

When the export mix changes the story

Domestic services in manufacturing exports across four selected economies, 2015-2022

Abstract

A falling domestic-services share of manufacturing exports can conceal two different accounts. This paper reconstructs that share for India, China, Indonesia and Viet Nam from OECD TiVA 2025 data, then compares the observed changes with changes under fixed endpoint export weights. Indonesia's share falls by 0.744 percentage points between 2015 and 2022, but rises under either fixed-weight comparison; the symmetric within-industry term is positive. India's share falls by 1.521 points between 2019 and 2022 and remains negative under both fixed-weight comparisons, including when coke and refined petroleum are excluded. In India, petroleum's own services share rises. Yet its gain in export weight receives a negative entry when the basket-wide composition term is allocated around the mean of the two endpoint manufacturing shares. That allocation is a convention, not evidence that petroleum alone caused the aggregate decline. The comparison separates a decline associated with a changing industry mix from one that survives the tested composition checks. Neither establishes a reduction in real services use: India's reconstructed current-price domestic-services value-added estimate rises from \$49.65 billion to \$66.38 billion during its falling-share window. The paper contributes a reproducible comparative accounting investigation, using an established weighting method, explicit industry counterexamples and a defined route for testing relative-price effects.

1. Petroleum's services share rose while manufacturing's fell

India's coke and refined petroleum industry moved in the opposite direction from the manufacturing aggregate between 2019 and 2022. Its domestic-services share rose from 3.290% to 4.727% of gross exports, even as the corresponding share across manufacturing fell from 17.802% to 16.282%. Petroleum also grew from 16.828% to 21.501% of the manufacturing export basket.

These movements can coexist because petroleum's services share, despite rising, remained far below the manufacturing average. When a below-average industry gains weight and higher-share industries lose it, the basket average can fall while the industry's own share rises. The later decomposition assigns industry contributions around a midpoint benchmark; under that convention, petroleum's weight gain receives a negative entry. This describes reallocation across the basket. It does not identify an effect caused by petroleum alone.

Manufactured exports carry domestic logistics, finance, distribution and other services into foreign markets through the products sold. The reconstructed share measures one part of those links. But a change in the aggregate that comes from the mix of exported industries answers a different question from a change in services shares within the same industries.

For India over 2019–2022, both movements contribute to the decline. Across all manufacturing groups, the domestic-services share falls from 17.802% to 16.282%. A symmetric decomposition assigns -0.605 percentage points to changes within industries and -0.916 points to changing export composition. Petroleum contributes positively to the first term but receives a negative entry in the midpoint-centred allocation of the second. Removing it does not remove the decline.

Indonesia provides the countercase. Its domestic-services share falls between 2015 and 2022, yet the within-industry term is positive. Holding either endpoint's industry weights fixed changes the sign of the comparison. An observer who treated both countries' falling aggregates as evidence of the same deterioration would miss a material difference in the accounts.

The question is narrower than whether manufacturing is becoming more sophisticated: how much does a changing export mix alter the reading of domestic-services shares, and which observed declines survive the tested fixed-weight comparisons? The answer depends on preserving the denominator, separating the two movements and looking inside the industries that enter each sum. These are current-price accounts. A change that survives export-weight checks has not thereby become a change in real services use.

2. What the ratio measures

For an exporting manufacturing industry, the numerator is value added originating in domestic services industries and embodied in that industry's gross exports. The denominator is the gross value of those exports. The measure follows the source of value added through production links; it is not simply a count of services invoices paid directly by an exporter. The OECD definition includes construction within services, covering ISIC Rev. 4 divisions 41–98.[1, pp.29–30]

“Domestic” identifies the source economy of the value added. It does not identify the nationality of the company that produces it. A foreign-owned services business operating in India can contribute to India's domestic-services numerator. Conversely, the indicator cannot establish that Indian-owned firms captured a particular part of the value generated abroad. Ownership, income received by shareholders and the location of production are different questions.

