MEASURING
CROSS-BORDER ECONOMIC
and **FINANCIAL LINKAGES**
in a Dynamic World

#StatsForum

INTERNATIONAL MONETARY FUND

Bilateral Trade in Services (BiTS)
Insights from A New Research Database

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Motivation

The economic importance of services trade is growing...

World exports
(Percent of world GDP; LHS: goods; RHS: services)
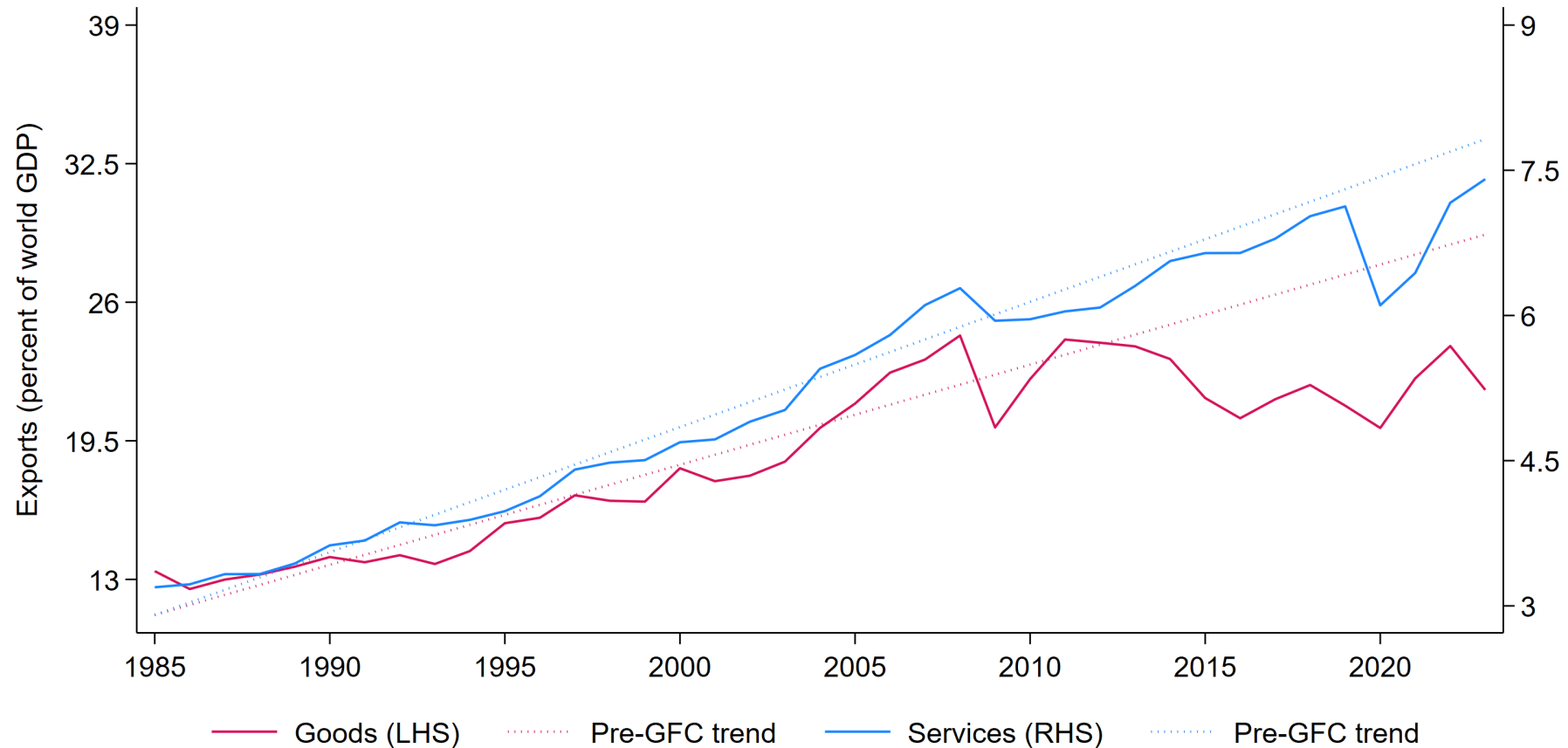
Sources: WEO; and IMF staff calculations.

...but little is known about the drivers of services trade

- For the world economy, the future of globalization may be in services:
    - ➤ Technology is making non-tradable services tradable. (Baldwin, 2016)
    - ➤ Services trade is outgrowing goods trade. (Baldwin et al., 2024; WTO 2019)

- For EMDEs specifically:
    - ➤ 2/3 of growth over the last 3 decades has been in the service sector…
    - ➤ …but primarily from domestic consumption, not exports. (World Bank, 2024)
    - ➤ Services trade liberalization generate high-value-added jobs, and productivity spillovers for manufacturing. (Arnold et al., 2011; Fiorini et al., 2022).

- **But** relatively little is known about drivers of bilateral services trade – which may differ from the drivers of bilateral goods trade. (Eaton and Kortum, 2018)

Why create BiTS?

- Unlike for goods, data on bilateral services trade is scarce and disjoint.

- In a development context, ideal dataset should have: i) broad country coverage; ii) good longitudinal coverage; iii) breakdown of categories of services traded.

