office. (b) Goods exports and imports at frontier parity in HUF, services exports and imports in HUF.

As aggregated data show, the share of services in total value added has increased over time in Hungary from 55% in 2008 to 62% in 2019 (Figure 1a). Similarly, the share of services in the total value of exported goods and ser-

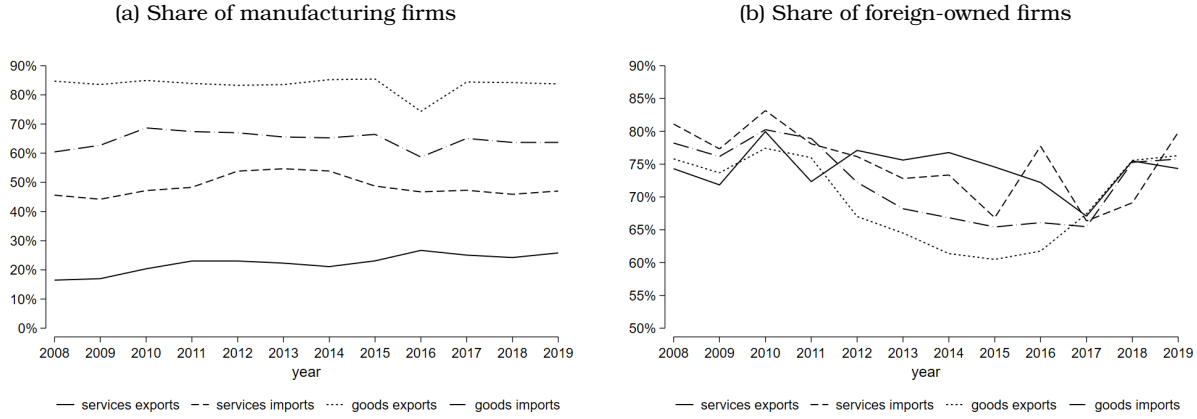
[4]Information and communication; Financial and Insurance activities – data only on auxiliary activities ; Professional, scientific and technical activities; Administrative and support service activities

[5]Appendix Figure A3 shows the number of firms over time in our sample irrespective of their trade status, the number of firms in manufacturing and services trade industries and the number of foreign-owned firms.

vices has increased over time (from 16% in 2008 to 20% in 2019), while the share of services in total imports was rather stable (Figure 1b).

Fact 2: Manufacturing firms also export services

Figure 2: The share of manufacturing and foreign-owned firms in goods and services trade



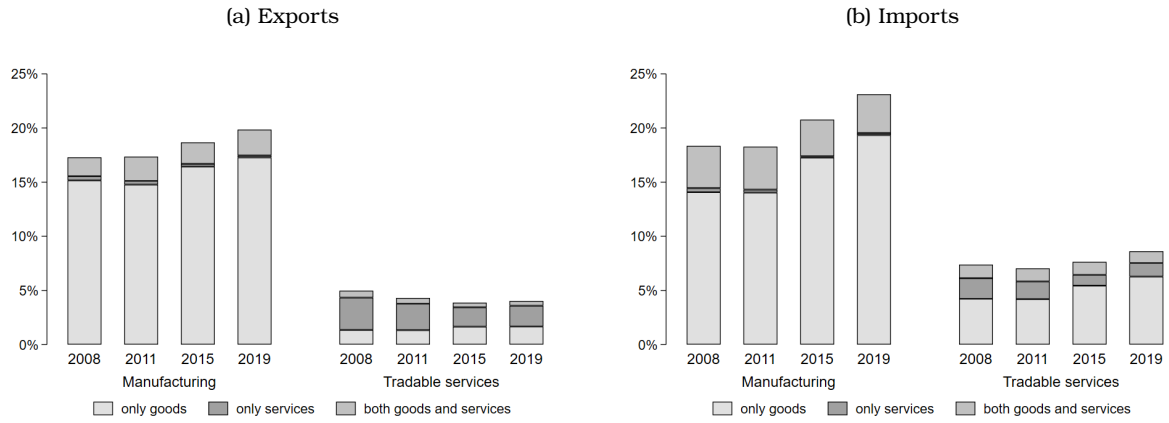
Notes: Share of manufacturing-industry and majority foreign-owned firms in the total annual value of goods or services imports or exports. Sample: double entry bookkeeping firms with at least 5 employees in our sample period.

Zooming into the micro data in Figure 2a, shows that firms in manufacturing industries account for a non-negligible share of services exports (20-25%) and imports (45-50%). Morever, the share of the manufacturing industry in services exports has been increasing over time.[6] Figure 2b shows that the share of foreign-owned firms in the total value of goods or services exports and imports is similarly high. While foreign share decreased over time, it increased again at the end of the period we can observe.

[6]In the observed period, we see that about 10% of the manufacturing firms switched their primary activities to services, and the sales-weighted share of these firms is 2.8%.

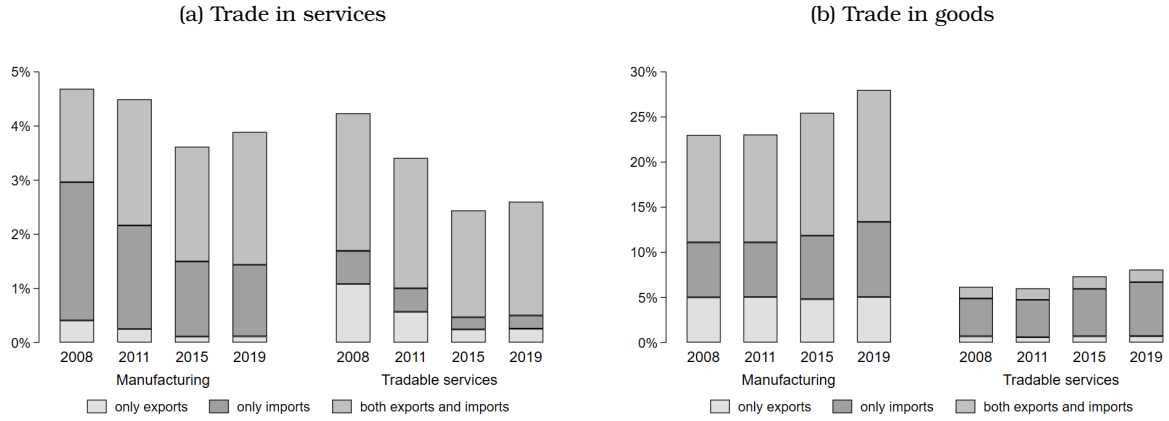
Fact 3: Services exports is even more rare than goods exports

Figure 3: Overlap of goods and services trade



Notes: Yearly share of firms with specific trade patterns: exporting goods, services or both in panel (a) and importing goods, services or both in panel (b), separately for firms in manufacturing and tradable services industries. Sample: double entry bookkeeping firms with at least 5 employees in our sample period.

Figure 4: Overlap of goods and services trade



Notes: Yearly share of firms with specific trade patterns: exporters, importers or two-way traders of goods in panel (a) exporters, importers or two-way traders of services in panel (b), separately for firms in manufacturing and tradable services industries. Sample: double entry bookkeeping firms with at least 5 employees in our sample period.

We already know from the literature that exporters are few and far between. If we compare goods exporters with services exporters in Figure 3a, we see that services exporters are even more rare than goods exporters. As Figure 2a already suggested, there is a non-negligible share of services exporters among manufacturing firms. Figure 3a shows, that these are mostly exporters of both goods and services, while exporters of tradable services

mostly export only services. Patterns are similar for imports, with a higher relative share of only goods importers among firms in tradable services as the main difference.

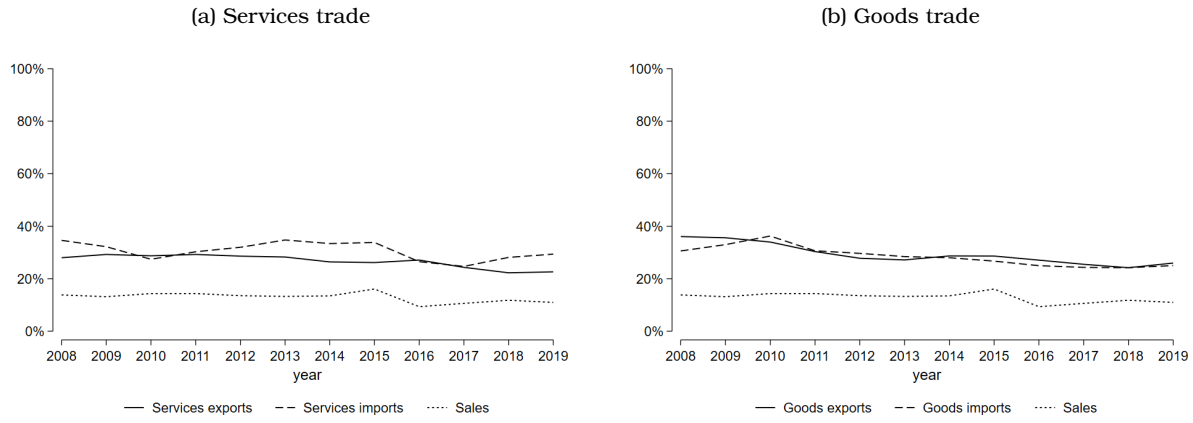
Focusing on trade in services, Figure 4a shows that in manufacturing industries, services exporters tend to also import services. In 2008, the share of services importers only is higher than that of two-way traders of services, but it reversed by 2015. In tradable services industries, the share of two-way traders within services traders is even larger than in the manufacturing sector. There are more tradable service firms only exporting than only importing services. Contrasting these patterns with goods trade (Figure 4b) shows that two-way trading of goods is more prevalent in manufacturing. Firms in tradable services rarely trade goods, and if they do, they tend to only import them.[7]

Appendix Figures A4-A7 show the same shares in the sub-samples of foreign-owned and domestic firms. As a general pattern, a higher share of foreign-owned firms trade than domestic ones. Accordingly, the overall patterns are mostly driven by the foreign owned.

[7]Appendix Figure A8 presents the share of firms with specific trade patterns, considering all potential trade types at the same time, i.e. services and goods exports and imports, separately for domestic and foreign-owned firms.

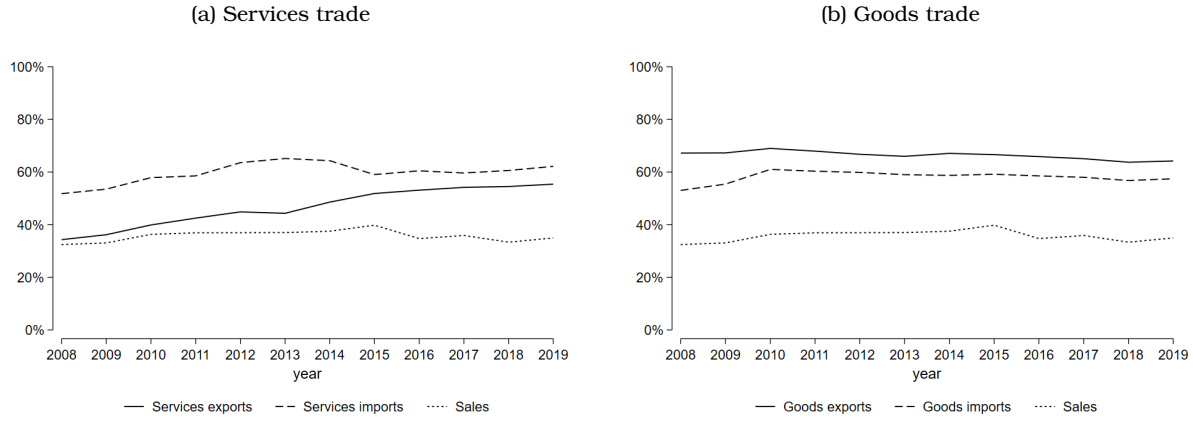
Fact 4: Large players are important in both goods and services trade

Figure 5: Share of top 10 firms in trade and sales



Notes: Top 10 firms defined yearly by variable: ten firms with the largest sales, services or goods exports or imports that year.

Figure 6: Share of multinationals in trade and sales



Notes: Multinationals defined in a time-invariant way: ever majority foreign-owned with at least 250 employees.

