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The Global Trade Slowdown: Nominal or Real?

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Abstract

This paper revisits the contemporary debate on the deglobalization of merchandise trade using a new dataset that captures changes in the price structure of manufacturing trade associated with the decline in prices of information technology (IT) equipment. There is strong evidence that continued growth in world trade, both in absolute (value) terms and relative to GDP, has remained obscured by the frequent reliance on trade measured at current rather than constant prices. Continuing downward adjustment in the prices of manufactures trade within GVCs has significantly reshaped the price structure of global trade. When appropriately measured in real terms, there is strong evidence that world trade has regained its upward trend following the significant dip during the GFC owing to the dynamism of trade rooted in global production sharing.

JEL classification: F14, F41, F60

Keywords: Global Trade Slowdown, Global Value Chain, Global production Sharing

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1. Introduction

For over two decades from about the mid-1980s, global merchandise trade grew faster than global production (GDP). However, the basic trade data readily available in the public domain show a dissipation of this phase of hyper-globalization from about the mid-2000s, notably after the Global Financial Crisis (GFC) of 2008-09. Whether the apparent 'slowbalization' or 'deglobalization' is 'a new normal' rooted in structural factors or simply a cyclical macroeconomic phenomenon has been a subject of intense debate in policy circles.

A structural explanation that figure prominently in this debate is the slackening of the process of global production sharing (vertical specialisation). According to various estimates, trade driven by production sharing (commonly labelled global value chain (GVC) trade accounted for over a half of total merchandise trade by the mid-2000. World Bank research suggests that between a quarter to half of contraction in world trade from the 1990s and the 2010s came from GVC trade (World Bank 2020). The proposed drivers of anemic growth of GVC trade include diminishing marginal return to technological advancement that underpinned fragmentations of production, labour saving technological progress in manufacturing (industrial automation, robotics, and 3D printing) that diminished the relative labour cost advantage of global production sharing, the backlash against free trade amid rising geopolitical tensions, and the decline in China's imports of parts and components as the domestic production bases deepened and gained maturity (Hoekman 2015; Antras 2020; Constantinescu, Mattoo, and Ruta 2020; Goldberg, and Reed 2024; Baldwin, Freeman, and Theodorakopoulos 2024).

The purpose of this paper is to draw attention to a conspicuous gap in this debate on the alleged saturation of GVC trade, namely the dramatic transformation in the price structure of world manufacturing trade rooted in global production sharing. My hypothesis is that the failure to pay attention to this price adjustment has tended to conceal in the debate the reality of continued expansion of world merchandise trade in real terms.

There is a growing literature, mostly in the field of business economics, on continuing adjustment in the prices of manufactures driven by the information technology (IT) revolution. There was substantial acceleration in the decline of prices of IT equipment in the mid-1990s, triggered by a much sharper acceleration in the price decline of semiconductors. The decline in IT equipment prices was first transmitted into computers, and computing and communication equipment that rely heavily of semiconductor technology. Then the ongoing substitution of IT equipment for other forms of capital and for labour services occurred in a wide range of other products such as aircrafts, automobiles, and scientific instruments (Jorgenson 2001; Aizcorbe, Berndt, Flamm, and Khurshid 2003; Aizcorbe, Oliner, and Sichel 2008; Byrne, Fernald, and Reinsdorf 2016). Surprisingly, the possible impact of this structural change in pricing patterns of world trade remains ‘the elephant in the room’ in the debate on world trade slowdown.