- The **Bilateral Trade in Services (BiTS)** research dataset draws on different sources–primarily OECD-WTO BaTIS, combined with Comtrade and Eurostat–to extend the time and category coverage of bilateral services trade statistics:

  ➢ Up to 245 countries and geographic entities covered

  ➢ Annual bilateral flows for 1985-2023 for <u>some</u> country pairs

  ➢ 12 broad categories (9 divided into 26 subcategories), consistent with BPM6

  ➢ No estimated/balanced trade values, <u>but</u> some use of judgement/ proportionality assumptions in reconciling data from different sources

Overview of presentation

1. **Motivation**

2. **Brief introduction to BiTS**

3. **Research applications**

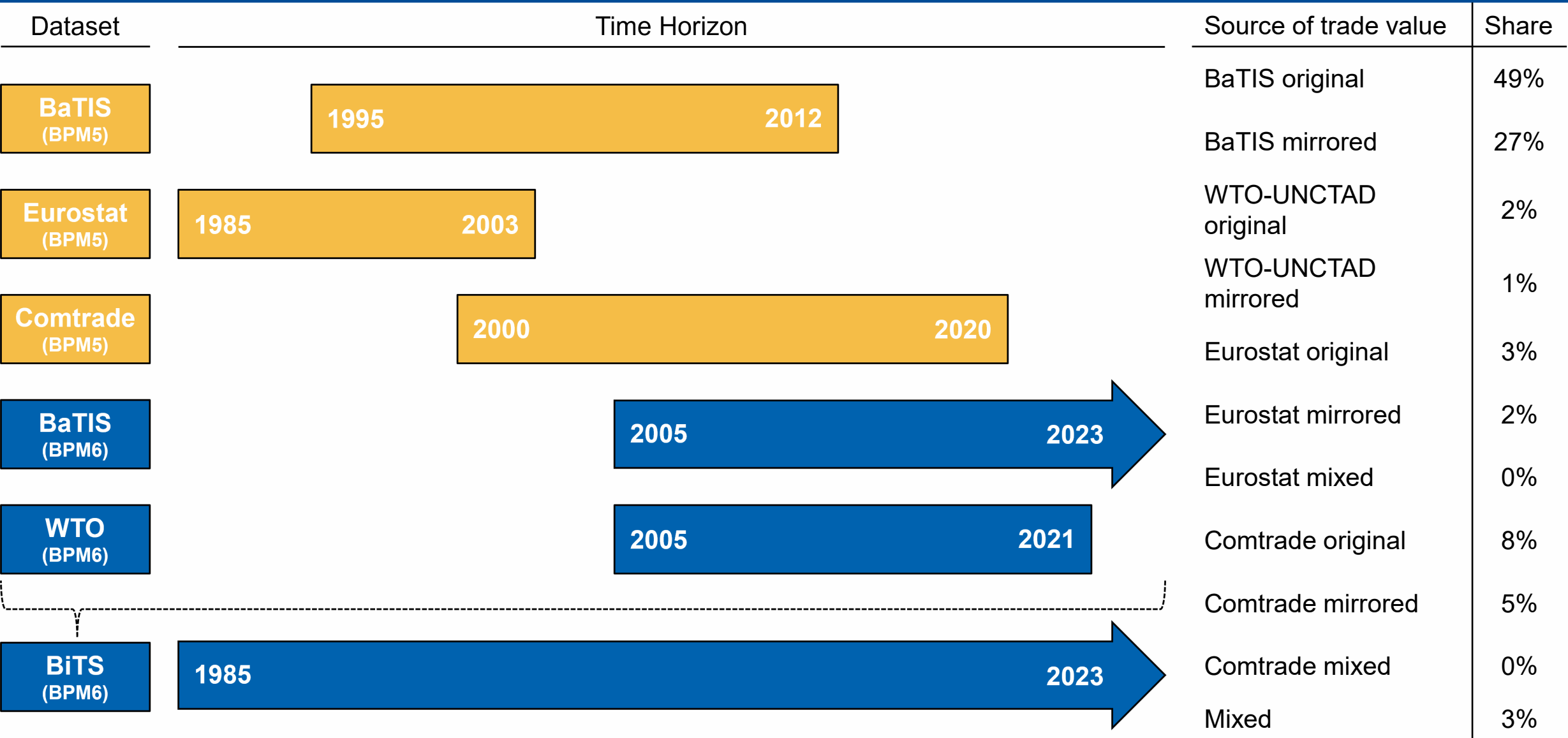   A.   "Gravity" forces in services trade…