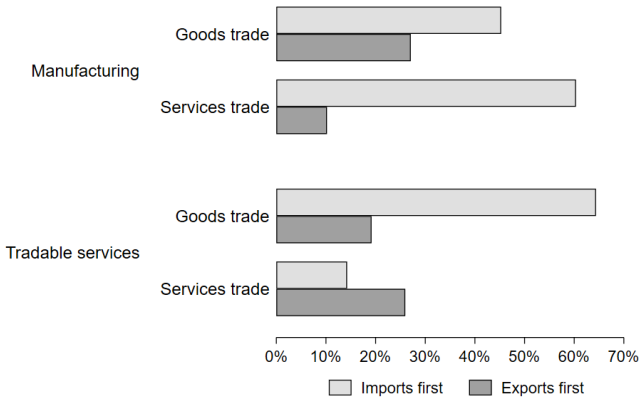
Exports and imports are more concentrated than sales. While the ten largest firms account for about 15% of total sales, the ten largest goods exporters are responsible for more than 25-35% of the total value of goods exports, with similar numbers for goods imports, and a slight decline over time for both (Figure 5b). We find similar patterns for services trade (Figure 5a): the ten largest services exporters account for 25-30% of the total value of services exports and the share of the top ten services importers is 25-35%

in total services imports. Among the manufacturing firms, services trade is more concentrated than goods trade (Appendix Figure A9), and the opposite is true for the exports of firms in tradable services (Appendix Figure A10).[8]

About half of the top 10 exporter or importer firms are multinationals.[9] Overall, multinationals account for 65-70% of goods exports and for about 60% of goods imports, while only for 30-40% of total sales (Figure 6b). Their share in sales and trade in goods is mostly stable over time, but it is increasing in services trade. Multinationals are responsible for about 50% of services imports and 35% of services exports in 2008, which increases to more than 60% and 55% by 2019 (Figure 6a). The increasing share of multinationals in services exports is present both for the manufacturing and tradable services sectors (Figures A14-A15). The share of multinationals in services exports is even larger - around 80% - for manufacturing firms, while it is only 30-50% for tradable services.

Fact 5: For two-way services traders exports tends to follow imports

Figure 7: Timing of exports and imports



Notes: The share of firms starting to import or export goods/services first in all two-way traders of goods/services, by industry group.

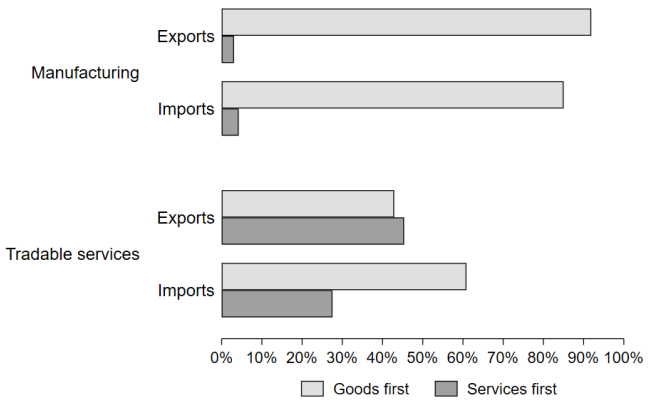
[8]The corresponding figures presenting the share of the top decile of firms on sales and traded values are in the Appendix: Figure A11-A13.

[9]The overwhelming majority of multinationals in our sample was already present and foreign owned in 2008. The share of new entrants in sales or exports is still below 20% in 2019, and the share of domestic firms acquired after 2008 is less than 8%.

Figure 7 shows the share of those firms among the two-way traders which started to export first then followed with imports and vice versa. The majority of firms import goods first, but the share of those which import first is even higher among two-way services traders in manufacturing industries. As opposed to that, most of the two-way services traders in tradable services industries start to export and import services in the same year.

Fact 6: In manufacturing, services exports tend to follow goods exports

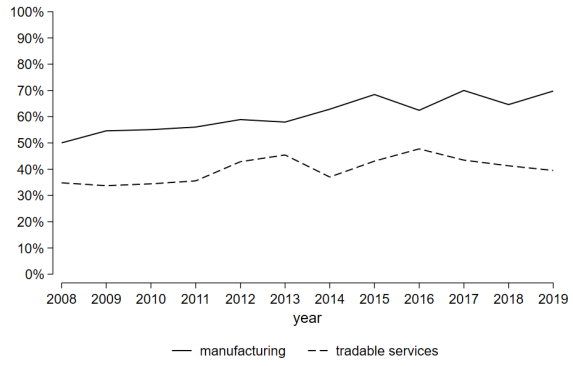
Figure 8: Timing of goods and services trade



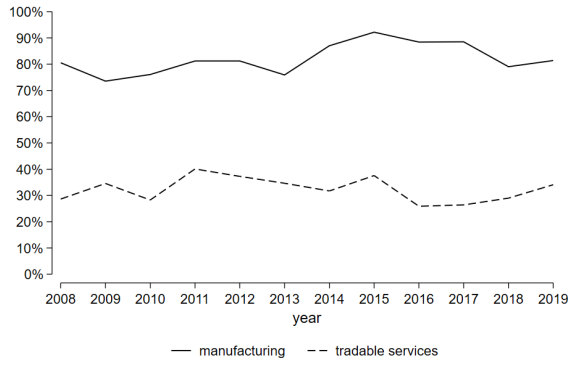
Notes: The share of firms starting with goods or services trade in all the firms exporting/importing both goods and services, by industry group.

Figure 9: Goods and services exports going to the same destination country

(a) Goods exports accompanied with services exports (%)



(b) Services exports accompanied with goods exports (%)



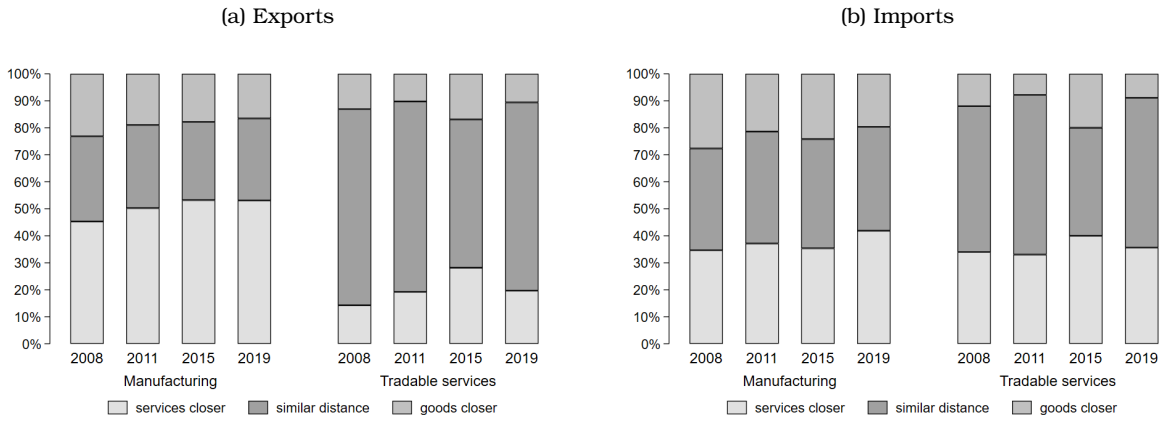
Notes: Sample: double entry bookkeeping firms in manufacturing with at least 5 employees.

Considering those firms which export both goods and services, the overwhelming majority of the ones in manufacturing adds services exports later to existing goods exports (Figure 8). This timing might be the result of adding accompanying services to the goods they sell abroad. The pattern is the same for imports, but not there for the exports of firms in tradable services industries.

As a further support of the hypothesis, that manufacturing firms add services exports to goods exports, because they start to provide accompanying services, we show that a considerable value share of the exported services goes to a country which has been one of the firm's destination countries for goods exports in the preceding years, especially for manufacturing firms (Figure 9b). Additionally, the value share of goods exports accompanied by services exports to the same destination country by the same firm has largely increased over time (Figure 9a). Within the manufacturing sector, it increased from 50 per cent in 2008 to 69.8 per cent in 2019. The most popular category of services exported to the same country where the firm also exports goods is "Other business services n.i.e." Some examples for combining goods and services exports to the same destination are "Other articles of plastics, nes" with "Other business services n.i.e.". or "Engineering services", and "Articles, iron or steel, nes" with "Engineering services" or "Maintenance and repair services n.i.e.".

Fact 7: Services tend to be exported closer and to richer countries than goods

Figure 10: Share of firms exporting/importing goods or services to a closer destination

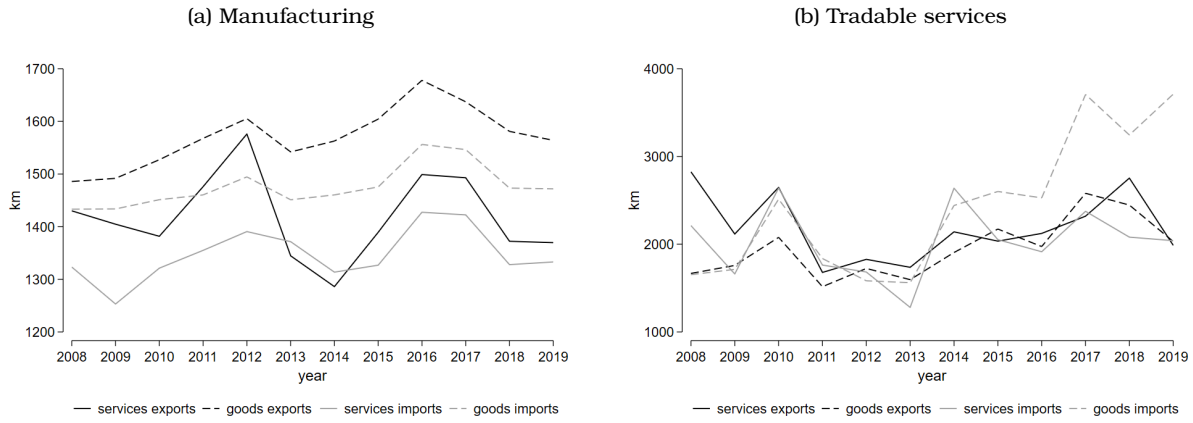


Notes: Share of firms exporting/importing goods/services to a closer destination. Distance is a firm-level weighted average with exported/imported values as weights. The distance is considered to be similar if the firm-level ratio of the weighted average distance of goods exports/imports and that of services exports/imports is between 0.95 and 1.05. Sample: double-entry bookkeeping firms with at least 5 employees in the period in manufacturing or tradable services industries exporting (panel (a)) or importing both goods and services (panel (b)).

Comparing the destination countries of goods and services exports for those firms which export both, we see that about 40% of such manufacturing firms export services to closer destinations than goods (Figure 10a). The distance of the two is similar for most of the few tradable services firms which export both goods and services. Patterns are similar for imports, but closer to each other in the two sectors (Figure 10b). We find similar results if we compare goods and services trade by per capita GDP of the destination/source countries (Appendix Figure A16). Manufacturing firms tend to export services to richer countries.

Looking at all the exporters or importers of services or goods, we see similar patterns: on average, services are exported to and imported from closer countries in the manufacturing sector (Figure 11). Differences are less prevalent in tradable services industries. In line with previous patterns, for manufacturing firms, services tend to be exported to and imported from countries with higher GDP per capita on average (Appendix Figure A17.

Figure 11: Value-weighted average distance of services and goods exports and imports by sector



Notes: Average distance of goods/services exports/imports, weighted by the total yearly value exported to/imported from the country in the sector. Sample: double-entry bookkeeping firms with at least 5 employees in the period in manufacturing or tradable services industries exporting (panel (a)) or importing both goods and services (panel (b)).

Fact 8: Services exports is more concentrated in cities than goods exports

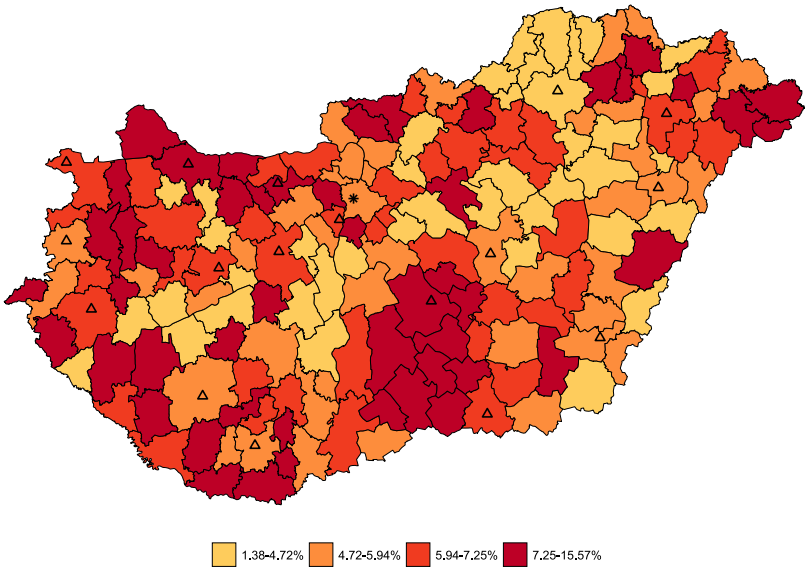
We know that trading firms tend to be concentrated in cities. Comparing exporters of goods and exporters of services, we see that this within-country geographical concentration is even larger for services exports than for goods exports (Figure 12). Triangles denote the largest cities with at least 55,000 inhabitants in Hungary. The capital city, Budapest (denoted with a star), and some of the large cities like Miskolc or Szolnok are - jointly with their agglomerations - more dominant in terms of services than goods exports.