The same denominator also matters for interpretation within a country. A services share can fall even when the reconstructed current-price services estimate rises, provided gross exports rise faster. India's reconstructed domestic-services numerator increases from \$49.65 billion in 2019 to \$66.38 billion in 2022. Manufacturing gross exports increase from \$278.92 billion to \$407.71 billion. The share consequently falls by 1.521 percentage points. Calling this a fall in the domestic-services dollars embodied in exports would reverse the evidence.

The numerator and denominator are both in current US dollars. Their increases do not establish corresponding increases in quantities. Nor does a larger services share automatically imply greater productive capability. It could accompany higher service prices, a different set of manufactured exports, more purchased services, or other changes in the production structure represented by the input-output accounts. The ratio alone cannot distinguish those explanations. In particular, it does not measure

whether manufacturing firms use more sophisticated services inside their own organisations.

To keep the accounting boundaries visible, the reconstruction also retains three other components: foreign services, domestic non-services and foreign non-services. Domestic non-services are total domestic value added less domestic-services value added; the foreign counterpart is constructed similarly. “Non-services” is a complement, not another name for manufacturing or for directly imported goods. Any gap between gross exports and the reported domestic-plus-foreign value-added totals remains a separate residual.

This four-component record prevents one change from silently becoming another claim. A decline in domestic services is not necessarily a decline in all domestic value added. A rise in foreign services is not necessarily an equal displacement of domestic services. For example, India's domestic- and foreign-services shares both rise over 2015–2022, whereas its shorter 2019–2022 window combines a domestic-services decline with a foreign-services rise. Those are observations about value-added origins, not evidence identifying substitution between particular suppliers.

The most informative reading keeps two comparisons together: the level of domestic-services value added relative to gross exports, and the same industries under fixed export weights. The first prevents a share from being mistaken for an amount. The second reveals how the changing export basket enters the ratio. Neither is a national performance ranking.

3. Reconstructing the comparison

The empirical panel uses the OECD's 2025 TiVA edition, with observations for 2015–2022, and the same manufacturing partition in four selected economies: India, China, Indonesia and Viet Nam. The four economies are deliberately selected comparisons, used here to develop contrasting accounting cases rather than estimate prevalence across Asia. The retained record does not establish an ex ante sampling rule. Each country's weights sum to one within its own manufacturing exports. The paper neither pools their export denominators nor estimates a regional average.

The partition contains 16 nonoverlapping manufacturing groups. It covers food, beverages and tobacco; textiles, clothing and leather; wood, paper and printing; coke and refined petroleum; chemicals; pharmaceuticals; rubber and plastics; other non-metallic minerals; basic metals; fabricated metals; computer, electronic and optical products; electrical equipment; machinery; motor vehicles; other transport equipment; and other manufacturing and repair. The replication appendix supplies the exact activity codes. Broad aggregates are not added to their own constituent industries.

For each group, the reconstruction multiplies its domestic-services percentage by its gross exports to recover a current-dollar numerator. Summing these numerators and dividing by summed gross exports produces the manufacturing share. This is equivalent to weighting industry shares by each industry's fraction of gross exports. The same procedure constructs the foreign-services component; reported domestic and foreign value-added levels supply the two non-services complements.

The main analysis consistently uses this reconstructed partition. The source also publishes a manufacturing aggregate, against which the reconstruction is checked. The largest absolute level discrepancy across the four component shares and the 32 country-year comparisons is approximately 0.000628 percentage points. Those gaps are retained separately; their cause is not assumed to be rounding. This is a check on consistency between two constructions, not a claim that every source observation is measured without error. The OECD also warns that estimates for recent years require caution: for many economies, official supply-use tables lag by three to five years, so recent ICIO structures are extrapolated and adjusted using national accounts, balance-of-payments and bilateral-trade information.[1, p.43] The 2022 endpoint is therefore an estimated accounting observation with model and revision uncertainty that the figure's deterministic arithmetic does not quantify.

Two endpoint windows are used: 2015–2022 and 2019–2022. The longer window supplies a wider comparison; the second asks whether the endpoint result changes when the starting point moves. Neither choice establishes a structural break, and two endpoint contrasts cannot show that a movement occurred steadily in every intervening year. The full eight-year input panel remains in the replication files so that the endpoints are not mistaken for the entirety of the retained evidence.