      i.   …compared with goods trade

      ii.   …and the diminishing distance elasticity of services trade

   B.   Geoeconomic fragmentation in services…

      i.   …compared with goods trade

      ii.   …by service trade category

Brief introduction to BiTS

BiTS sources

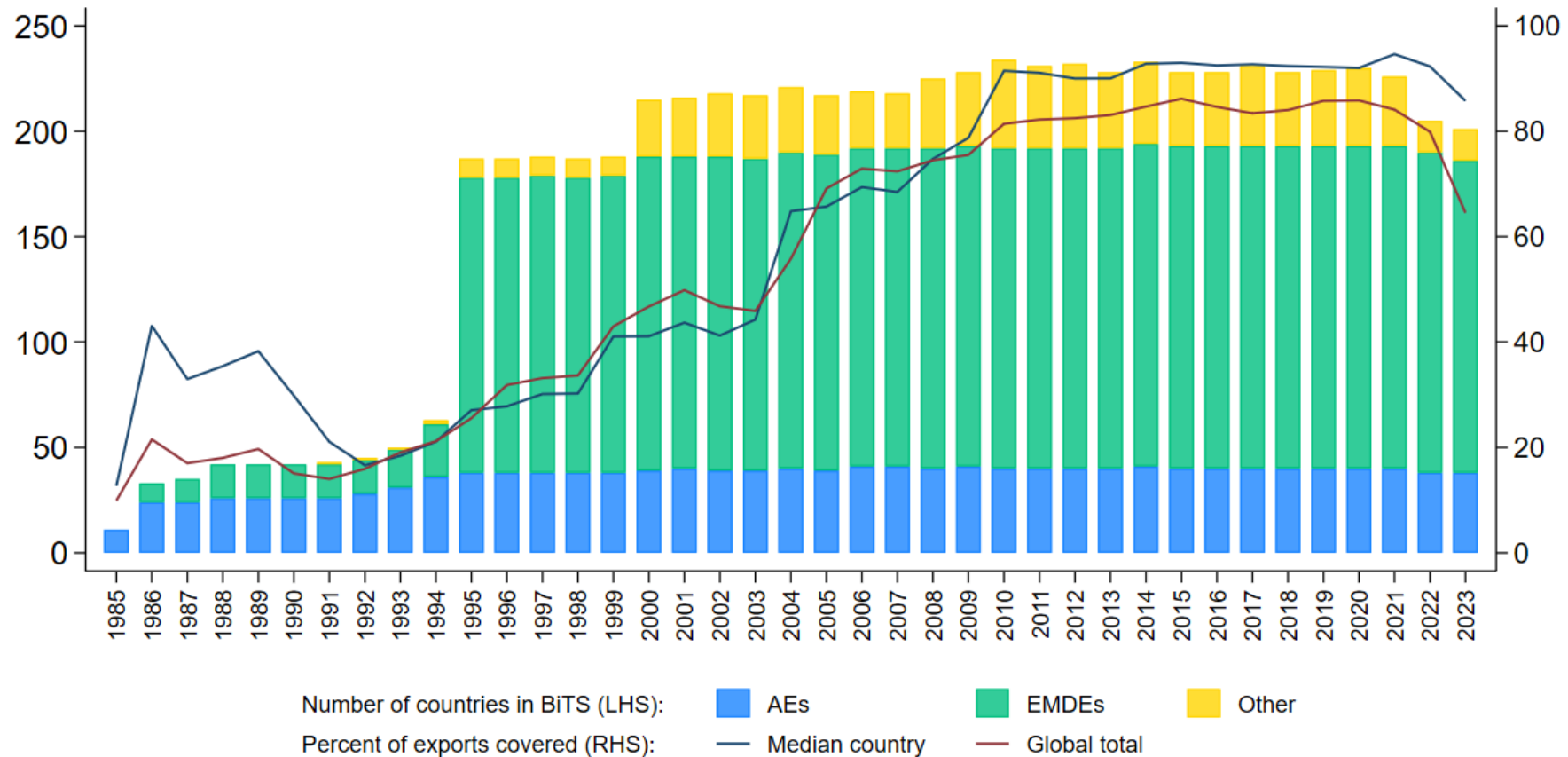| Dataset	Time Horizon	Source of trade value	Share
BaTIS (BPM5)	1995 — 2012	BaTIS original	49%
		BaTIS mirrored	27%
Eurostat (BPM5)	1985 — 2003	WTO-UNCTAD original	2%
		WTO-UNCTAD mirrored	1%
Comtrade (BPM5)	2000 — 2020	Eurostat original	3%
BaTIS (BPM6)	2005 — 2023	Eurostat mirrored	2%
		Eurostat mixed	0%
WTO (BPM6)	2005 — 2021	Comtrade original	8%
		Comtrade mirrored	5%
BiTS (BPM6)	1985 — 2023	Comtrade mixed	0%
		Mixed	3%

BiTS coverage: countries and values

Bilateral services trade country and value coverage in BiTS

(LHS: count of countries covered; RHS: percent of multilateral services covered)

Number of countries in BiTS (LHS): ■ AEs ■ EMDEs ■ Other

Percent of exports covered (RHS): — Median country — Global total

Sources: BiTS; WEO; and IMF staff calculations. AEs = Advanced Economies; EMDEs = Emerging and Developing Economies; Other = non-country geographical entities.

BiTS coverage: BPM6 service categories

S: Services		
	SA: Manufacturing services	
	SB: Maintenance and repair services	
	SC: Transport	SC1: Sea transport; SC2: Air transport; SC3: Other modes of transport; SC4: Postal and courier services
	SD: Travel	SDA: Business travel; SDB: Personal travel
	SE: Construction	SE1: Construction abroad; SE2: Construction in the reporting economy
	SF: Insurance and pension services	SF1: Direct insurance; SF2: Re-insurance; SF3: Auxiliary insurance services; SF4: Pensions and standardized guaranteed services
	SG: Financial services	SG1: Explicitly charged and other financial services; SG2: Financial and intermediation services indirectly measured
	SH: Charges for the use of intellectual property	SH1: Franchise and trademarks; SH2: R&D licenses; SH3: Computer software licenses; SH4: Audio-visual materials licenses
	SI: ICT services	SI1: Telecommunications services; SI2: Computer services; SI3: Information services
	SJ: Other business services	SIJ1: R&D services; SJ2: Professional and management consulting services; SJ3: Technical, trade-related and other business services
	SK: Personal, cultural and recreational services	SK1: Audio-visual and related services; SK2: Other personal, cultural and recreational services
	SL: Government services n.i.e.	