Figure 13 shows the estimated premia in terms of the (log) population of the local administrative unit for services and goods exporters from regressions following Bernard and Jensen (1999)presented in Tables A2-A5. In line with the patterns on the previous maps, services exporters tend to be located in more populated locations than goods exporters.

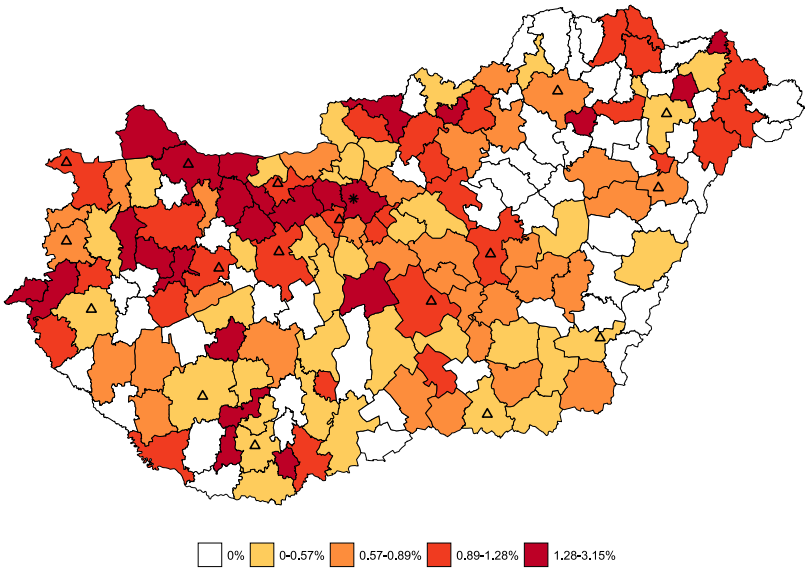
As another piece of evidence, Figure 14 shows the share of sales, services and goods exports in the largest local administrative units, i.e. above 100,000 inhabitants. While in manufacturing, 50-60% of sales comes from the most populated local administrative units, the same share is 40-50% for goods exports, but more than 60% for services exports. Services exports is even more concentrated in the most populated locations in tradable services industries. Appendix Figure A18 shows similar patterns for imports.

Figure 12: Exporters of services are concentrated in larger cities

Panel A: Goods exporters as a percentage of all firms, 2019

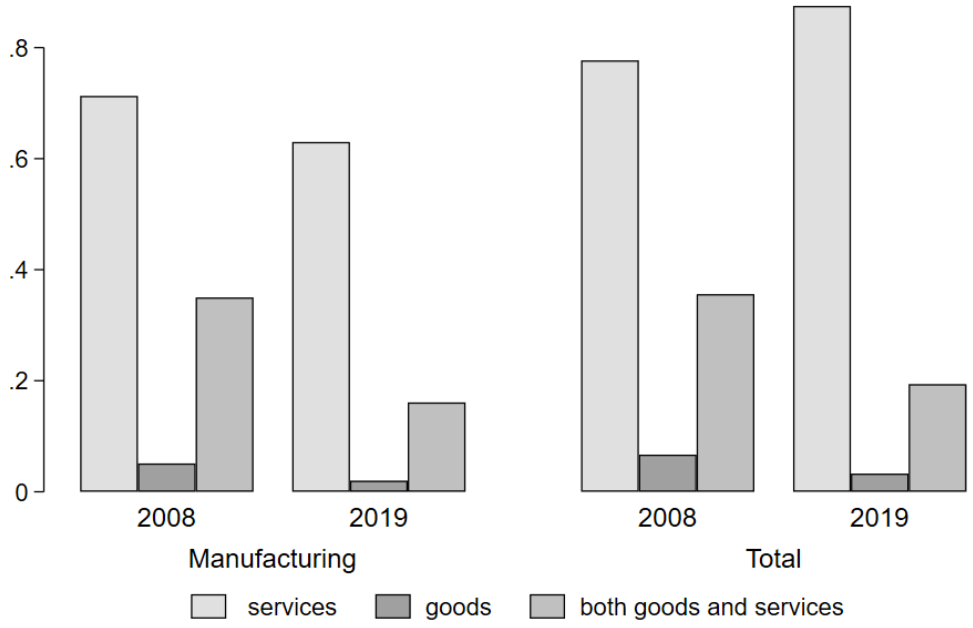


Panel B: Services exporters as a percentage of all firms, 2019



Notes: The share of goods (panel A) and services exporters (panel B) in all the firms operating in the local administrative unit (járás) in 2019. Colors refer to quartiles. Triangles denote the largest cities with a population of at least 55,000, and a star denotes the capital city, Budapest.

Figure 13: Premia of exporters in terms of log population of the headquarters' local administrative unit

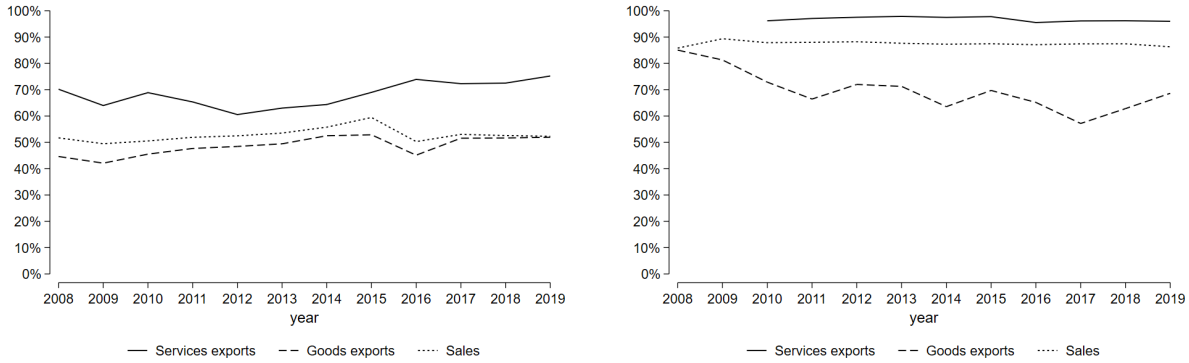


Notes: Premia estimated with equation (1).

Figure 14: Share of trade and sales in the most populated local administrative units

(a) Manufacturing

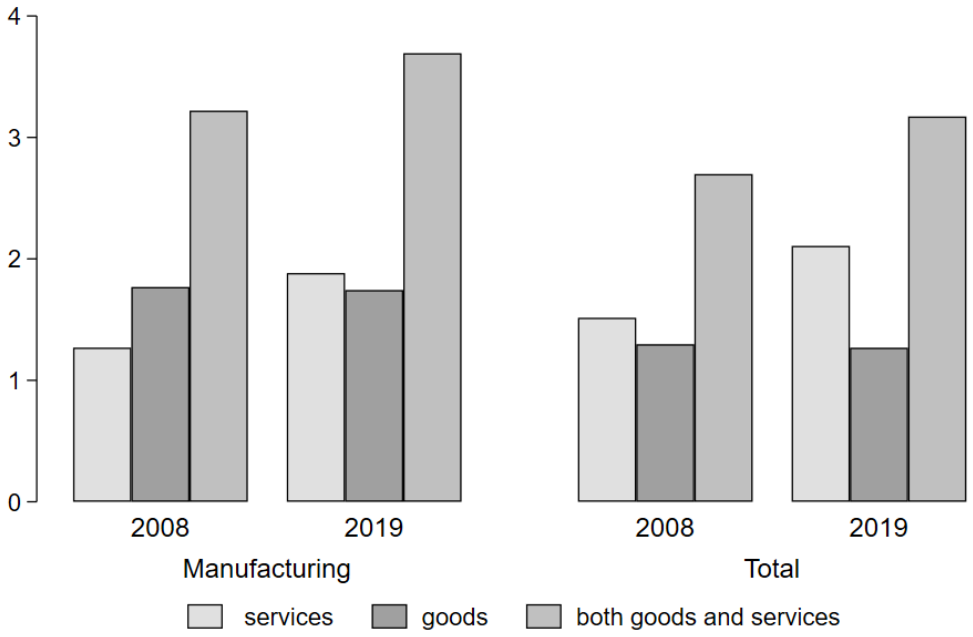
(b) Tradable services



Notes: Share of services/goods export value and share of sales in the most populated local administrative units, with at least 100,000 inhabitants, by sector.

Fact 9: Services exporter premia are comparable or ever larger than those of goods exporters

Figure 15: Employment premia of exporters



Notes: Premia estimated with equation (1).

Figures 15-18 show exporter premia for goods and services exporters[10], estimated following Bernard and Jensen (1999), with the cross-sectional equation:

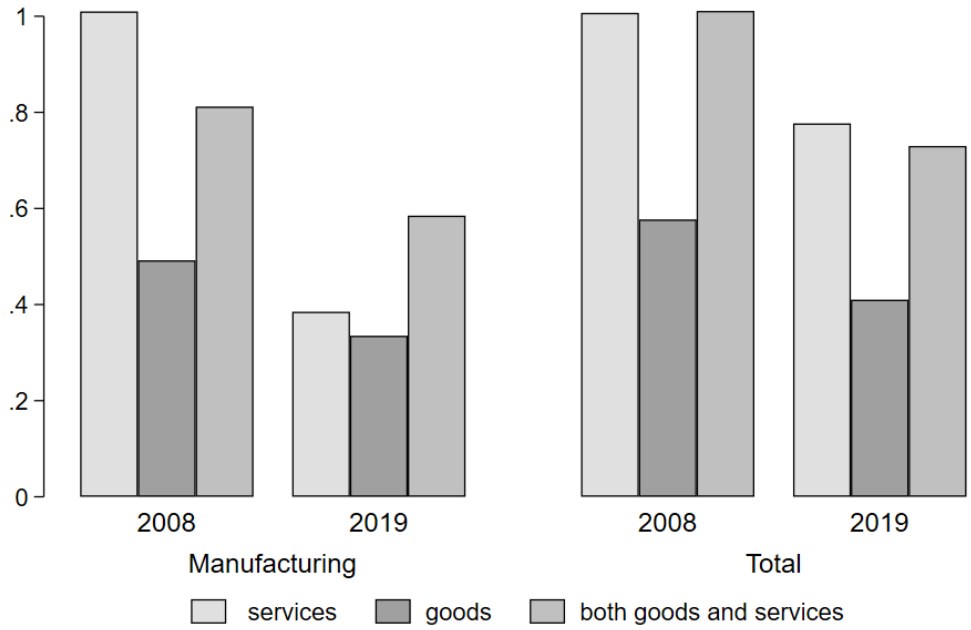
$$Y_i = \beta_0 + \beta_1 ExpServ_i + \beta_2 ExpGood_i + \beta_3 ExpBoth_i + (\beta_4 lEmp_i) + a_{j(i)} + \epsilon_i \quad (1)$$

where i stands for firm and j for a 4-digit industry, Y is a firm characteristic, $ExpServ$, $ExpGood$ and $ExpBoth$ are indicators for the firm exporting services, goods or both, respectively, $lEmp$ is log employment, included in all the regressions other than measuring employment premia, $a_{j(i)}$ are industry-fixed effects and ϵ is the error term.