Let an industry's services share be s and its fraction of manufacturing gross exports be w . The aggregate share is the sum of $w \times s$. The first fixed-weight test applies the starting year's weights to both years' industry shares; the second applies the ending year's weights to both. If the observed aggregate falls but both fixed-weight comparisons rise, changing export composition is essential to that sign difference under these particular weight vectors.

For a complete accounting split, the paper averages each industry's two endpoint weights and multiplies that average by its change in services share. Adding the results gives the within-industry term. The composition term multiplies each industry's average services share by its change in export weight. The two sums add exactly to the observed aggregate change before display rounding. “Within” here means within the reported industry groups; it does not isolate technology, quantities or changes within identical firms.

This method has a clear precedent. Miroudot and Cadestin's 2017 OECD study compares domestic and foreign services content using fixed end-period industry export weights, including India in its country comparison.[3, pp.16–17] The present contribution is the newer, reproducible four-economy comparison, the paired time windows and exclusions, and the industry detail behind the contrasting signs. Applying fixed weights is not itself a methodological invention.

4. India's answer changes with the starting date

Over 2015–2022, India's domestic-services share rises from 15.371% to 16.282%, a gain of 0.910 percentage points. Its reconstructed current-price numerator rises from \$34.33 billion to \$66.38 billion, against gross manufacturing exports of \$223.36 billion and \$407.71 billion. Under the starting-year weights, the services-share increase is 2.014 points; under the ending-year weights it is 1.519 points. Both exceed the observed increase.

The decomposition explains that difference. The within-industry term is +1.766 points, partly offset by −0.856 points from composition. On this comparison, the shift in export weights dampens an increase that is larger under either fixed endpoint basket. The aggregate is positive, but it understates those particular fixed-weight changes.

Moving the starting point to 2019 changes the signs. India's observed decline of 1.521 points is larger than either fixed-weight decline: −0.643 points with 2019 weights and −0.566 points with 2022 weights. Composition amplifies the fall, but does not create the negative sign in those tests. The contrast with the longer window rules out describing these endpoints as a single, steadily rising story of domestic-services integration.

India, reconstructed manufacturing	2015	2019	2022
Domestic-services value added in gross exports, current US\$bn	34.33	49.65	66.38
Manufacturing gross exports, current US\$bn	223.36	278.92	407.71
Domestic-services share, %	15.371	17.802	16.282
Foreign-services share, %	8.386	9.155	10.383

Table 1. The numerator and denominator both rise during India's falling-share window. Source: reconstruction from OECD TiVA 2025 for India, using the 16-group manufacturing partition and the years shown. Dollar levels are nominal; percentages are calculated before rounding.

Coke and refined petroleum deserve a separate test because their changing weight is substantial. Excluding that group and recalculating all remaining weights produces a 2.196-point domestic-services increase over 2015–2022. Over 2019–2022, however, the remaining manufacturing share still falls by 1.292 points. The shorter-window decline is also negative with either fixed endpoint basket after exclusion: −1.064 and −1.115 points.

The exclusion does more than remove one negative number. Over 2019–2022 it reduces the negative composition term from −0.916 to −0.203 points, while making the within-industry term more negative, from −0.605 to −1.089 points. Petroleum supported the within-industry sum even as the midpoint-centred allocation assigned its weight gain a negative composition contribution. Removing it eliminates that positive contribution and changes the weights of every remaining industry.

India's shorter-window decline cannot be described solely as the result of petroleum gaining export weight. Nor is it evidence of falling real demand for domestic services. Even the fixed-weight residual combines price movements and other changes inside broad industry groups. The accounting eliminates one insufficient explanation without proving a particular alternative.

Foreign services do not move as the mirror image of domestic services. Their share rises by 1.997 points over the longer window and by 1.228 points over the shorter one, using values rounded to three decimals. The long-window domestic and foreign increases coexist; the short-window movements have opposite signs. A simple one-for-one contest between them would impose a restriction that these separate components do not satisfy.