WTO: Other Commercial Services; Baldwin et al. (2024): "Modern Services"

Composition of bilateral services trade flows

**Share of categories in total bilateral services trade flows**
(Percent)
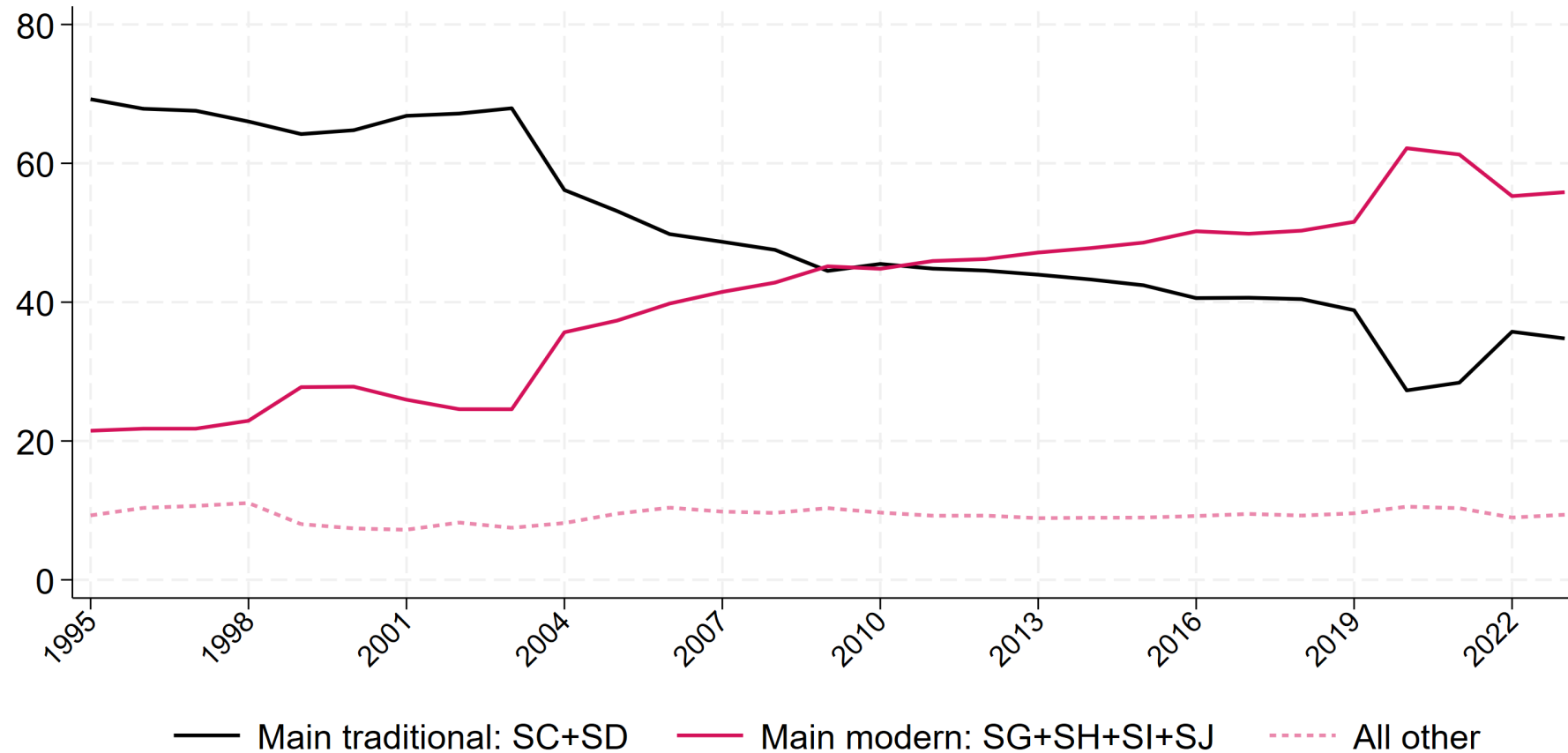
Sources: BiTS; and IMF staff calculations. SC = transport; SD = travel; SG = financial; SH = intellectual property; SI = ICT; SJ = other business services.

Application A:
"Gravity" forces in services trade

The networks of trade in goods and in services have distinct features...

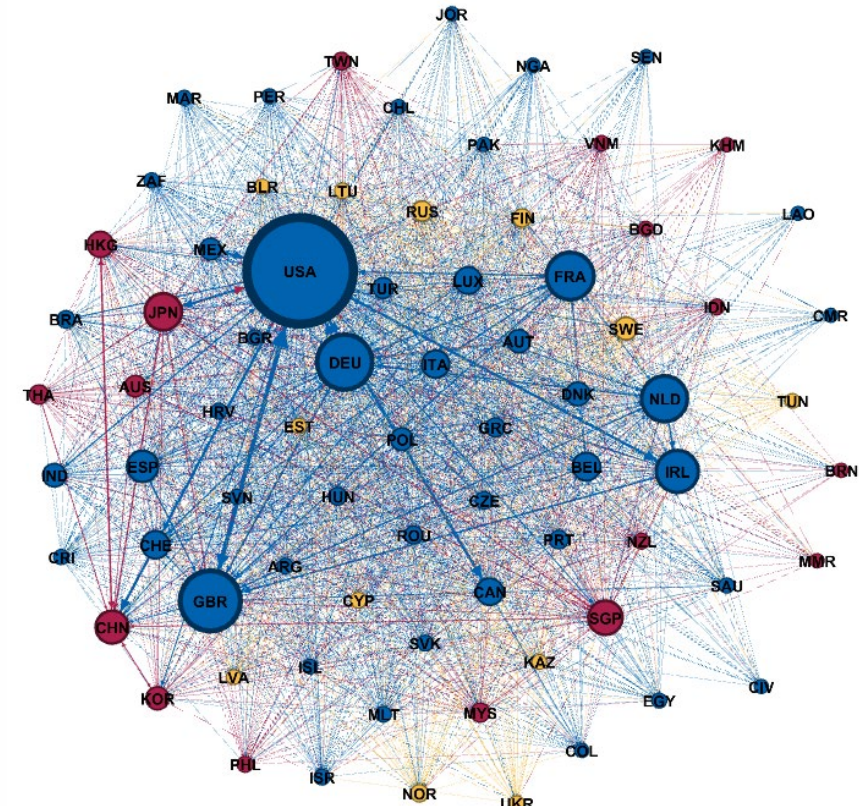Forces of "gravity" (size and geography) shape the network of trade in goods...