We see that services exporters are larger, more productive, pay higher

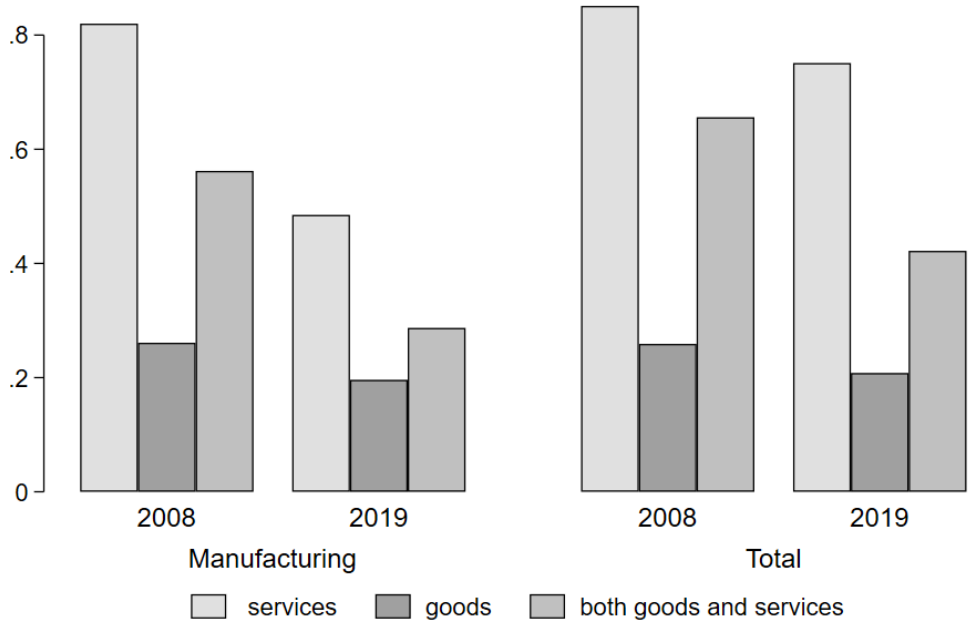
[10]Coefficient estimates are also presented in Appendix Tables A2-A5

Figure 16: Productivity premia of exporters



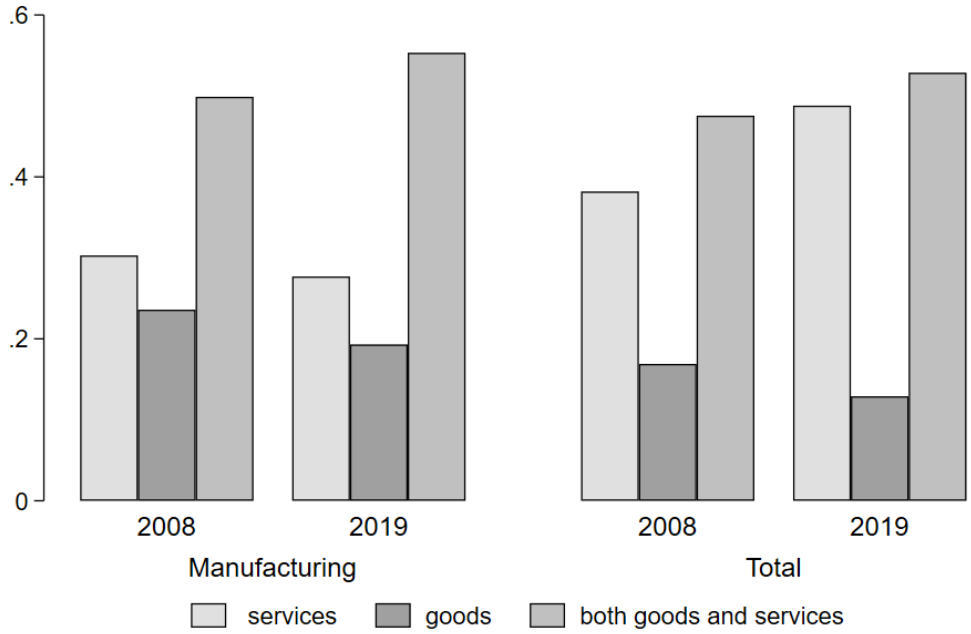
Notes: Premia estimated with equation (1).

Figure 17: Wage premia of exporters



Notes: Premia estimated with equation (1).

Figure 18: Foreign premia of exporters



Notes: Premia estimated with equation (1).

wages and are more likely to be foreign than the average firm, as well as compared to goods exporters. These patterns are stable over time, and true both in the whole economy, and in the manufacturing sector.[11] As Appendix Figures A10-A17 show, these differences are already present 3 years before starting to export services, and larger than the ones for later goods exporters. Their employment also increases more over the three years before starting to export services, but there are no significant changes in productivity or wages (Appendix Figures A18-A23).

[11] Services importers have similar premia as services exporters (Appendix Figures A6-A9.

4. Conclusion

This paper uses detailed micro-level data on goods and services trade of Hungarian firms to present some stylized facts for services exports. First, we show that services have an increasing importance not only in GDP but also in exports. Second, a non-negligible share of manufacturing firms export services, partly accompanying goods exports. Third, fewer firms export services than goods. Fourth, services exports are as concentrated as goods exports, with a high and increasing contribution of multinationals. Fifth, two-way services traders tend to imports services first. Sixth, manufacturing firm exporting both goods and services typically start to export goods first, then services tend to follow the exported goods into the same destination countries. Seventh, services are typically exported to closer and richer countries than goods. Eights, services exports in more concentrated in or near large cities than goods exports are. Finally, services exporters tend to have larger premia than goods exporters in terms of size, productivity, average wage and foreign ownership probability.

5. References

References

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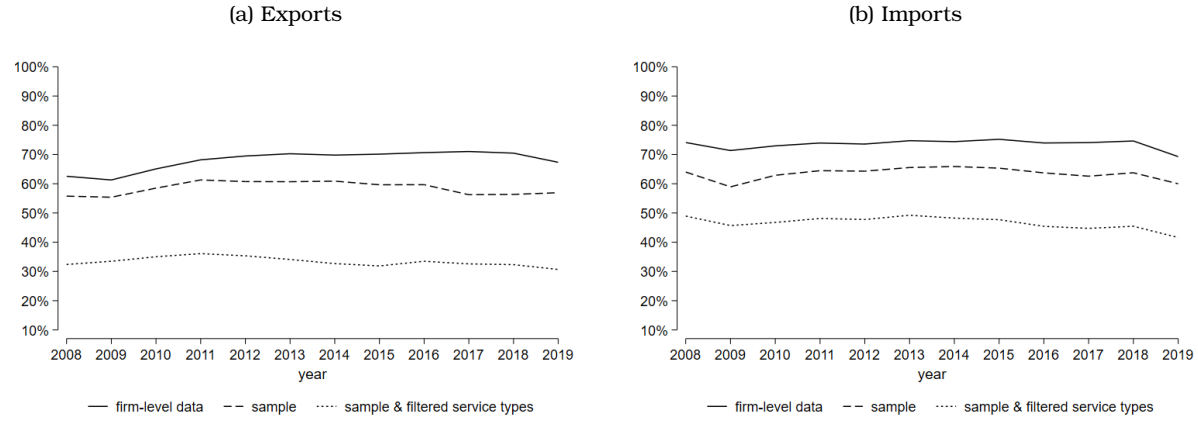
A1. Appendix

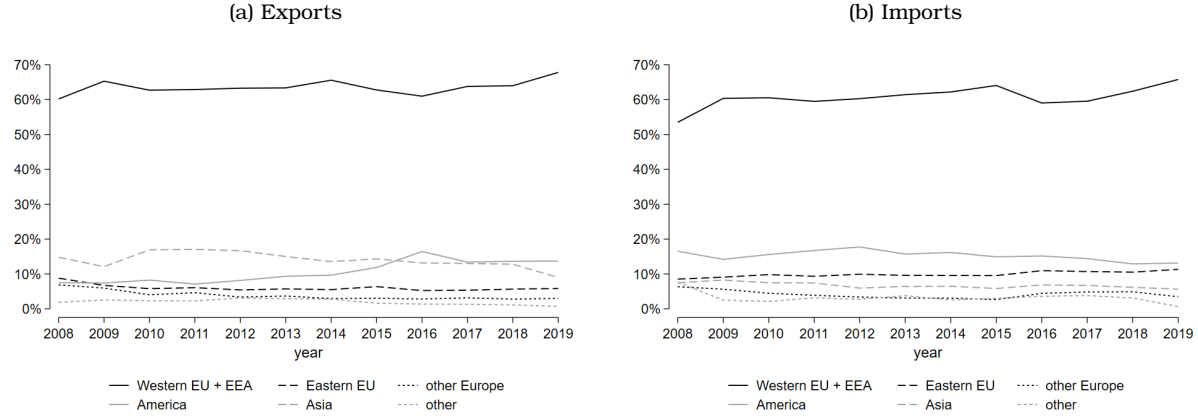
A1.1. Data

Figure A1: The coverage of our sample



Notes: The share of total services exports/imports value present in our firm-level data on services trade, in the sub-sample of double-entry bookeeping firms with at least 5 employees (sample) and in business services within this sub-sample.

Figure A2: The share of regions in services trade over time



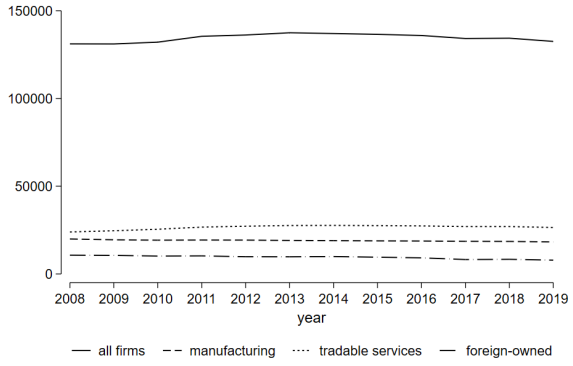
Notes: The value share of regions in total services exports (panel a) and imports (panel b).

Table A1: Service categories

Maintenance and repair services n.i.e.	Auxiliary services
Manufacturing services on physical inputs owned by others	Service component of Freight insurance (indicator for publication)
Sea Transport, Passenger	Service component of Other direct insurance (indicator for publication)
Sea Transport, Freight	Service component of passive reinsurance
Sea Transport, Other	Service component of active reinsurance
Air Transport, Passenger	Financial services
Air Transport, Freight	Purchase and sell of computer software ownership rights
Air Transport, Other	Computer services
Rail Transport, Passenger	News Agency Services
Rail Transport, Freight	Other information provision services
Rail Transport, Other	Other trade-related services
Road Transport, Passenger	Operational leasing services
Road Transport, Freight	Legal services
Road Transport, Other	Accounting, auditing, bookkeeping and tax consultancy services
Inland Waterway Transport, Passenger	Business and management consulting and public relations services
Inland Waterway Transport, Freight	Advertising, market research and public opinion polling
Inland Waterway Transport, Other	Waste treatment and depollution
Pipeline transport	Agriculture, mining, and other on-site processing
Electricity transmission	Other business services n.i.e.
Other Supporting and Auxiliary Transport Services	Provision of customized and non-customized research and development services
Postal services	Sale of proprietary rights arising from research and development
Courier services	Other research and development services
Embassies and consulates	Architectural services
Military units and agencies	Engineering services
Other government services n.i.e.	Scientific and other technical services
Telecommunications Services	Audiovisual and related services
Construction Abroad	Other personal, cultural and recreational services (excluding audiovisual services)
Construction in the Compiling Economy	Education services
Life insurance	Health services
Pension services	Heritage and recreational services
Standardized guarantee services	Charges for the use of intellectual property n.i.e.

A1.2. Overlap of trade in goods and services

Figure A3: The number of firms in our sample, by firm type

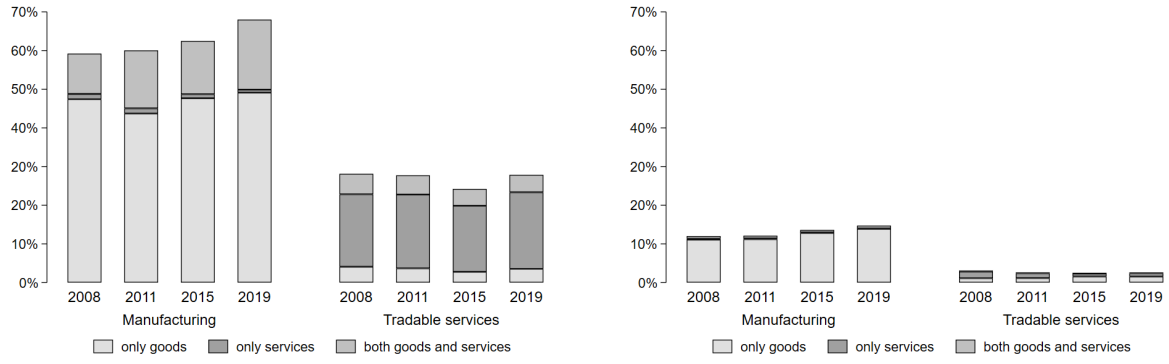


Notes: Number of double-entry bookkeeping firms with at least 5 employees in the period 2000-2021, irrespective their trade status