5. Four economies, more than one kind of decline

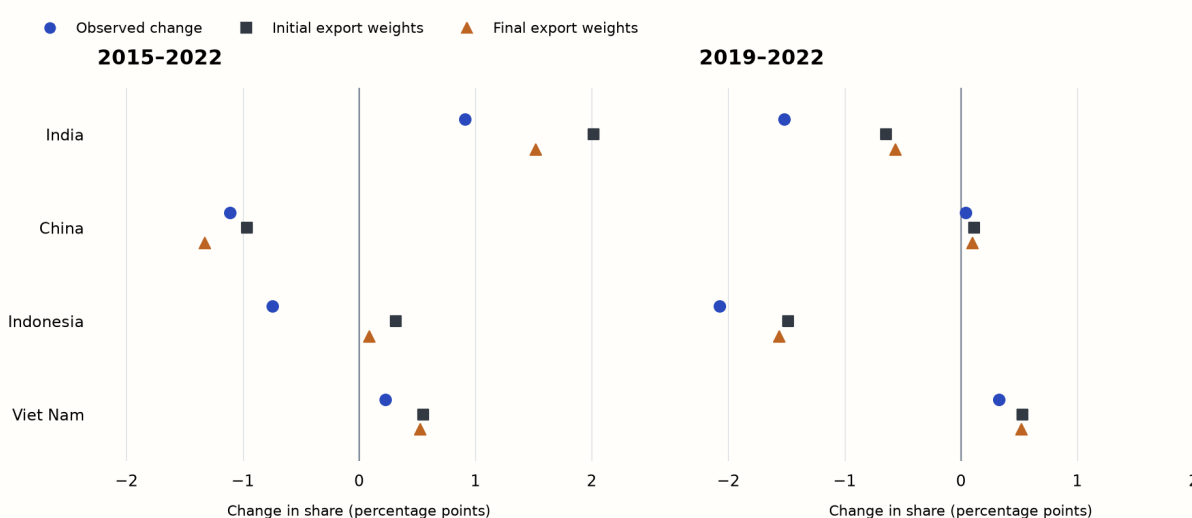
Indonesia's 2015–2022 comparison is the clearest warning against reading the aggregate sign alone. Its domestic-services share falls from 19.125% to 18.381%, or 0.744 percentage points. Yet it rises by 0.315 points under the starting-year weights and by 0.086 points under the ending-year weights. The symmetric within-industry term is +0.200 points; the composition term is −0.944 points.

This sign difference survives the petroleum exclusion. Outside coke and refined petroleum, Indonesia's observed share falls by 0.693 points, while the within-industry term remains positive at +0.197 points. Both fixed-weight changes are positive there too. Petroleum is therefore not necessary for this particular contrast between the observed and fixed-weight signs.

The dollar amounts rule out another loose reading. Indonesia's reconstructed current-price domestic-services value-added estimate rises from \$17.77 billion in 2015 to \$29.94 billion in 2022; gross exports rise from \$92.91 billion to \$162.88 billion. Its falling share is not a fall in current-dollar services value added. Together with the fixed-weight results, this is more specific than a general claim that domestic services were retreating from manufacturing.

Domestic services in manufacturing exports

Observed and fixed-weight changes · percentage points



Each economy uses its own 16-industry manufacturing partition and initial or final export weights.

These are current-price accounting comparisons. Two fixed-weight tests do not establish a cause or a real-volume change.

Source: OECD TiVA 1.1, retrieved 12 September 2026; P02 session11. Selected economies, not a regional sample.

Figure 1. Each point is a percentage-point change in domestic-services value added as a share of the same country's manufacturing gross exports. "Initial" and "final" hold industry export weights at the corresponding endpoint. Countries have separate denominators. Source: OECD TiVA 2025 reconstruction, all 16 manufacturing groups; exact plotted values accompany the replication files.

Indonesia's shorter window prevents the countercase itself from becoming an overgeneralisation. From 2019 to 2022, its observed share falls by 2.073 points and both fixed-weight changes are negative, at −1.483 and −1.562 points. The within term is −1.523 points. The reconstructed current-price numerator nevertheless rises from \$20.76 billion to \$29.94 billion, while gross exports increase from \$101.49 billion to \$162.88 billion. A country can display different combinations of level, share

and composition movements depending on the period.