...but these forces are less apparent in the network of trade in services.

Goods trade network in 2019
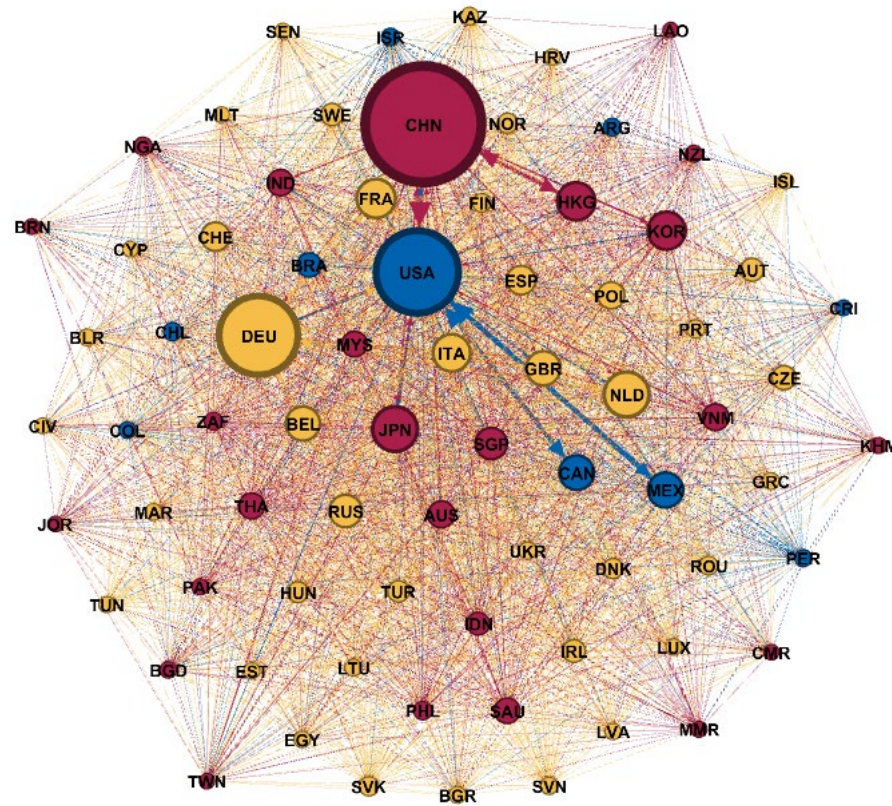
Sources: DoTS; and IMF staff calculations.