Figure A4: Overlap of goods and services exports, by ownership

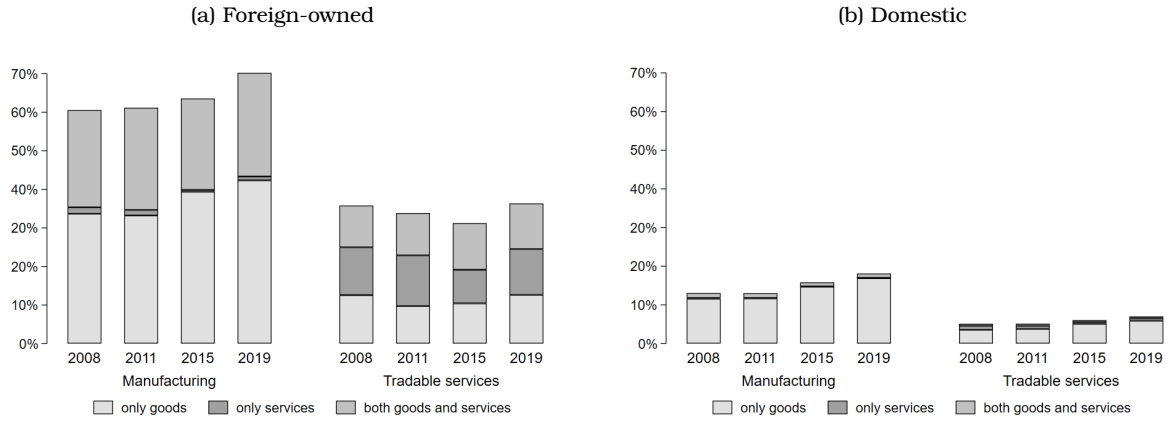
(a) Foreign-owned

(b) Domestic



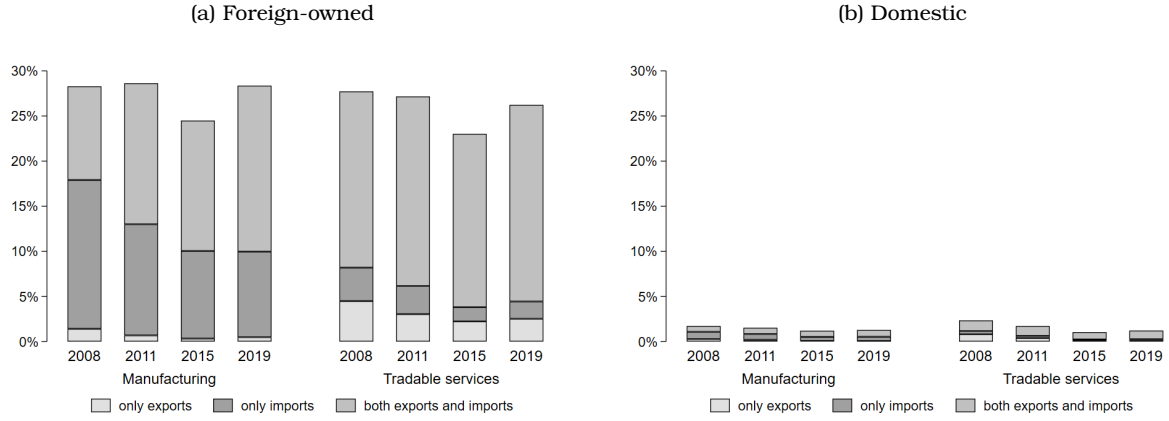
Notes: Yearly share of firms with specific trade patterns: exporting goods, services or both, separately for firms in manufacturing and tradable services industries. Sample: double entry bookkeeping foreign-owned (panel (a)) or domestic (panel (b)) firms with at least 5 employees in our sample period.

Figure A5: Overlap of goods and services imports, by ownership



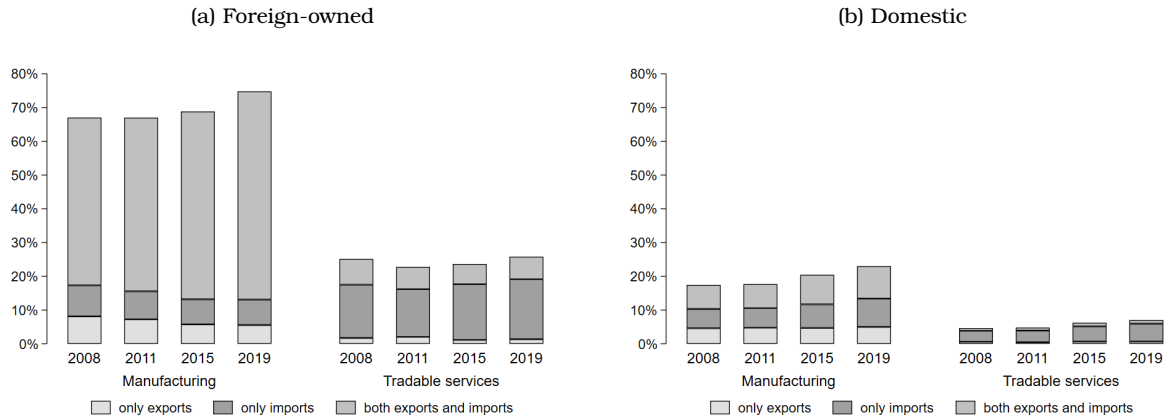
Notes: Yearly share of firms with specific trade patterns: importing goods, services or both, separately for firms in manufacturing and tradable services industries. Sample: double entry bookkeeping foreign-owned (panel (a)) or domestic (panel (b)) firms with at least 5 employees in our sample period.

Figure A6: Overlap of services exports and imports, by ownership



Notes: Yearly share of firms with specific trade patterns: exporters, importers or two-way traders of services, separately for firms in manufacturing and tradable services industries. Sample: double entry bookkeeping foreign-owned (panel (a)) and domestic (panel (b)) firms with at least 5 employees in our sample period.

Figure A7: Overlap of goods exports and imports, by ownership

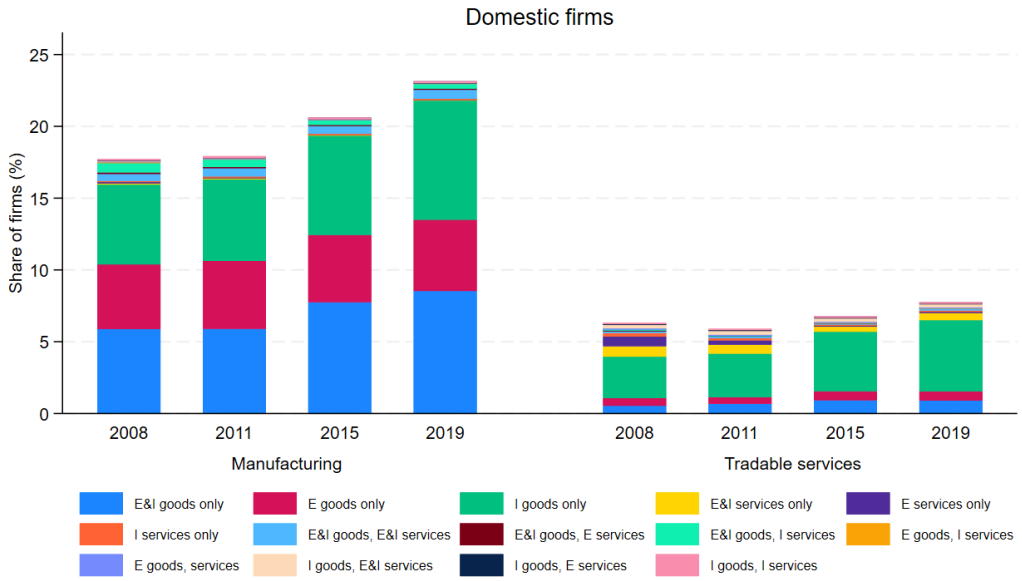


Notes: Yearly share of firms with specific trade patterns: exporters, importers or two-way traders of goods, separately for firms in manufacturing and tradable services industries. Sample: double entry bookkeeping foreign-owned (panel (a)) and domestic (panel (b)) firms with at least 5 employees in our sample period.

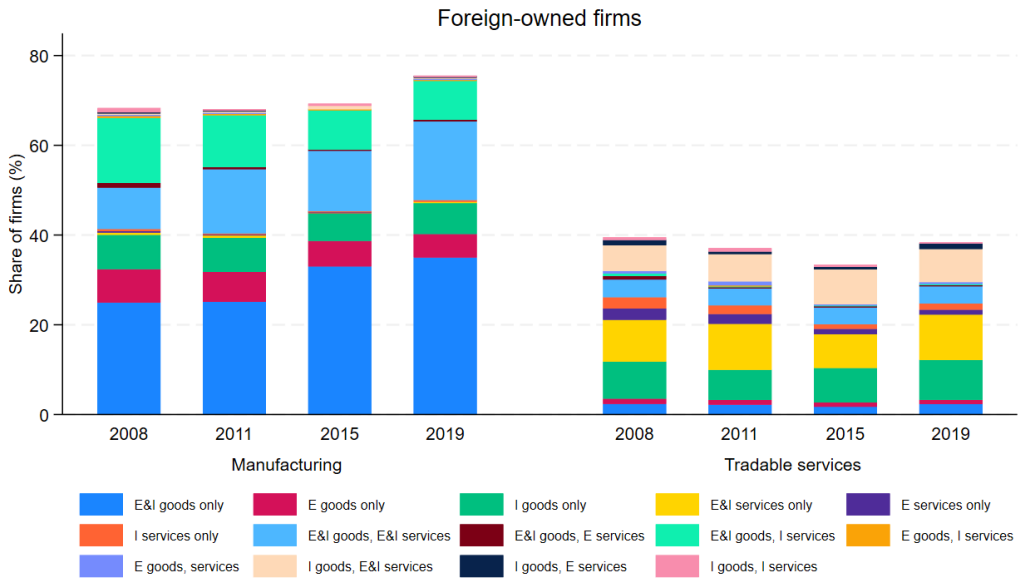
A1.3. Concentration

Figure A8: Overlap of goods and services exports and imports

(a) Domestic firms:

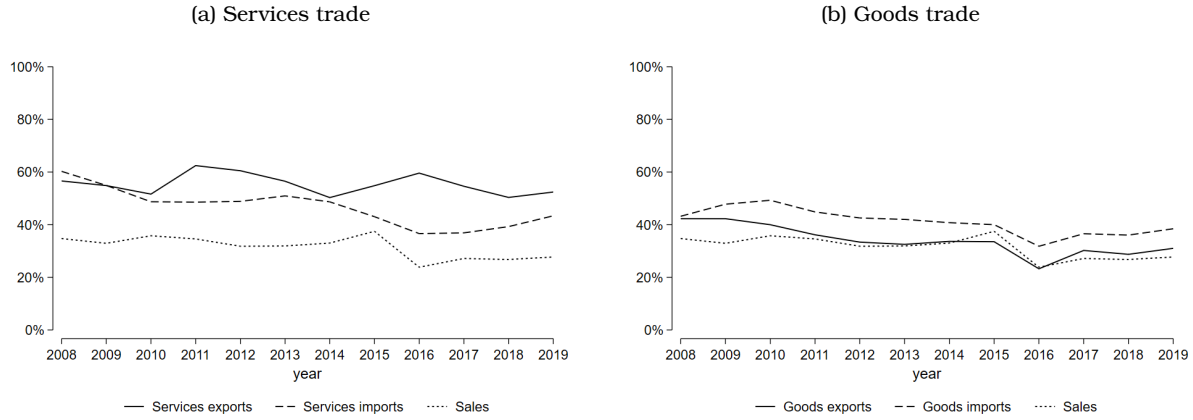


(b) Foreign firms:



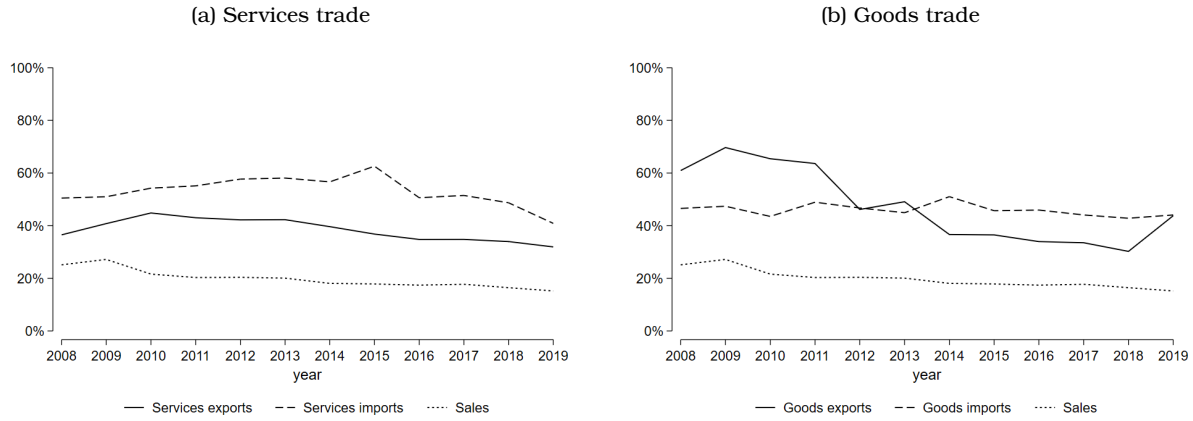
Notes: Share of firms with a specific trade pattern. Sample: double entry bookkeeping firms with at least 5 employees in the period in manufacturing (left panels) or in tradable services (right panels). E refers to exporting and I refers to importing. There were only a few firms in the categories "Export goods & services" and "Exporting goods, twoway services"; they were combined into the single category of "Export goods, services". Source: Services and goods trade, balance sheet and profit and loss statements and firm registry data from the Hungarian Statistical Office and authors' calculations.