Including China and Viet Nam supplies two additional combinations and reduces reliance on the India-Indonesia contrast; it does not make the selected set representative. China's share falls by 1.110 points over 2015–2022, with both fixed-weight changes negative. Its within term is –1.145 points, and composition provides a small positive offset. Over 2019–2022 its aggregate share changes by only +0.044 points; the fixed-weight increases are +0.112 and +0.100 points. The domestic-services numerator rises from \$408.21 billion in 2015 to \$428.23 billion in 2019 and \$617.09 billion in 2022, against gross exports of \$1,730.06 billion, \$1,908.17 billion and \$2,744.38 billion.

Viet Nam's domestic-services share rises in both windows: +0.227 points over 2015–2022 and +0.326 points over 2019–2022. Both fixed-weight changes are positive in each window, with negative composition offsets. Its services numerator rises from \$8.13 billion through \$13.67 billion to \$20.79 billion at the three endpoints; gross exports rise from \$133.94 billion through \$228.93 billion to \$330.15 billion. The relatively low level of this particular share cannot by itself establish low productive capability or low total domestic value capture.

The informative pattern is not a league table. Indonesia's longer-window aggregate decline changes sign under the tested fixed weights; India's shorter-window decline survives them; China and Viet Nam supply additional combinations rather than a universal rule. This comparison also shows why testing the same window across countries and more than one window within countries is necessary. Otherwise a chosen date can do the interpretive work that is being attributed to a national economic model.

6. The industries behind the sums

The paired decompositions show where to look more closely, though they do not explain why particular industries changed. The aggregate within/composition split is exact and does not depend on centring; the allocation of composition among industries does. Table 2 places the two contrasting cases and their petroleum exclusions alongside one another.

Country and period	Manufacturing scope	Observed change	Within industries	Export composition
Indonesia, 2015–2022	All 16 groups	–0.744	+0.200	–0.944
Indonesia, 2015–2022	Excluding coke and refined petroleum	–0.693	+0.197	–0.890
India, 2019–2022	All 16 groups	–1.521	–0.605	–0.916
India, 2019–2022	Excluding coke and refined petroleum	–1.292	–1.089	–0.203

Table 2. Percentage-point changes in domestic-services value added as a share of the stated partition's gross exports. Symmetric within and composition terms sum to the observed change before rounding. Exclusion recalculates the denominator and all industry weights; row differences are not a causal estimate of petroleum's effect.

In Indonesia, basic metals gains export weight while its own domestic-services share falls. Its fraction of manufacturing exports rises from 5.732% to 10.517%; its services share falls from 11.476% to 7.376%. It contributes -0.333 points to the within-industry total. The positive aggregate within term therefore does not mean that every industry's share increased.

The offsets are economically distinct industries. Computer, electronic and optical products contribute $+0.519$ points to Indonesia's within term. Motor vehicles contribute $+0.208$ points, and wood, paper and printing $+0.186$ points. Against them, basic metals and food, beverages and tobacco contribute -0.333 and -0.234 points respectively. The full sum includes all 16 groups, not just these large entries. Reporting only electronics would conceal the falling shares elsewhere; reporting only basic metals would conceal the positive weighted total.

Industry-level composition numbers need one additional convention. In the uncentered identity, an industry receives a positive composition term whenever its weight rises and its average services share is positive. That can be unhelpful for interpreting a low-share industry gaining weight: the positive entry alone does not show how the reallocation compares with the industries losing weight.

The paper therefore also centres each industry's composition contribution on a stated benchmark: the average of the country's manufacturing services shares at the two endpoints. The term becomes the industry's average services share minus that benchmark, multiplied by its change in export weight. Because all weight changes sum to zero, subtracting this common benchmark leaves the total composition term unchanged. It changes the allocation of that total among industries.

Under this convention, Indonesia's basic metals contribution is -0.446 points, the largest negative industry composition entry in that case. Textiles, clothing and leather contribute -0.180 points, and rubber and plastics -0.133 points: both are above-benchmark industries losing export weight. The same aggregate can therefore be pulled down by a low-share industry gaining weight and by high-share industries losing it. These allocations depend on the centring benchmark; they are not uniquely identified causal contributions.