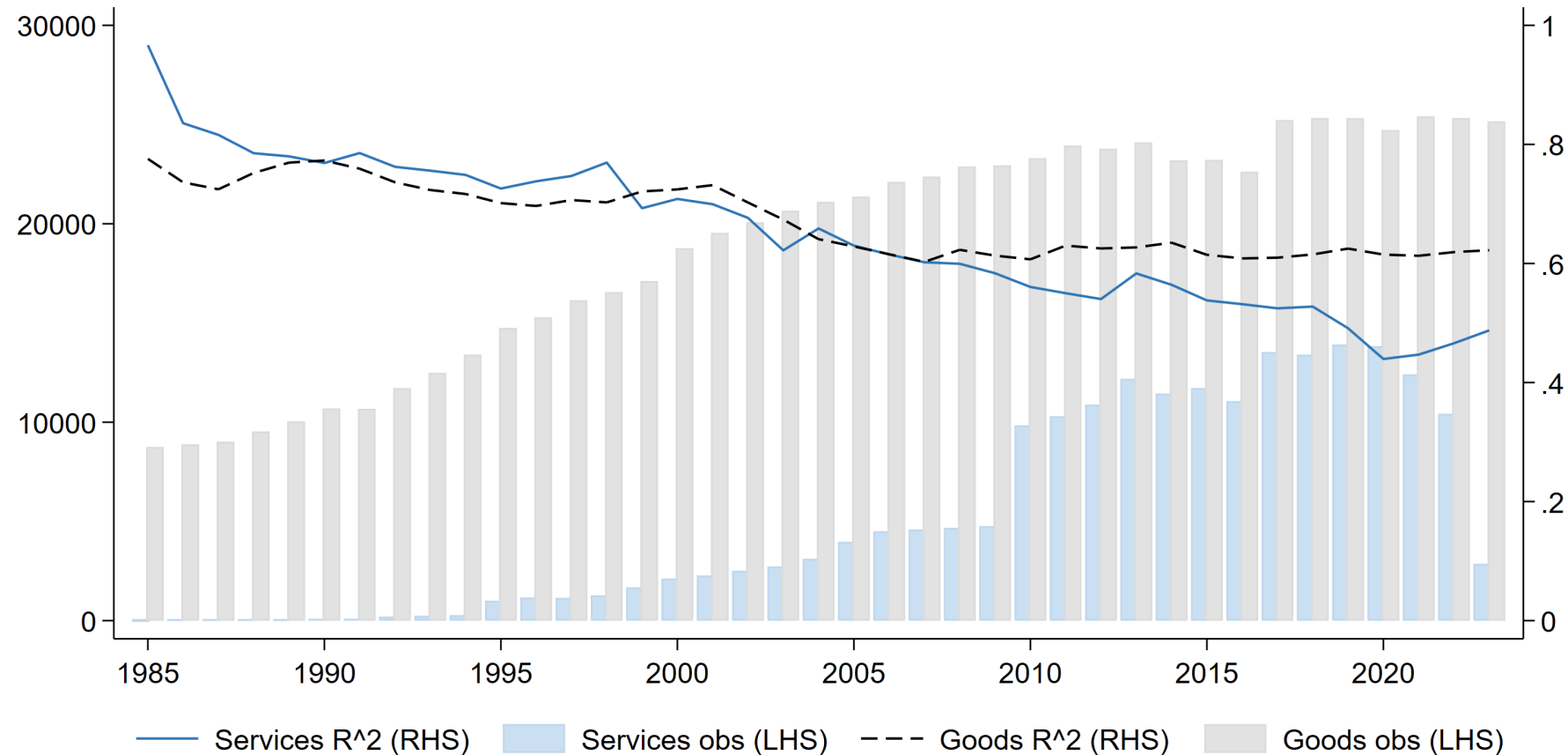**Services trade network in 2019**

Sources: BiTS; and IMF staff calculations.

The explanatory power of gravity forces for services has fallen below that for goods...

Naïve gravity fit for aggregate services and goods over time

(RHS: R^2; LHS: number of regression observations)

Sources: DoTS; BiTS; CEPII; and IMF staff calculations. Lines show the R^2 from estimating a naïve gravity regression (GDPs and distance only) with PPML for each of the years shown. Bars show the number of available observations for the regression.

...partly due to a decline in the distance elasticity reflecting the changing composition of services trade

Services trade composition and distance elasticity

(Estimated distance elasticity for aggregate services)
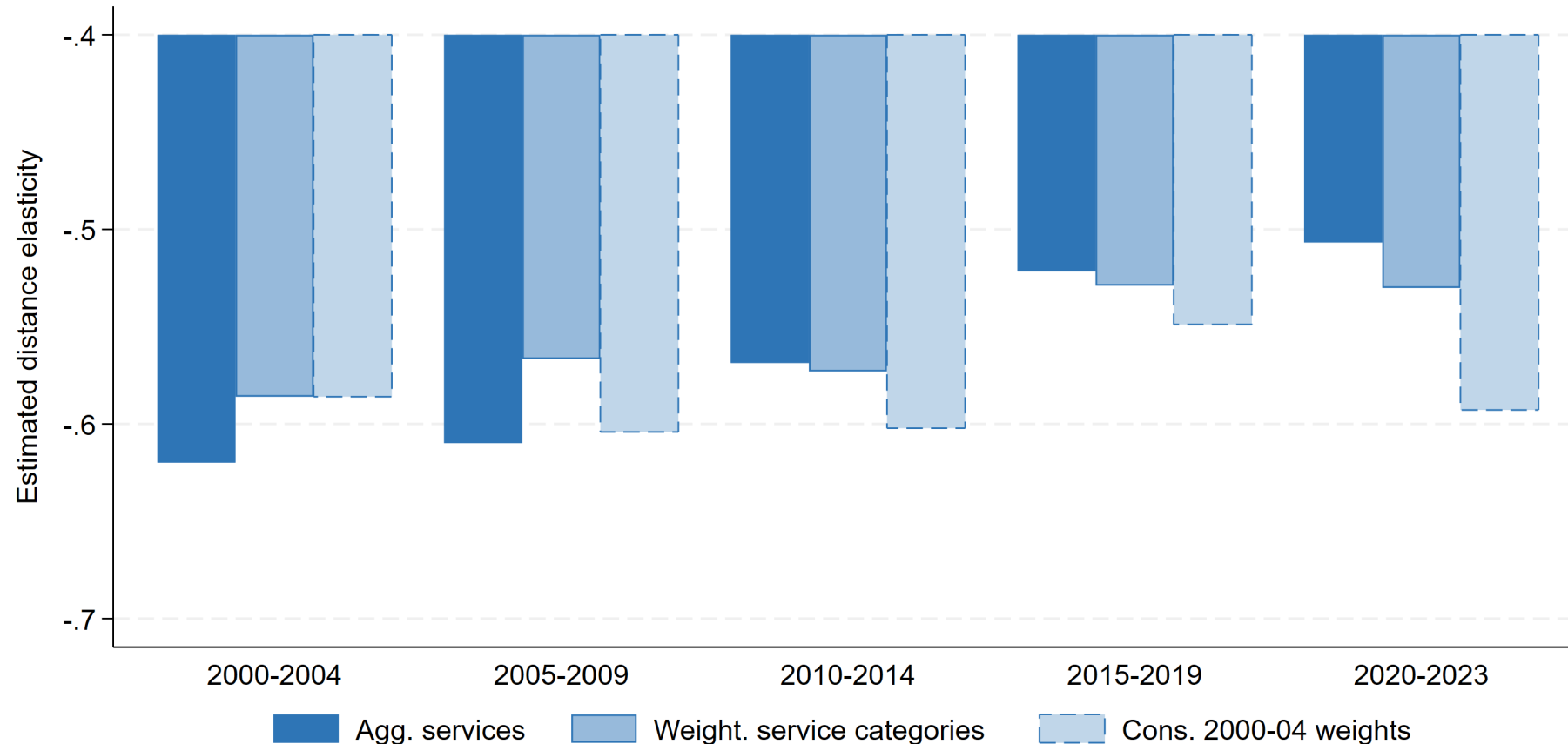
Sources: DoTS; BiTS; CEPII; and IMF staff calculations. Bars show estimates of the aggregate distance elasticity of services trade from structural gravity regressions estimated with PPML: i) aggregate services (navy); ii) broad categories, aggregated with contemp. trade weights (blue, solid) iii) broad categories, aggregated with constant 2000-04 trade weights (light blue, dashed).