Figure A9: Share of top 10 firms in trade and sales - manufacturing firms



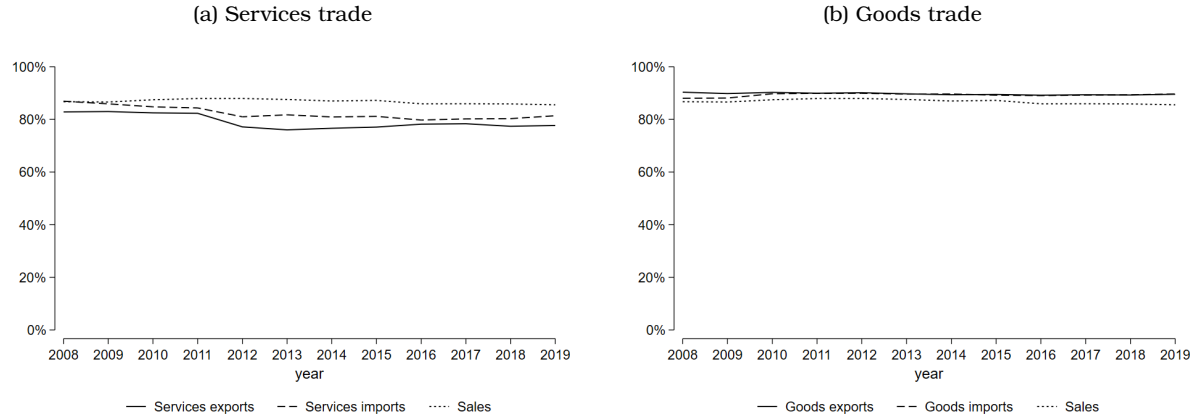
Notes: Top 10 firms defined yearly by variable: ten firms with the largest sales, services or goods exports or imports that year. Sample: firms in manufacturing.

Figure A10: Share of top 10 firms in trade and sales - tradable services firms



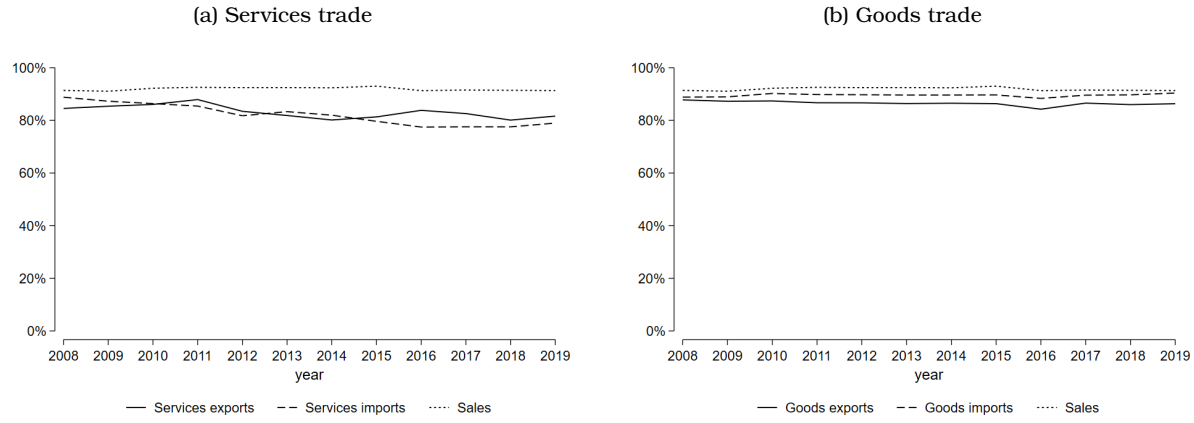
Notes: Top 10 firms defined yearly by variable: ten firms with the largest sales, services or goods exports or imports that year. Sample: firms in tradable services.

Figure A11: Share of firms in the top decile in trade and sales



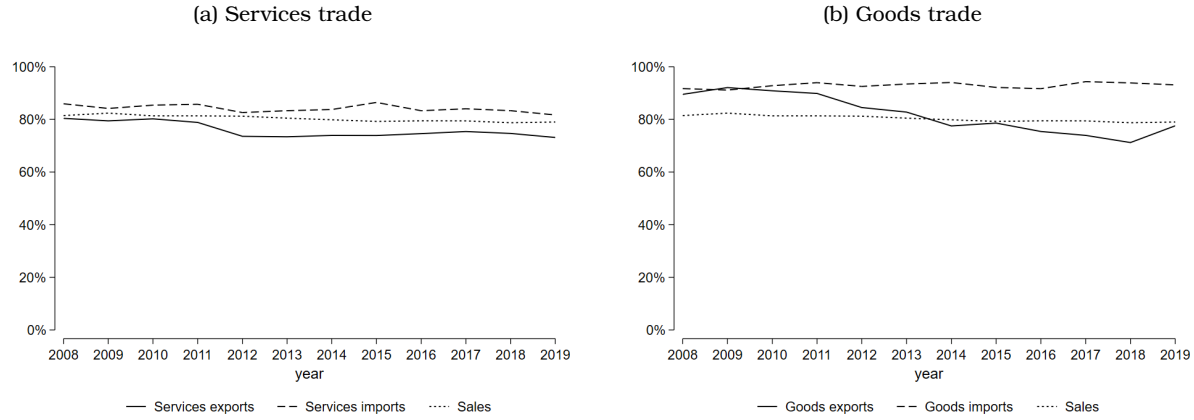
Notes: Top decile firms defined yearly by variable: 10% of the firms being active or exporting or importing services or goods with the largest sales, services or goods exports or imports that year.

Figure A12: Share of firms in the top decile in trade and sales - manufacturing firms



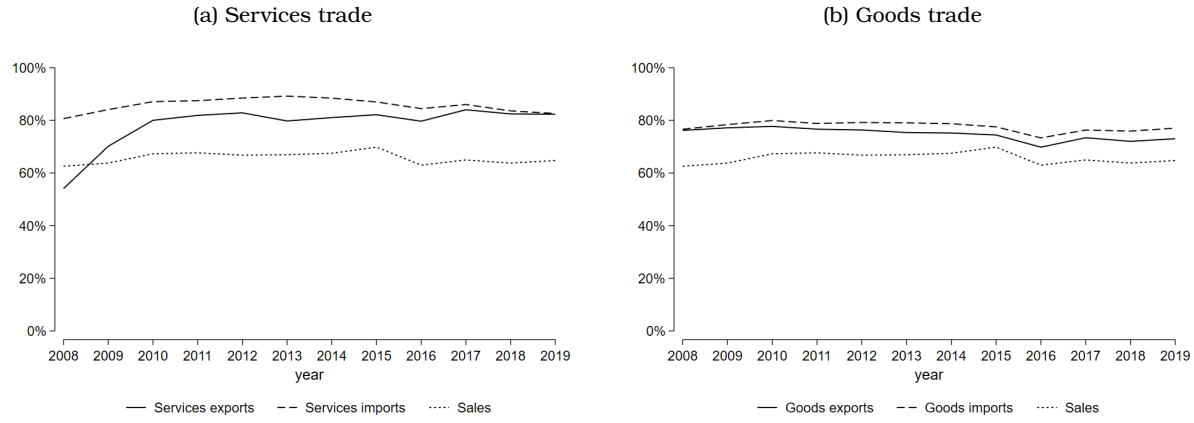
Notes: Top decile firms defined yearly by variable: 10% of the firms being active or exporting or importing services or goods with the largest sales, services or goods exports or imports that year. Sample: firms in manufacturing.

Figure A13: Share of firms in the top decile in trade and sales - tradable services firms



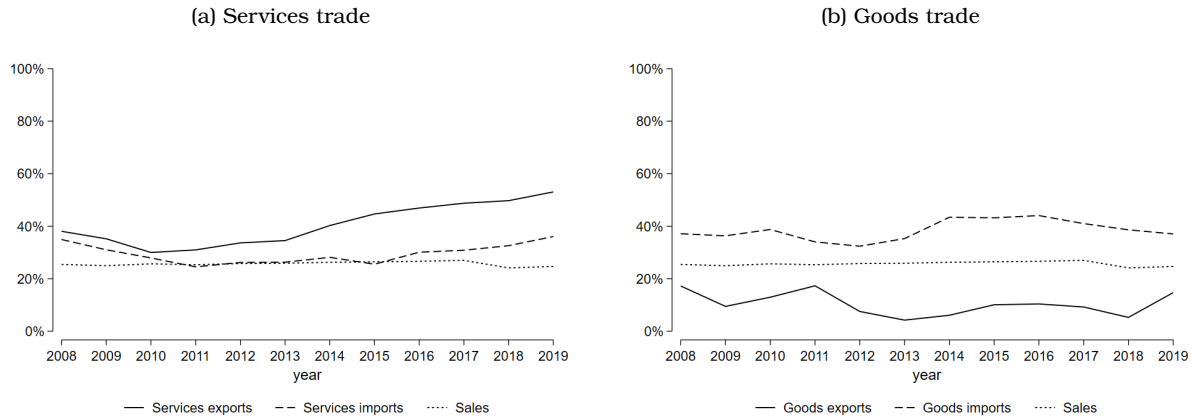
Notes: Top decile firms defined yearly by variable: 10% of the firms being active or exporting or importing services or goods with the largest sales, services or goods exports or imports that year. Sample: firms in tradable services.

Figure A14: Share of multinationals in trade and sales - manufacturing firms



Notes: Multinationals defined in a time-invariant way: ever majority foreign-owned with at least 250 employees. Sample: firms in manufacturing.

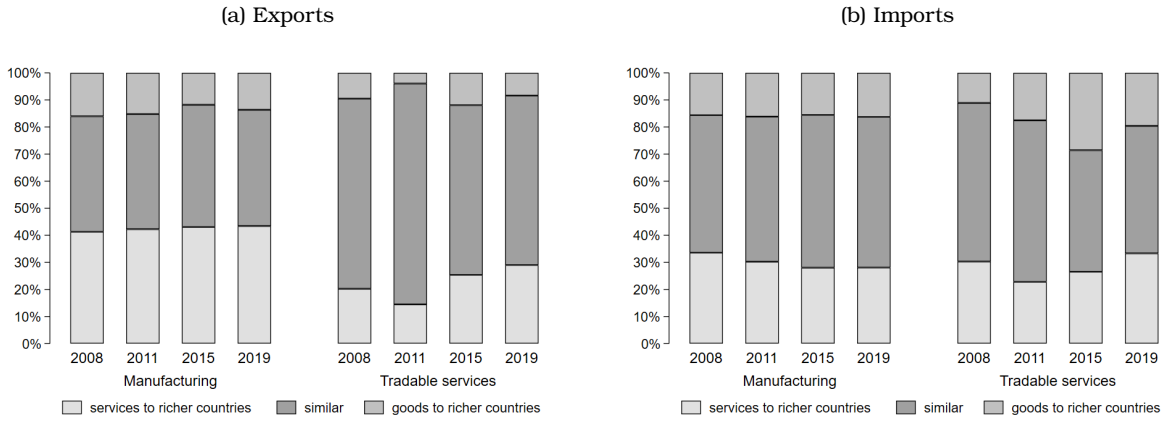
Figure A15: Share of multinationals in trade and sales - tradable services firms



Notes: Multinationals defined in a time-invariant way: ever majority foreign-owned with at least 250 employees. Sample: firms in tradable services.