India's petroleum case works differently inside the industry but similarly through its weight. Its services-share increase contributes $+0.275$ points to the within sum. Its rising export weight contributes -0.609 points to the centred composition allocation because its services share remains below the manufacturing benchmark. The negative within total comes from industries outside petroleum. Food, beverages and tobacco contribute -0.284 points; basic metals -0.264 points; chemicals -0.201 points.

Removing petroleum from India reduces the negative composition term, yet makes the within term more negative. Removing it from Indonesia leaves the longer-window sign contrast largely intact. The tests do not deliver the same answer in every case. They show where a sector-specific explanation is insufficient and where the residual question lies elsewhere.

None of this identifies an oil-price effect, an industrial-policy effect, or a change in firms' sourcing decisions. The decomposition concerns values and weights at two

endpoints. Its practical use is to specify the next investigation: examine the changing services shares and export weights of the relevant industries, with prices and production quantities separated where compatible evidence allows. A broad assertion about manufacturing's dependence on domestic services is less informative than that testable set of questions.

7. The rival explanation that remains

Relative prices are the strongest unresolved alternative to a real-services interpretation. If an industry's exported product becomes more expensive relative to services embodied in it, its services-value-added share can fall without an equivalent reduction in the services quantities associated with production. At the manufacturing level, the industry's export weight can also rise. Prices can therefore enter both the within and composition terms.

Fixing export weights addresses the second channel only as an accounting comparison. It leaves the observed, current-price industry shares in place. Removing petroleum changes the set of industries; it does not turn the remaining observations into constant-price data. A negative within term outside petroleum is a reason to investigate a broader set of industries, not proof that the price explanation has disappeared.

A useful next test would reconstruct the same domestic-services numerator and gross-export denominator from compatible current-price and previous-year-price input-output tables. The OECD's 2026 account of its price-and-volume work describes industry output, value-added and final-demand deflators, with broader imputations where required and balancing to reconcile table margins.[5, pp.35–36] These are compiled estimates. They should not be presented as firm-level observations of purchasing or production.

Compatibility matters as much as access. The industry and services definitions must match; the current-price reconstruction must reproduce the nominal anchors used here; currency, valuation and vintage must be reconciled. Matching activity labels alone does not demonstrate that a different table reproduces the same numerator. The source's aggregation and proportionality limitations remain relevant even after a successful price reconstruction.[5, pp.38–39]

The required full matched matrices have not been obtained in this investigation. The retained backward-GVC-participation extract does not contain a domestic-services numerator or the underlying production-flow matrices, so it cannot fill that gap. No empirical volume series is reported. The methods appendix instead records a prospective linking calculation and a small, explicitly invented test that catches the error of summing separately chained industries as though chain-linked measures were additive.

Using one common deflator on both the numerator and denominator would not resolve the issue: it cancels from the ratio. A credible price comparison needs relative information about the components being compared. If a compatible reconstruction later preserves India's shorter-window decline and Indonesia's longer-window fixed-weight sign contrast, the nominal pattern would have a stronger counterpart in price-adjusted measures. If it does not, the historical nominal findings would remain

correct, but their interpretation as changes in real services intensity would weaken or disappear.

8. What the comparison changes

The headline share conceals a material distinction. Indonesia's 2015–2022 aggregate decline is accompanied by positive changes under both tested fixed endpoint baskets. India's 2019–2022 decline remains negative under both baskets, including outside coke and refined petroleum. Export composition changes the sign in one comparison and amplifies a decline that survives those checks in the other.

This matters for the questions asked of export development. A falling aggregate alone is insufficient grounds for concluding that domestic services are contributing fewer dollars, that every manufacturing industry has reduced its services content, or that a policy has failed to strengthen production links. India and Indonesia both record rising nominal services numerators during the falling-share windows examined here. The industry evidence then separates movements that those levels alone cannot reveal.