Application B:
Geoeconomic fragmentation

Geoeconomic fragmentation

- It has been known for some time that bilateral political relationships influence the patterns of trade:
  Pollins (1989a,b), Mansfield and Bronson (1997), Anderton and Carter (2001), Keshk et al. (2004), Martin et al. (2008), Glick and Taylor (2010)

- Geopolitical tensions have been reshaping cross-border economic interactions since 2016: "geoeconomic fragmentation". (Aiyar et al., 2023)
  - **Trade in goods:**
    Alfaro and Chor (2023), Freund et al. (2024), Jakubik and Ruta (2023), Bonadio et al. (2024), Bosone et al. (2024), Hakobyan et al. (2024), Gopinath et al. (2025), Carluccio et al. (2025)
  - **Trade in capital/financial assets:**
    Aiyar et al. (2024), Catalán et al. (2024)

- What about **trade in services?**

Unlike for goods, the role of diplomatic alignment in services trade has not intensified since 2016

Trade effect of standard deviation increase in UN-vote ideal point distance
(Log points)
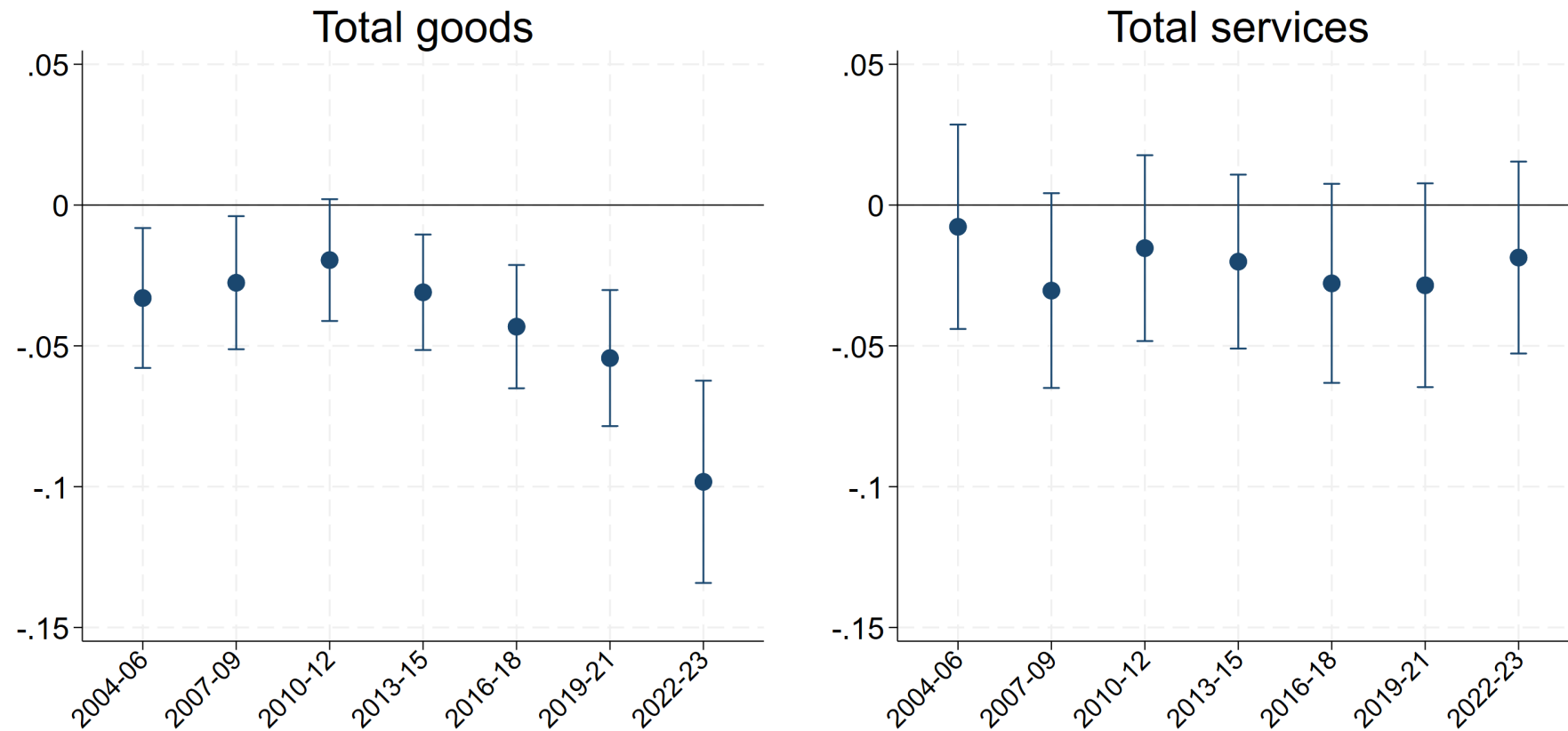
Sources: DoTS; BiTS; CEPII; and IMF staff calculations. Based on panel gravity regressions for the period 2004-2023 with importer-period, exporter-period and importer-exporter fixed effects, and controlling for FTAs/RTAs and EU membership. Circular markers show PPML estimate, and vertical bars correspond to 95-percent confidence intervals.