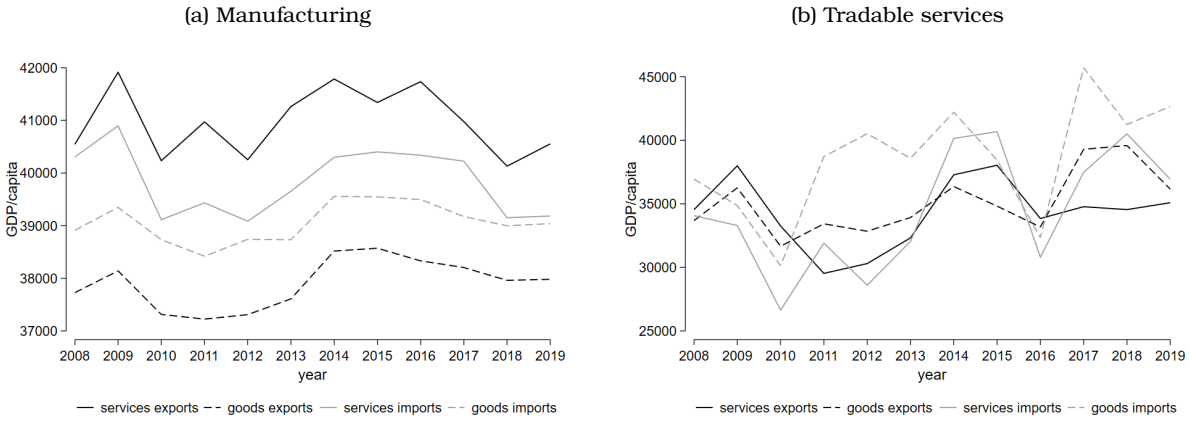
A1.4. Destination/source countries

Figure A16: Share of firms exporting/importing goods or services to richer countries



Notes: Share of firms exporting or importing goods or services to richer countries. Average per capita GDP of destination or source countries is a firm-level weighted average with exported or imported values as weights. Sample: double-entry bookkeeping firms with at least 5 employees in the period in manufacturing or tradable services industries exporting both goods and services (panel (a)) or importing both goods and services (panel (b)).

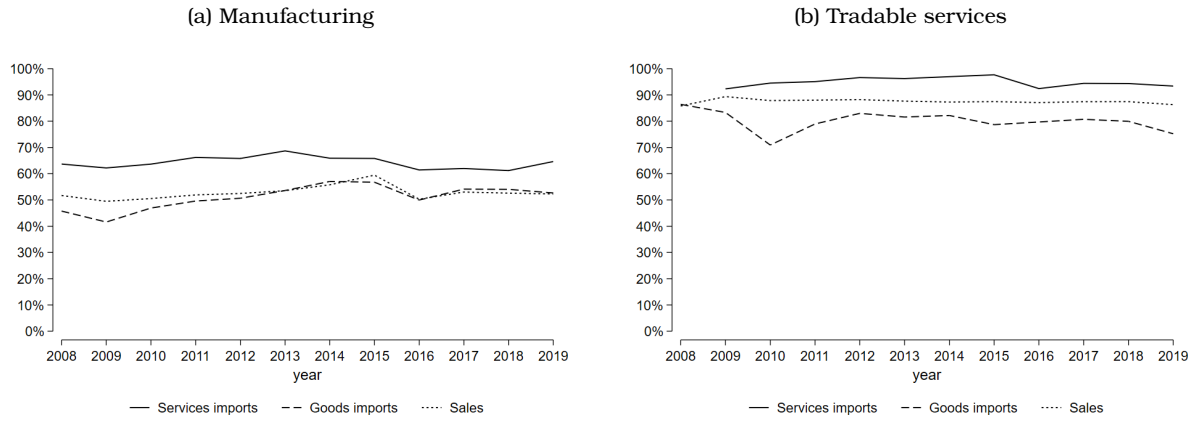
Figure A17: Value-weighted average GDP/capita of countries services and goods are exported to or imported from, by sector



Notes: Average GDP per capita of countries goods or services are exported to or imported from, weighted by the total yearly value exported to or imported from the country in the sector. Sample: double-entry bookkeeping firms with at least 5 employees in the period in manufacturing or tradable services industries exporting both goods and services (panel (a)) or importing both goods and services (panel (b)).

A1.5. Geographical concentration

Figure A18: Share of trade and sales in the most populated local administrative units



Notes: Share of services/goods import value and share of sales in the most populated local administrative units, with at least 100,000 inhabitants, by sector.

A1.6. Exporter premia

Table A2: Premia of exports in 2008

Specification: all firms in 2008

VARIABLES	(1) log # empl	(2) log VA/capita	(3) log wage/capita	(4) foreign	(5) log population in local admin unit
Exports services	1.515***	1.007***	0.851***	0.382***	0.777***
	(0.0411)	(0.0339)	(0.0233)	(0.0144)	(0.0371)
Exports goods	1.297***	0.577***	0.259***	0.169***	0.0669***
	(0.0171)	(0.0147)	(0.00847)	(0.00568)	(0.0202)
Exports both goods	-0.114*	-0.573***	-0.454***	-0.0754***	-0.488***
and services	(0.0680)	(0.0506)	(0.0347)	(0.0230)	(0.0642)
Log # of employees		0.00669*	0.142***	0.0178***	0.0370***
		(0.00362)	(0.00262)	(0.000803)	(0.00400)
Constant	1.646***	7.790***	7.125***	0.0327***	12.18***
	(0.00319)	(0.00785)	(0.00582)	(0.00140)	(0.00796)
Observations	117,889	102,493	113,663	117,889	117,889
R-squared	0.193	0.151	0.169	0.159	0.138

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A3: Premia of exports in 2019

Specification: all firms in 2019

VARIABLES	(1) log # empl	(2) log VA/capita	(3) log wage/capita	(4) foreign	(5) log population in local admin unit
Exports services	2.107***	0.777***	0.751***	0.488***	0.875***
	(0.0529)	(0.0339)	(0.0243)	(0.0173)	(0.0435)
Exports goods	1.268***	0.410***	0.208***	0.129***	0.0328
	(0.0164)	(0.0145)	(0.00839)	(0.00519)	(0.0202)
Exports both goods	-0.203***	-0.457***	-0.537***	-0.0883***	-0.714***
and services	(0.0743)	(0.0473)	(0.0308)	(0.0245)	(0.0687)
Log # of employees		0.0678***	0.182***	0.0172***	0.0376***
		(0.00376)	(0.00278)	(0.000802)	(0.00440)
Constant	1.730***	8.481***	7.573***	0.0183***	12.17***
	(0.00325)	(0.00850)	(0.00642)	(0.00142)	(0.00899)
Observations	107,364	98,355	89,084	107,364	107,364
R-squared	0.230	0.122	0.212	0.177	0.137

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A4: Premia of exports in 2008 - manufacturing firms

Specification: manufacturing firms in 2008

VARIABLES	(1) log # empl	(2) log VA/capita	(3) log wage/capita	(4) foreign	(5) log population in local admin unit
Exports services	1.269***	1.010***	0.820***	0.303***	0.713***
	(0.142)	(0.0988)	(0.0779)	(0.0544)	(0.169)
Exports goods	1.768***	0.492***	0.261***	0.236***	0.0510
	(0.0267)	(0.0237)	(0.0144)	(0.00938)	(0.0337)
Exports both goods	0.183	-0.690***	-0.519***	-0.0401	-0.414**
and services	(0.163)	(0.114)	(0.0870)	(0.0605)	(0.185)
Log # of employees		0.00336	0.0976***	0.0231***	-0.0699***
		(0.00853)	(0.00610)	(0.00206)	(0.00910)
Constant	1.862***	7.745***	7.192***	0.0113***	12.03***
	(0.00924)	(0.0203)	(0.0149)	(0.00414)	(0.0209)
Observations	18,415	16,717	17,997	18,415	18,415
R-squared	0.352	0.158	0.206	0.226	0.101

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A5: Premia of exports in 2019 - manufacturing firms

Specification: manufacturing firms in 2019

VARIABLES	(1) log # empl	(2) log VA/capita	(3) log wage/capita	(4) foreign	(5) log population in local admin unit
Exports services	1.883***	0.385**	0.485***	0.277***	0.630***
	(0.284)	(0.156)	(0.108)	(0.0779)	(0.239)
Exports goods	1.743***	0.335***	0.196***	0.193***	0.0199
	(0.0262)	(0.0234)	(0.0140)	(0.00885)	(0.0352)
Exports both goods	0.0670	-0.135	-0.394***	0.0833	-0.489**
and services	(0.291)	(0.160)	(0.109)	(0.0811)	(0.247)
Log # of employees		0.0660***	0.159***	0.0253***	-0.0613***
		(0.00835)	(0.00622)	(0.00226)	(0.0105)
Constant	1.881***	8.380***	7.605***	-0.00520	11.95***
	(0.0101)	(0.0210)	(0.0165)	(0.00454)	(0.0241)
Observations	15,186	14,221	12,705	15,186	15,186
R-squared	0.439	0.146	0.282	0.274	0.084

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A6: Premia of services trade in 2008

Specification: all firms in 2008

VARIABLES	(1) log # empl	(2) log VA/capita	(3) log wage/capita	(4) foreign	(5) log population in local admin unit
Exports services	1.296***	0.761***	0.612***	0.223***	0.568***
	(0.0546)	(0.0398)	(0.0295)	(0.0192)	(0.0560)
Imports services	2.111***	0.956***	0.572***	0.478***	0.258***
	(0.0436)	(0.0340)	(0.0211)	(0.0140)	(0.0437)
Both exports and	-1.257***	-0.692***	-0.369***	-0.211***	-0.196**
imports services	(0.0804)	(0.0591)	(0.0408)	(0.0268)	(0.0779)
Log # of employees		0.0185***	0.145***	0.0179***	0.0344***
		(0.00357)	(0.00258)	(0.000780)	(0.00392)
Constant	1.699***	7.793***	7.131***	0.0374***	12.19***
	(0.00318)	(0.00791)	(0.00585)	(0.00138)	(0.00797)
Observations	117,889	102,493	113,663	117,889	117,889
R-squared	0.166	0.146	0.169	0.174	0.137

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A7: Premia of services trade in 2019

Specification: all firms in 2019

VARIABLES	(1) log # empl	(2) log VA/capita	(3) log wage/capita	(4) foreign	(5) log population in local admin unit
Exports services	1.580***	0.692***	0.716***	0.376***	0.599***
	(0.121)	(0.0725)	(0.0694)	(0.0426)	(0.122)
Imports services	2.191***	0.605***	0.433***	0.463***	0.327***
	(0.0611)	(0.0505)	(0.0256)	(0.0193)	(0.0579)
Both exports and	-1.205***	-0.632***	-0.613***	-0.335***	-0.375***
imports services	(0.141)	(0.0906)	(0.0751)	(0.0482)	(0.139)
Log # of employees		0.0841***	0.189***	0.0194***	0.0342***
		(0.00365)	(0.00270)	(0.000788)	(0.00426)
Constant	1.800***	8.474***	7.573***	0.0199***	12.17***
	(0.00325)	(0.00852)	(0.00643)	(0.00140)	(0.00898)
Observations	107,364	98,355	89,084	107,364	107,364
R-squared	0.190	0.117	0.210	0.183	0.137

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A8: Premia of services trade in 2008 - manufacturing firms

Specification: manufacturing firms in 2008

VARIABLES	(1) log # empl	(2) log VA/capita	(3) log wage/capita	(4) foreign	(5) log population in local admin unit
Exports services	1.642***	0.551***	0.564***	0.207***	0.286*
	(0.146)	(0.0827)	(0.0663)	(0.0497)	(0.150)
Imports services	2.573***	0.681***	0.404***	0.507***	-0.0622
	(0.0590)	(0.0493)	(0.0295)	(0.0212)	(0.0633)
Both exports and	-1.409***	-0.522***	-0.453***	-0.253***	0.189
imports services	(0.177)	(0.107)	(0.0795)	(0.0590)	(0.178)
Log # of employees		0.0398***	0.115***	0.0340***	-0.0626***
		(0.00776)	(0.00559)	(0.00203)	(0.00833)
Constant	2.086***	7.728***	7.187***	0.0129***	12.02***
	(0.00945)	(0.0202)	(0.0149)	(0.00410)	(0.0207)
Observations	18,415	16,717	17,997	18,415	18,415
R-squared	0.241	0.145	0.199	0.233	0.101

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A9: Premia of services trade in 2019 - manufacturing firms

Specification: manufacturing firms in 2019

VARIABLES	(1) log # empl	(2) log VA/capita	(3) log wage/capita	(4) foreign	(5) log population in local admin unit
Exports services	2.246***	0.208	0.389***	0.219**	0.530*
	(0.273)	(0.132)	(0.104)	(0.101)	(0.306)
Imports services	2.769***	0.338***	0.183***	0.449***	0.0550
	(0.0801)	(0.0584)	(0.0320)	(0.0308)	(0.0883)
Both exports and	-1.835***	-0.187	-0.413***	-0.219**	-0.414
imports services	(0.290)	(0.146)	(0.109)	(0.107)	(0.322)
Log # of employees		0.109***	0.184***	0.0432***	-0.0602***
		(0.00732)	(0.00555)	(0.00224)	(0.00920)
Constant	2.192***	8.345***	7.587***	-0.0133***	11.95***
	(0.0104)	(0.0208)	(0.0163)	(0.00450)	(0.0239)
Observations	15,186	14,221	12,705	15,186	15,186
R-squared	0.292	0.135	0.275	0.262	0.084

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A10: Employment of trading firms 3 years before starting to trade