The exercise belongs to an established literature on services embodied in manufacturing exports. In addition to the fixed-weight precedent, Thangavelu, Wang and Oum distinguish domestic and foreign services origins and explicitly discuss endogeneity in their empirical framework.[4, §§2.2, 3.2, 4.1] Their discussion paper concerns 61 economies, not 61 Asian countries. Its regression setting does not provide causal identification for the descriptive comparison made here. The OECD's India country note already reports the broad 2022 services composition; reproducing that endpoint is a source check, not the paper's discovery.[2, p.3]

Two closely related academic leads remain unavailable in full text to this investigation: Chakrabarty and Chanda's India-China working paper and Pattnayak and Chadha's study of Indian manufacturing exports.[6–7] No results are attributed to unread originals, and the paper makes no priority claim for its combination of comparisons. Its empirical contribution is the transparent reconstruction and the discriminating industry counterexamples, not an assertion that nobody has asked a related question.

The next observation that would most advance the argument is a matched price-adjusted reconstruction of these same comparisons. Adding more countries before resolving what the ratio means would broaden coverage without necessarily deepening the answer. The important test is whether the distinction between a changing export basket and changes within industries survives a compatible treatment of prices. Until then, the nominal evidence supports a precise conclusion: two falling services shares need not describe the same development, and neither should be read without the amounts and industries beneath it.

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Replication and methods appendix

Input scope. The retained source panel contains annual observations for IND, CHN, IDN and VNM, 2015–2022; world counterpart; annual frequency. MAINSH supplies EXGR_SERV_DVA and EXGR_SERV_FVA in percent of gross exports. MAINLV supplies EXGR, EXGR_DVA and EXGR_FVA in current US\$ million. The indicator guide uses the longer DVASH/FVASH names for the share definitions; the dataflow codes above identify the actual downloaded measures. The main partition is C10T12, C13T15, C16T18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30 and C31T33. The exclusion drops C19 and renormalises weights.

Levels and residuals. For each industry, domestic-services value added $N = X \times s/100$. Manufacturing X and N are sums over the nonoverlapping groups. Domestic non-services = DVA – N ; foreign non-services = FVA minus foreign-services value added. The source residual is $X - \text{DVA} - \text{FVA}$. The four reconstructed cells plus that residual sum to X ; the residual is not allocated to a preferred category. Country-year partition-versus-source-aggregate differences remain a separate check. Display rounding occurs after calculation.

Decomposition. With shares s in percent and export weights w as fractions summing to one, $S(t) = \sum_i w_i(t) s_i(t)$. Let bars denote the average of the two endpoints. The exact identity is $\Delta S = \sum_i \bar{w}_i \Delta s_i + \sum_i \bar{s}_i \Delta w_i$. Initial- and final-weight changes are $\sum_i w_i(0) \Delta s_i$ and $\sum_i w_i(1) \Delta s_i$; their mean equals the symmetric within term. The centred industry composition entry is $(\bar{s}_i - B) \Delta w_i$, with $B = [S(0) + S(1)]/2$ for the same country and partition. Its sum equals uncentred composition because $\sum_i \Delta w_i = 0$. Both industry allocations are retained; neither is a causal estimate.

Prospective price extension. The domestic-services numerator must be reconstructed using the global Leontief inverse and the domestic services-origin block, applying the same selections to matched current-price (CP) and previous-year-price (PYP) tables. Native-detail value-added levels must be reconstructed before aggregation into the selected manufacturing groups. For positive admissible linking levels, $N_{\text{chain}}(t) = N_{\text{chain}}(t-1) \times N_{\text{PYP}}(t)/N_{\text{CP}}(t-1)$;

an analogous expression links X. Their ratio is an indexed analytical comparison, not an additive allocation across chained components. Zero or negative linking denominators require separately specified treatment.

An explicitly synthetic six-row fixture produces an aggregate-first export chain of 360, against 400 obtained by summing separately chained industries. With a numerator of 120, the ratios are 33.333...% and 30%. These are invented units, not observations for any country or a balanced input-output table. They test aggregation order and algebra only. No empirical price-adjusted series or reproduction of an OECD published chain ratio is claimed.

Reproducibility record. Retained raw inputs, exact keys, SHA-256 hashes, calculation scripts, displayed-value tables, original and centred industry contributions, source locators and the figure's plotted values form the accompanying replication bundle. The nominal panel, the synthetic fixture and the source-access record are separate evidence classes.