Most existing studies on this subject have simply relied on trade-GDP ratio measured at current prices (in nominal terms) under the implicit assumption that trade prices and the overall prices of domestic production have moved in perfect unison. A few studies (e.g. Baldwin, Freeman & Theodorakopoulos, 2024; Constantinescu, Mattoo & Ruta, 2014, Ferrantino and Taglioni 2014, and Davies 2013) have measured trade-GDP ratio in real terms, with nominal export value deflated by an aggregate price proxy constructed by the World Trade Organization (WTO).[1] I suspect that, the WTO trade price proxy does not fully capture the price effect of global production sharing. The WTO statisticians compile this proxy index using actual price indexes and unit value indexes taken from various international and national data sources. The composite indexes differ in product coverage and are calculated using different methods. More importantly, the trade price proxy available for most countries is the unit value index. The use of this index as a measure of either prevailing prices or price trends is highly questionable. The unit values computed under a given trade classification can change, even when all prices are constant, if there is a shift from one quality or type of item to another. Moreover, in Customs trade records there are no accurate quantity data (and, in some cases, quantities are entirely missing) for parts and components, which account for a significant share of GVC trade (Lipsey, Molineri, and Kravis 1991; Silver 2010).

The purpose of this paper is to fill this gap in the empirical evidence of global trade slowing by undertaking a statistical analysis of the trend in merchandise trade and trade-income relationship using a new data set constructed for merchandise imports to the USA. Import data of the USA, the single largest global destination for exports, presumably presents a good surrogate for world export patterns. My foremost consideration for focusing on the USA is the availability of actual trade price indexes

[1] Goldberg and Reed (2024) used the US GDP deflator as the trade price proxy.

(rather than unit value proxies) at a sufficiently disaggregated level to capture the price effects of GVC trade covering a period of reasonable length (1992-2022).

The analysis yields the inference that the dynamism of global production sharing as a prime mover of globalization has not yet dissipated. There is strong evidence from the US experience that there has been a persistent increase in the world manufacturing trade in real terms compared to the anemic growth in the aftermath of the GFC in nominal terms. The US merchandise trade to GDP ratio in real terms has continued to maintain its pre-crisis trend following the dip in 2008-09.

The structure of the paper is as follows. Section 2 discusses the data. Section 3 documents patterns of trade prices, real imports and real import-GDP ratios while distinguishing among primary products, GVC products and non-GVC manufactures. A statistical analysis of the real trade-GDP relationship is undertaken in Section 5 by estimating the standard import demand function. The key findings are summarised in the concluding section.

The Data

The data on import prices and trade are compiled from the databases of the US Bureau of Labour Statistics (import price), US Bureau of Economic Analysis (producer price and GNP) and the UN Comtrade database. The BLS trade price data base (Table 5)[2] contains import price indexes based on the Harmonised System (HS) at the HS two-digit (mostly primary products) and four-digit levels (for manufactures). The BLS

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[2] https://www.bls.gov/news.release/ximpim.t05.htm

compiles import (and export) price indexes based on actual transaction prices directly collected from foreign trade markets (BLS 1997).

I converted the original monthly data (2010=100) into annual averages to match with trade data, which are readily available only on an annual basis. The dataset covers forty-two non-overlapping HS products for which data are available for the period 1992 -2022 (see Appendix A-1). These products account, on average, for over 75% of total US merchandise imports during 1992-2022.

For the comparative analysis, price indices and total imports are aggregated into primary products and manufactures, with the latter further disaggregated into GVC products and other (non-GVC) manufactures. For constructing the price indices for the five product groups, import value shares of the composite products for 2010 are used as weights.

There is no hard and fast rule for delineating GVC trade from total manufacturing trade. The only practical way of doing this is to focus on the specific product categories in which GVC trade is heavily concentrated. We therefore define GVC products as electrical and electronics machinery and appliances, vehicles and transport equipment (Section XVI to XVII (Chapter 84 to 89) plus optical, photographic, and measuring and medical instruments (HS 90). It is obvious even to the naked eye that none of the products belonging to these product categories are produced from beginning to end within a single country (Krugman, 2008). However, admittedly, this list does not provide a full coverage of GVC products in world trade. For instance, outsourcing of final assembly takes place in various miscellaneous product categories such toys, sport goods, apparel, furniture and leather products.

Only six of the 42 HS products cover exclusively parts and components[3]; several other HS products contain both parts and components, and final products. Therefore, it is not possible to further disaggregate GVC products into parts and components, and final assembly.