Dep.var: Log employment in t-3

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			All firms			
Year		2011			2019	
Start exporting services	1.999***			1.752***		
	(0.116)			(0.183)		
Start exporting goods			0.454***			0.418***
			(0.0447)			(0.0485)
Start importing services		1.520***			1.128***	
		(0.111)			(0.178)	
Constant	1.686***	1.665***	1.545***	1.735***	1.720***	1.616***
	(0.00347)	(0.00342)	(0.00355)	(0.00321)	(0.00318)	(0.00332)
Observations	94,852	94,121	78,611	99,525	98,867	82,358
R-squared	0.122	0.108	0.090	0.112	0.104	0.086

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A11: Employment of trading manufacturing firms 3 years before starting to trade

Dep.var: Log employment in t-3

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			Manufacturing firms			
Year		2011			2019	
Start exporting services	2.629***			2.479***		
	(0.169)			(0.194)		
Start exporting goods			0.410***			0.476***
			(0.107)			(0.111)
Start importing services		2.250***			1.727***	
		(0.256)			(0.162)	
Constant	2.122***	2.056***	1.686***	2.156***	2.109***	1.746***
	(0.0103)	(0.00998)	(0.0107)	(0.0102)	(0.00989)	(0.0106)
Observations	14,851	14,465	8,951	14,138	13,867	8,398
R-squared	0.115	0.086	0.101	0.098	0.085	0.101

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A12: Productivity of trading firms 3 years before starting to trade

Dep.var: Log VA per capita in t-3

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			All firms			
Year		2011			2019	
Start exporting services	0.861***			0.952***		
	(0.0730)			(0.108)		
Start exporting goods			0.408***			0.341***
			(0.0433)			(0.0493)
Start importing services		0.899***			0.908***	
		(0.0768)			(0.133)	
Log emp in t-3	0.0602***	0.0518***	0.0394***	0.0815***	0.0755***	0.0610***
	(0.00367)	(0.00374)	(0.00441)	(0.00363)	(0.00370)	(0.00439)
Constant	7.789***	7.795***	7.745***	8.021***	8.026***	7.977***
	(0.00827)	(0.00833)	(0.00915)	(0.00811)	(0.00818)	(0.00903)
Observations	84,578	83,908	69,756	91,485	90,875	75,688
R-squared	0.140	0.136	0.127	0.137	0.134	0.124

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A13: Productivity of trading manufacturing firms 3 years before starting to trade

Dep.var: Log VA per capita in t-3

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			Manufacturing firms			
Year		2011			2019	
Start exporting services	0.590***			0.794***		
	(0.0940)			(0.149)		
Start exporting goods			0.399***			0.147
			(0.0885)			(0.127)
Start importing services		0.590***			0.864***	
		(0.127)			(0.292)	
Log emp in t-3	0.0730***	0.0575***	0.0214*	0.115***	0.105***	0.0609***
	(0.00734)	(0.00769)	(0.0125)	(0.00703)	(0.00741)	(0.0117)
Constant	7.734***	7.750***	7.691***	7.951***	7.962***	7.918***
	(0.0200)	(0.0203)	(0.0271)	(0.0194)	(0.0199)	(0.0257)
Observations	13,836	13,466	8,256	13,378	13,119	7,919
R-squared	0.130	0.121	0.118	0.135	0.124	0.104

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A14: Average wage of trading firms 3 years before starting to trade

Dep.var: Log wage per capita in t-3

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			All firms			
Year		2011			2019	
Start exporting services	0.515***			0.520***		
	(0.0538)			(0.0809)		
Start exporting goods			0.0900***			0.103***
			(0.0249)			(0.0283)
Start importing services		0.645***			0.680***	
		(0.0570)			(0.115)	
Log emp in t-3	0.175***	0.172***	0.182***	0.177***	0.174***	0.173***
	(0.00276)	(0.00285)	(0.00342)	(0.00253)	(0.00258)	(0.00312)
Constant	7.110***	7.110***	7.064***	7.308***	7.309***	7.278***
	(0.00633)	(0.00642)	(0.00719)	(0.00567)	(0.00573)	(0.00645)
Observations	91,620	90,889	75,501	94,918	94,257	78,267
R-squared	0.148	0.142	0.130	0.177	0.171	0.156

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A15: Average wage of trading manufacturing firms 3 years before starting to trade

Dep.var: Log wage per capita in t-3

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			Manufacturing firms			
Year		2011			2019	
Start exporting services	0.261***			0.366***		
	(0.0549)			(0.0780)		
Start exporting goods			0.0616			0.0896
			(0.0547)			(0.0583)
Start importing services		0.239***			0.542***	
		(0.0722)			(0.154)	
Log emp in t-3	0.138***	0.132***	0.137***	0.179***	0.175***	0.158***
	(0.00537)	(0.00573)	(0.00938)	(0.00527)	(0.00553)	(0.00932)
Constant	7.163***	7.166***	7.093***	7.295***	7.299***	7.263***
	(0.0150)	(0.0155)	(0.0208)	(0.0146)	(0.0150)	(0.0206)
Observations	14,570	14,185	8,704	13,634	13,363	8,023
R-squared	0.173	0.156	0.122	0.217	0.201	0.136

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A16: Foreign status of trading firms 3 years before starting to trade

Dep.var: Foreign in t-3						
	(1)	(2)	(3)	(4)	(5)	(6)
Sample			All firms			
Year		2011			2019	
Start exporting services	0.441***			0.440***		
	(0.0343)			(0.0627)		
Start exporting goods			0.0653***			0.0365***
			(0.0125)			(0.0125)
Start importing services		0.326***			0.354***	
		(0.0371)			(0.0788)	
Log emp in t-3	0.0229***	0.0150***	0.0122***	0.0190***	0.0138***	0.0132***
	(0.000882)	(0.000814)	(0.000869)	(0.000810)	(0.000756)	(0.000836)
Constant	0.0256***	0.0339***	0.0242***	0.0196***	0.0254***	0.0175***
	(0.00149)	(0.00141)	(0.00138)	(0.00140)	(0.00132)	(0.00136)
Observations	94,852	94,121	78,611	99,525	98,867	82,358
R-squared	0.095	0.080	0.079	0.089	0.081	0.091

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A17: Foreign status of trading manufacturing firms 3 years before starting to trade

Dep.var: Foreign in t-3						
	(1)	(2)	(3)	(4)	(5)	(6)
Sample			Manufacturing firms			
Year		2011			2019	
Start exporting services	0.498***			0.598***		
	(0.0523)			(0.0736)		
Start exporting goods			0.100***			0.0159
			(0.0303)			(0.0203)
Start importing services		0.514***			0.442**	
		(0.0890)			(0.208)	
Log emp in t-3	0.0503***	0.0322***	0.00376*	0.0450***	0.0320***	-0.000666
	(0.00231)	(0.00216)	(0.00194)	(0.00232)	(0.00220)	(0.00193)
Constant	-0.0181***	0.00627	0.0159***	-0.0211***	-0.00217	0.0265***
	(0.00451)	(0.00423)	(0.00342)	(0.00455)	(0.00431)	(0.00376)
Observations	14,851	14,465	8,951	14,138	13,867	8,398
R-squared	0.142	0.090	0.041	0.117	0.081	0.065

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A18: Change in employment of trading firms from 3 years before starting to trade

Dep.var: % change in employment from t-3 to t-1

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			All firms			
Year		2011			2019	
Start exporting services	0.0800***			0.131**		
	(0.0294)			(0.0545)		
Start exporting goods			0.0886***			0.0989***
			(0.0132)			(0.0159)
Start importing services		0.0525**			0.128	
		(0.0251)			(0.0787)	
Constant	0.000644	0.000910	0.00739***	0.0262***	0.0262***	0.0293***
	(0.00112)	(0.00112)	(0.00127)	(0.000979)	(0.000983)	(0.00113)
Observations	88,886	88,164	73,277	94,739	94,086	78,056
R-squared	0.018	0.018	0.018	0.013	0.013	0.015

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A19: Change in employment of trading manufacturing firms from 3 years before starting to trade

Dep.var: % change in employment from t-3 to t-1

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			Manufacturing firms			
Year		2011			2019	
Start exporting services	0.129**			0.0979***		
	(0.0629)			(0.0261)		
Start exporting goods			0.195***			0.0844**
			(0.0459)			(0.0352)
Start importing services		0.0616			0.0598	
		(0.0484)			(0.0843)	
Constant	-0.0330***	-0.0328***	-0.0224***	0.0155***	0.0149***	0.0221***
	(0.00279)	(0.00280)	(0.00380)	(0.00235)	(0.00238)	(0.00338)
Observations	14,126	13,743	8,413	13,609	13,339	7,995
R-squared	0.029	0.029	0.040	0.022	0.024	0.034

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A20: Change in productivity of trading firms from 3 years before starting to trade

Dep.var: % change in VA per capita from t-3 to t-1

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			All firms			
Year		2011			2019	
Start exporting services	-0.0472			-0.0945**		
	(0.0299)			(0.0437)		
Start exporting goods			0.0179			0.0175
			(0.0217)			(0.0251)
Start importing services		0.0113			-0.107*	
		(0.0299)			(0.0592)	
Log emp in t-3	0.0226***	0.0227***	0.0268***	0.0202***	0.0220***	0.0309***
	(0.00183)	(0.00189)	(0.00224)	(0.00175)	(0.00180)	(0.00215)
Constant	-0.0853***	-0.0852***	-0.0889***	0.131***	0.129***	0.125***
	(0.00430)	(0.00436)	(0.00481)	(0.00405)	(0.00411)	(0.00457)
Observations	74,428	73,809	61,195	84,163	83,576	69,373
R-squared	0.018	0.018	0.020	0.022	0.022	0.024

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A21: Change in productivity of trading manufacturing firms from 3 years before starting to trade

Dep.var: % change in VA per capita from t-3 to t-1

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			Manufacturing firms			
Year		2011			2019	
Start exporting services	-0.0281			-0.0658		
	(0.0440)			(0.0610)		
Start exporting goods			-0.121**			0.193***
			(0.0481)			(0.0658)
Start importing services		0.0463			-0.0719	
		(0.0611)			(0.0466)	
Log emp in t-3	0.0285***	0.0274***	0.0343***	0.00357	0.00672*	0.0274***
	(0.00353)	(0.00375)	(0.00638)	(0.00331)	(0.00355)	(0.00606)
Constant	-0.0962***	-0.0933***	-0.0986***	0.126***	0.121***	0.102***
	(0.0102)	(0.0105)	(0.0146)	(0.00960)	(0.00994)	(0.0138)
Observations	12,655	12,298	7,447	12,570	12,316	7,350
R-squared	0.030	0.028	0.036	0.027	0.027	0.041

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A22: Change in average wage of trading firms from 3 years before starting to trade

Dep.var: % change in wage per capita from t-3 to t-1

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			All firms			
Year		2011			2019	
Start exporting services	0.0106			-0.0375		
	(0.0132)			(0.0301)		
Start exporting goods			0.0291***			0.0399***
			(0.0101)			(0.0123)
Start importing services		0.00505			0.00526	
		(0.0121)			(0.0414)	
Log emp in t-3	0.00659***	0.00653***	0.00357**	0.00858***	0.00919***	0.0104***
	(0.00128)	(0.00133)	(0.00161)	(0.00118)	(0.00121)	(0.00148)
Constant	-0.0223***	-0.0221***	-0.0133***	0.0925***	0.0919***	0.0947***
	(0.00307)	(0.00313)	(0.00354)	(0.00277)	(0.00281)	(0.00321)
Observations	85,965	85,244	70,473	82,150	81,499	67,075
R-squared	0.011	0.011	0.012	0.011	0.011	0.012

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table A23: Change in average wage of trading manufacturing firms from 3 years before starting to trade

Dep.var: % change in wage per capita from t-3 to t-1

	(1)	(2)	(3)	(4)	(5)	(6)
Sample			Manufacturing firms			
Year		2011			2019	
Start exporting services	-0.0174			-0.0313*		
	(0.0130)			(0.0176)		
Start exporting goods			0.0578***			0.0567**
			(0.0216)			(0.0280)
Start importing services		0.0291			-0.00972	
		(0.0232)			(0.0377)	
Log emp in t-3	0.0181***	0.0179***	0.0163***	0.000483	0.00133	0.00392
	(0.00256)	(0.00277)	(0.00469)	(0.00247)	(0.00257)	(0.00463)
Constant	-0.0622***	-0.0612***	-0.0527***	0.106***	0.105***	0.114***
	(0.00751)	(0.00782)	(0.0108)	(0.00716)	(0.00738)	(0.0107)
Observations	13,882	13,500	8,201	11,826	11,559	6,754
R-squared	0.023	0.022	0.028	0.021	0.021	0.025

Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1