However, modern services appear more sensitive to diplomatic alignment than traditional services

Trade effect of standard deviation increase in UN-vote ideal point distance

(Log points)

● Main traditional services   ● Main mordern services
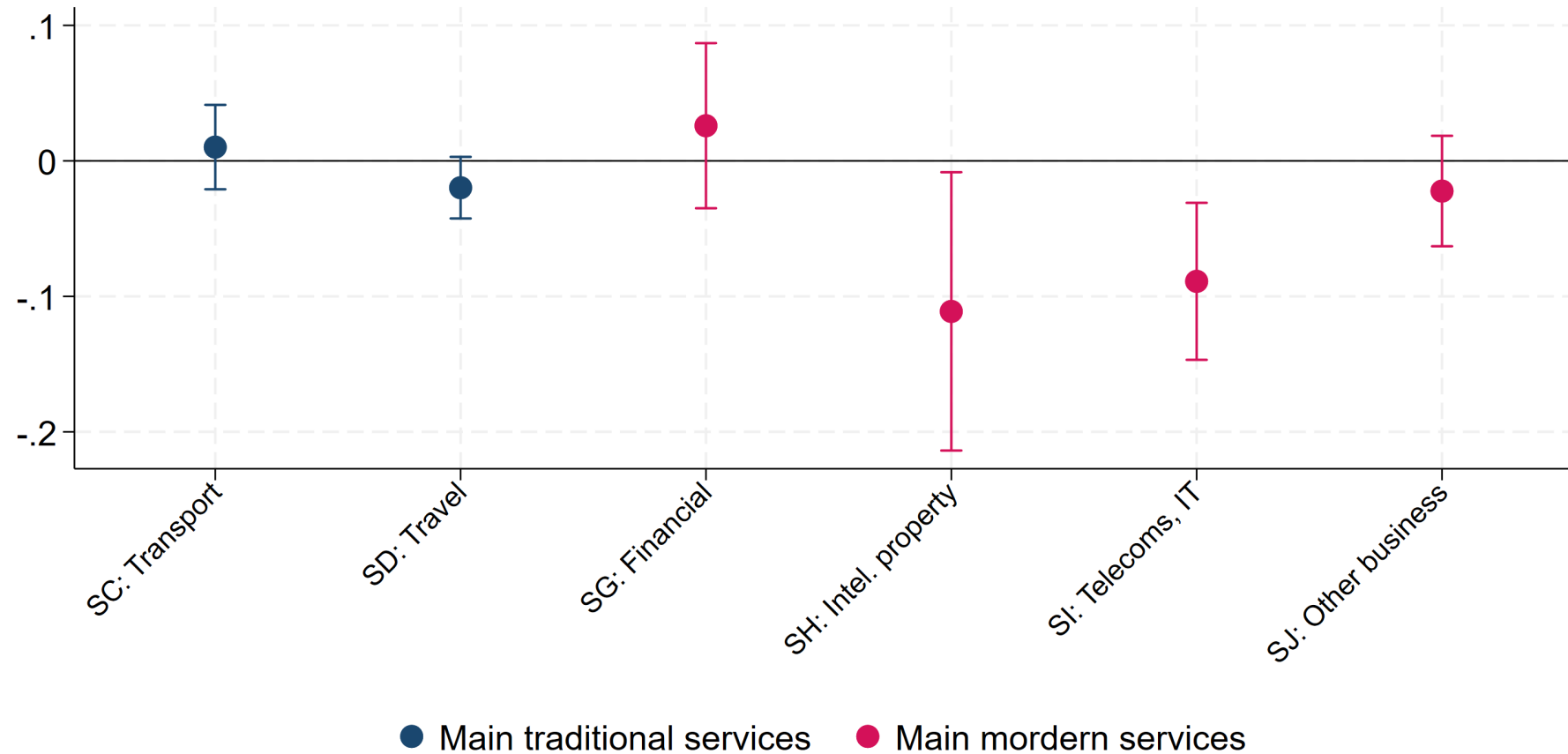
Sources: BiTS; CEPII; and IMF staff calculations. Based on panel gravity regression for the period 2004-2023 with importer-period, exporter-period and importer-exporter fixed effects, and controlling for FTAs/RTAs and EU membership. Circular markers (dashed lines) show PPML estimate, and vertical bars (shaded areas) correspond to 95-percent confidence intervals.

Summary and Conclusions

Summary and Conclusions

- BiTS is a new resource to study bilateral services trade – for overall services, and different service-export categories.

- We use it to investigate differences in goods and services trade (dis-)integration.

- Main findings:

  - ➢ **Unlike for goods,** the explanatory power of gravity for services has been declining over recent decades.
  - ➢ Partly reflects the rise of modern services that are <u>less sensitive to distance</u>.

  - ➢ **Unlike for goods,** there is little evidence so far that geoeconomic fragmentation of services trade is intensifying since 2016.
  - ➢ However, modern services appear <u>more sensitive to geopolitical alignment</u>.

Please consider downloading BiTS!