3. Trade patterns

Price indexes of total merchandise imports, primary products and manufactures during 1992-2022 are shown in Figure 1-1. Throughout this period, the price index of manufactures increased at a much slower pace, with smaller degree of annual variability, compared to that of primary products. The time pattern of total merchandise imports was determined by manufacturing prices. When manufacture prices are disaggregated into GVC products and other manufactures, the dominant role of global production sharing in shaping the patterns of manufacturing prices is clearly seen (Figure 1-2). There is evidence that the BLS import price index understates price decline in some IT based products because of the failure to fully capture price changes associated with change in product characteristics (quality) (Reinsdorf & Yuskavage 2016, Byrne & Pinto 2015). When allowed for this under estimation bias, the price lowering effect of global production

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[3] Products with the HS codes of 8408, 8408, 8431, 8473, 8536, 8708 (see Appendix A-1). These products account for only 7.2% of total GVC products covers in this study. A preliminary analysis showed that the price trends of these products are very similar to those of total GVC products.

sharing on manufacturing trade would have been even greater. Interestingly, the trends in the other manufactures (non-GVC products) resemble that of primary products. This is understandable because these products are predominantly 'resource-based' and depend largely on primary products for intermediate inputs.

As documented in Jorgenson (2001), a substantial acceleration in the IT price decline occurred in the mid-1990s, triggered by a much sharper acceleration in the price decline of semiconductors. The price decline in semiconductors driven by the speed of technological change then transmitted to the price of products that rely heavily on semiconductor technology like computers and telecommunication equipment, aircrafts, automobiles, scientific instruments, and a host of other related products. The overall decline in the prices of GVC products was sharp in the second half of the1990s. Since then, prices have flattened out with sporadic variability. The gap between prices of GVC and non-GVC products has continued to widen in the ensuing years because of the relatively faster rate of increase in the latter associated with trends in primary products prices.

Figure 1: Import price indexes (2010=100), 1992-2022

Figure 1-1: Total merchandise imports, primary products and manufactures

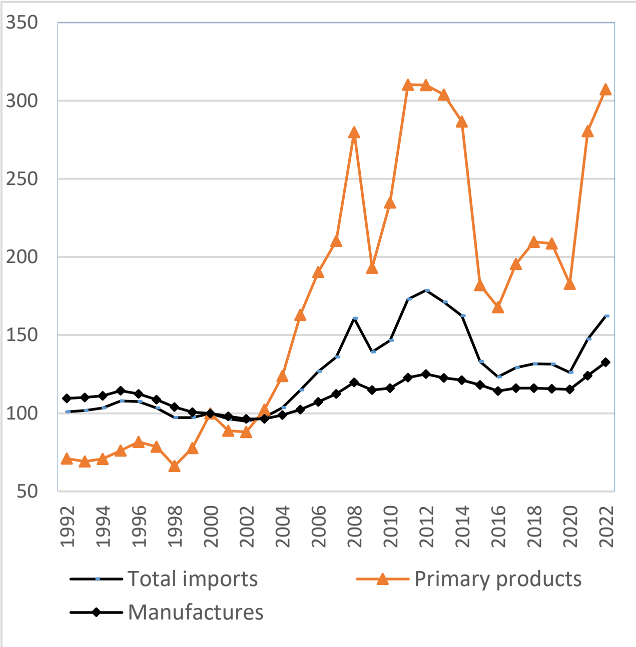
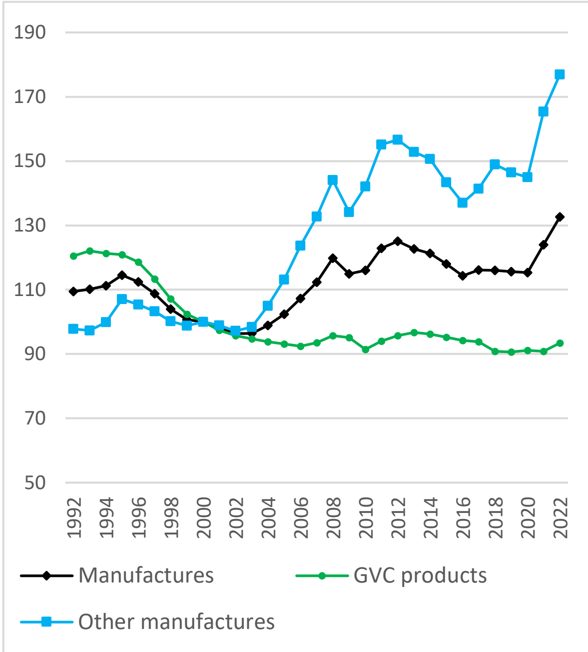


Figure 1-2: Manufactures, GVC products and non-GVC products



Source: Appendix Table A-2

What are the implications of these global production sharing driven price patterns for US merchandise imports in real terms (import volume)? Figure 2 sheds light on this issue. Following the sharp decline in the aftermath of the GFC, total real merchandise imports have regained the pre-crisis increasing trend. The time pattern of total merchandise trade closely followed that of manufactures (Figure 2-1). Within manufactures, the degree of recovery of GVC imports was much sharper compared to both non-GVC manufactures and primary products (Figure 2-2). When appropriately adjusted for the dramatic decline in prices, trade in GVC products recorded a six-fold real increase between the early 1990s and the early 2020s.

Figure 2: Real import volume indexes (2010 = 100), 1992-2022

Figure 2-1: Total merchandise imports, primary products and manufactures

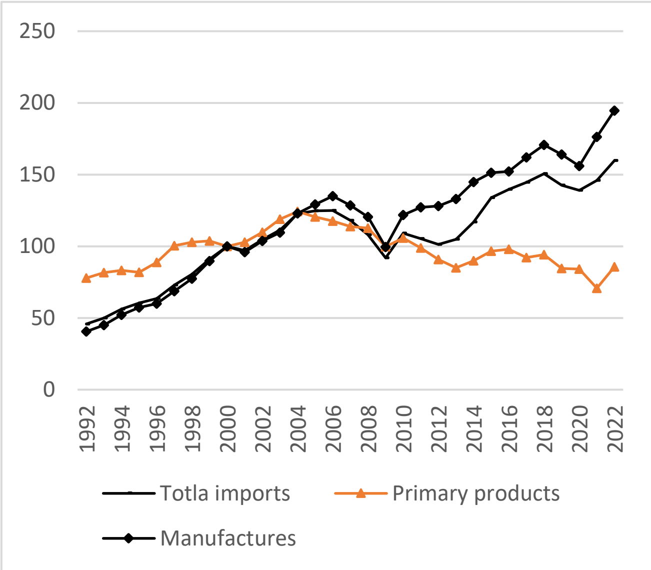
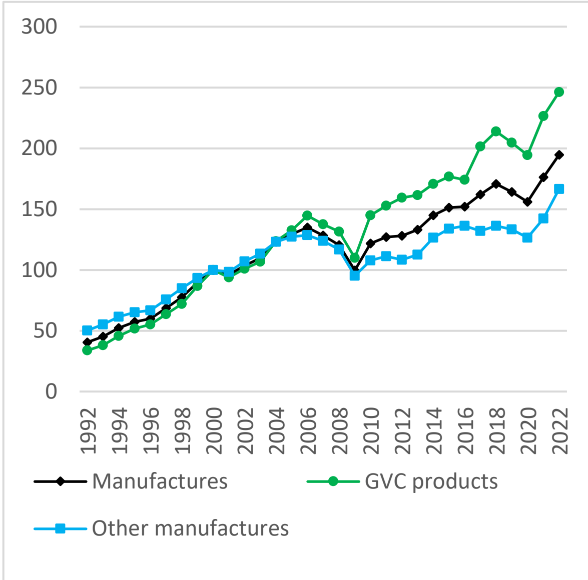


Figure 2-2: Manufactures, GVC products and non-GVC products



Source: Appendix Table A-2 and A-3

Figure 3 helps understand the implications of GVC-driven price adjustment in merchandise trade for the measurement of the trade-output (GDP) ratio, the key indicator used in the debate on the alleged global trade slowdown. The nominal import-GDP ratio clearly shows a persistent decline in the aftermaths of the GFC, when allowed for the upturn in 2021 and 2022 (Figure 3-1).[4] When measured in constant prices, this apparent trade contraction disappear. Following the dip in 2008, the real import-GDP ratio regained its upward trend (Figure 3-2). This upturn has been dominated trade in manufactures underpinned by a sharper trend in GVC products. It is

[4] This upturn reflects the slower growth in the economy compared to imports following the COVID-19 shock in 2020.

important to note that the apparent hump in real import-GDP ratio during 2001-07 largely reflected the rapid global penetration of exports from China following the country's WTO entry (Antrast 2020, Goldberg & Reed 2024). When allowed for this hump and the GFC dip, the persistent increase in the real import-GDP ratio during the period under study become much clearer.

Figure 3: Import-GDP ratio in nominal and real terms (%), 1992 -2022

Figure 3-1: Nominal import-GDP ratio: Total merchandise imports, primary products and manufactures

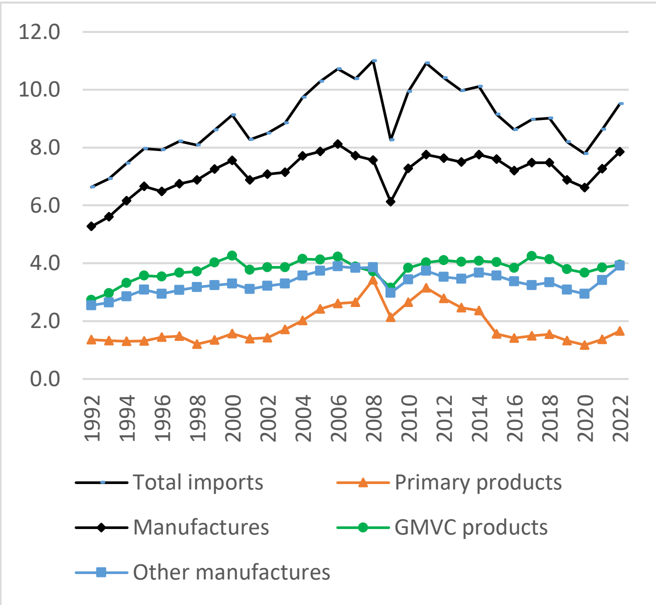
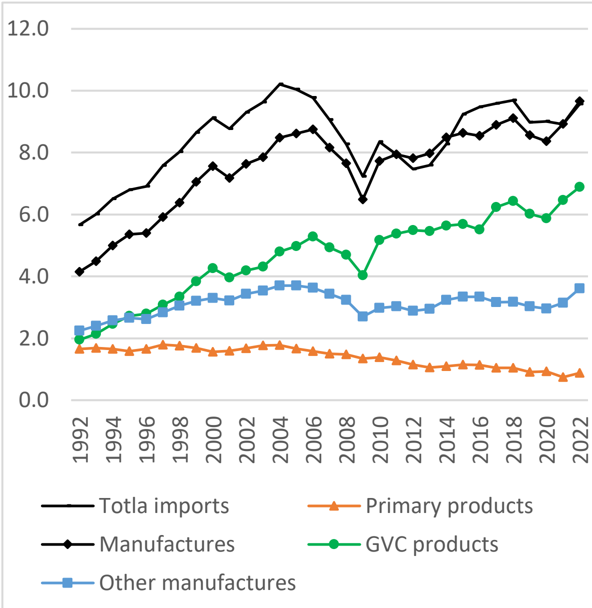


Figure 3-2: Real import-GDP ratio: Total merchandise imports, primary products and manufactures



Source: Appendix Table A-4 and A-5

4. Trade and income: A statistical analysis

To explore the relationship between trade and income further, I estimated the autoregressive distributed lag specification (ARDL) of the standard import demand function.

The standard import demand function in a panel data setting takes the form:

$$M_{it} = \alpha + \beta_1\ Y_t + \beta_2\ RP_{it} + \delta_i + \gamma_t + \varepsilon_{it} \qquad (1)$$

where i=1,2,...,N is the product category, t=1,2,...,T is the time unit in quarters and, M is real imports, Y is domestic income (real GNP), $RP = PM/PD$ is relative import price (import price/domestic producer price), δ_i is product specific effects, γ_t is time fixed effects and ε_{it} is the disturbance term. The three key variables *M*, *Y*, and *RP* are measured in natural logarithms so that the coefficients of Y and RPM can be interpreted as income and price elasticities.

After adding a dummy interaction term for Y to test for the postulated structural break in the income-import nexus during the post GFC period, and intercept dummies for trade disruption caused by the GFC and the COVID-19 pandemics, import function looks as follows:

$$M_{it} = \alpha + \beta_1\ Y_t + \beta_2\ D1{*}Y_t + \beta_3\ RP_{it} + \beta_4 D2 + \beta_5 D3 + \delta_i + \gamma_t + \varepsilon_{it}$$

where D1*Y is a period interaction dummy for Y for the years 2010 to 2020, D2 is the GFC dummy (2008-2009), and D3 is the COVID-19 dummy (2020-22).

The Fisher combination test of Maddala & Wu (1999) suggested that the data series of *M*, *Y* and *RM* are non-stationary and can be transformed into stationary processes of order 1. Therefore, the model can be specified in error-correction ARDL form as follows:

$$\Delta M_{it} = \lambda_1 \Delta Y_{it} + \lambda_2 \Delta D1{*}Y_{it\ +}\ \lambda_3 \Delta RP_{it} + \mu_i\ (M_{it-1} - \beta_1 Y_{it} - \beta_2 D1{*}Y_{it\ -}\ \beta_3 RP_{it}) + \beta_4 D2 + \beta_5 D3 + \delta_i + \gamma_t + \varepsilon_{it}$$

(3)

This specification permits us to examine short- and long-run dynamics and the speed of adjustment of Y to equilibrium. In this equation, the λs are the short run and βs are the long run elasticities, and μ is the parameter of adjustment towards the long run equilibrium. A negative and statistically significant estimate of μ is evidence of a long-run co-integrating relationship amongst the variables.

The error correction formulation of ARDL specification is ‘robust to integration and cointegration properties of the regressors: for sufficient lag-orders, it could be immune to the endogeneity problem, at least as far as the long-run properties of model are concerned’ (Pesaran 2015, 726).[5] Since I work with an annual panel data set of sufficient time coverage (31 years) that permits systematically testing lag orders, possible endogeneity bias could be asymptotically negligible due to the super consistency property resulting from the parameterization of the model in levels and differences.

I used three alternative estimators to investigate potential heterogeneity of parameters among the products within the data panel: the Dynamic Fixed Effects estimator (*DFEE)*, the Pooled Mean Group estimator (*PMGE*), and the Mean Group estimator (*MGE*) (Pesaran, 2015). Based on a comparison using the Hausman test, *DFEE* is selected as the preferred estimator. In all cases, the Akaike information criterion (*AIC*) is used to decide the appropriate lag length.

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[5] See Irwin (2002) and Constantinescu, Matto & Ruta (2020) for previous use of ARDL specification to estimate the trade equation based on this methodological reasoning.

The import demand function was estimated using a panel data set for the 42 HS products for the period 1992-2022.[6] The results are reported in in Table 1. All equations are highly statistically significant (at the one percent level or better). The adjustment coefficient is statistically highly significant with the expected negative sign indicating the presence of a long run co-integrating relationship. The magnitude of the coefficient suggests a moderate speed of convergence of real imports (M) to steady sate (about 1.3 years).

The steady state income elasticity of demand for total merchandise exports and all three subcategories (primary products, GVC products and other (non-GVC) manufactures is statistically significant with the expected signs. The magnitude of the income elasticity of GMV products (2.18) is much larger compared to that of non-GVC manufactures (0.72). The difference between the two coefficients falls well beyond two standard deviations. The coefficient of price elasticity of import demand is statistically significant only for primary products and non-GVC manufactures. It is not statistically different from zero for GVC products. This result is consistent with the existing evidence that the sensitivity of aggregate trade flows to relative prices tends to diminish as the production processes become even more fragmented across national boundaries (Arndt & Huemer 2007, Burstein, Kurz & Tesar, Athukorala & Khan 2016).

[6] The full dataset is available from the author on request.

Table 1. Import demand (M) functions: Dynamic Fixed Effects Estimates

	Merchandise imports	Primary products	Manufactured goods		
			Total	GVC products	Non-GVC products
Long-term coefficient					
LYR	1.44***	1.24**	1.42***	2.18***	0.72*
	(0.33)	(0.57)	(0.43)	(0.54)	(0.58)
LRP	-0.53***	-0.42***	-0.49	-0.30	-0.84***
	(0.17)	(0.14)	(0.31)	(0.32)	(0.30)
*D2*LYR*	-0.04	-0.02	-0.04	-0.05	-0.02
	(0.03)	(0.04)	(0.03)	(0.03)	(0.06)
Short-run coefficient					
ΔLYR_t	2.27***	0.92	2.71***	3.07***	2.42***
	(0.45)	(1.52)	(0.24)	(0.36)	(0.32)
D1	-0.68***	-0.28*	-0.92***	-0.92***	-0.91**
	(0.19)	(0.16)	(0.23)	(0.27)	(0.44)
D3	0.08	-0.29	0.34	0.17	0.57
	(0.20)	(0.34)	(0.26)	(0.38)	(0.43)
Constant term	0.04	0.20	0.02	-0.34	0.33
	(0.18)	(0.59)	(0.19)	(0.23)	(0.22)
Error correction term	-0.10***	-0.21**	-0.08***	-0.08***	-0.07***
	(0.03)	(0.10)	(0.01)	(0.02)	(0.02)
F-stat	54.65***	5.76***	70.71***	31.46***	42.41***
No. Observation	1,218	290	928	435	493

Source: Author's estimates based on data sources described in Section 2.

5. Concluding remarks

In this paper I have revisited the contemporary debate on the deglobalization of merchandise trade focusing on US imports as a surrogate for world exports. There is strong evidence that the frequent reliance on trade measured at current rather than constant prices has trended to obscure growth in world trade, both in absolute (value) terms and in relative to output. Continuing adjustment in the prices of manufactures traded within GVCs driven by the IT revolution has significantly reshaped the price structure of global trade. Moreover, the demand for trade within GVCs is highly income elastic compared to both non-GVC manufactures and primary products. When this structural transformation in world trade is systematically embedded in the analysis, there is strong evidence that in real terms merchandise trade has regained its upward trend after the significant dip during the GFC owing to the dynamism of manufacturing trade rooted in global production sharing. Contrary to the popular perception, global manufacturing value chain has not yet run out of steam.

Appendix

Table A-1: Product covered in the statistical analysis, 1992-2022

HS codes	Product description	Composition (%)	Share in total imports (%)
1. Primary products		20.54	15.45
02	Meat and edible meat offal	0.48	0.36
03	Fish and crustaceans, mollusks and other aquatic invertebrates	1.03	0.78
07	Edible vegetables, roots, and tubers	0.66	0.50
08	Edible fruit and nuts; peel of citrus fruit or melons	0.90	0.68
09	Coffee, tea, mate and spices	0.71	0.54
22	Beverages, spirits, and vinegar	1.17	0.88
27	Mineral fuels, oils and residuals, bituminous substances and mineral waxes	13.53	10.17
40	Rubber	0.23	0.18
7102	Diamonds, whether or not worked, but not mounted or set	1.21	0.91
7108	Gold	0.62	0.47
2 Manufacturers		79.46	59.54
2.1: GMVC products		42.38	31.65
8409	Parts for spark-ignition and diesel internal combustion piston engines	0.53	0.40
8413	Pumps for liquids; liquid elevators & parts thereof	0.49	0.37
8414	Air/vacuum pumps, compressors and fans, vent & recycling hoods & parts	0.98	0.73
8431	Parts for materials handling & construction machines	0.45	0.34
8471	Computer equipment	4.65	3.49
8473	Parts and accessories for computers and other office machines	1.95	1.46
8481	Taps, cocks, valves & similar appliances & parts thereof	0.71	0.54
8501	Electric motors and generators (exclude generating sets)	0.71	0.53
8516	Electro thermic domestic appliances; water & space heaters; resistors	6.81	5.12
8517	Electrical apparatus for line telephony, videophones & parts thereof	3.41	2.56
8525	Radio & TV transmission apparatus; video cameras & camera recorder	3.97	2.98
8536	Electrical circuit switching app. of 1000 volts or less	1.00	0.75
8703	Motor vehicles designed to transport people	9.42	7.09

8708	Parts of tractors, buses, automobiles, trucks, spec. vehicles	3.28	2.46
90	Optical, photographic, measuring and medical instruments & parts thereof	4.03	3.03
2.2 Other manufactures		37.08	27.89
28	Inorganic chemicals	0.49	0.37
29	Organic chemicals	2.91	2.19
30	Pharmaceutical products	1.35	1.01
38	Miscellaneous chemical products	0.49	0.36
39	Plastics and articles thereof	2.25	1.69
40b	Rubber products	1.09	0.82
47-49	Wood pulp, recovered paper, and paper products	1.53	1.15
62	Articles of apparel and clothing accessories, not knitted or crocheted	5.75	4.33
64	Footwear and parts of such articles	1.57	1.18
73	Articles of iron or steel	10.01	7.53
74	Copper and articles thereof	2.63	1.98
76	Aluminium and articles thereof	0.89	0.67
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof	0.64	0.48
83	Miscellaneous articles of base metal	0.49	0.37
94	Furniture & stuffed furnishings; lamps & lighting fittings, prefab buildings	3.18	2.39
95	Toys, games and sports equipment; parts and accessories thereof	1.52	1.14
96	Miscellaneous manufactured articles	0.28	0.21
	Total	100.00	75.21[1]
	Total (US$ billion)	40,100	53,317

Note: (1) The percentage coverage of the 42 HS products in total US merchandise exports during 1992-2022

Source: compiled from US Bureau of Labour Statistics:

https://www.bls.gov/news.release/ximpim.t05.htm,

and the UN Comtrade database https://comtradeplus.un.org/

Table A-2: US import price indexes (2000 = 100), 1992-2022

	Total imports	Primary products	Manufactures		
			Total	GVC products	Other manufactures
1992	101.0	71.0	109.5	120.5	97.8
1993	101.7	69.3	110.1	122.1	97.3
1994	103.4	70.8	111.2	121.3	99.9
1995	107.9	76.2	114.5	120.9	107.1
1996	107.5	81.6	112.5	118.6	105.4
1997	103.4	78.6	108.8	113.3	103.3
1998	97.2	66.3	104.0	107.1	100.2
1999	97.3	77.8	100.7	102.4	98.8
2000	100.0	100.0	100.0	100.0	100.0
2001	96.4	88.8	98.0	97.4	98.9
2002	94.9	88.0	96.4	95.7	97.2
2003	97.4	102.3	96.4	94.8	98.4
2004	103.7	123.9	98.9	93.8	105.0
2005	114.9	163.0	102.4	93.1	113.1
2006	126.8	190.5	107.3	92.5	123.7
2007	136.0	210.2	112.3	93.6	132.7
2008	160.8	280.0	119.8	95.7	144.1
2009	139.2	193.1	115.0	95.1	134.1
2010	146.6	235.0	116.1	91.5	142.1
2011	173.0	310.3	122.9	94.0	155.1
2012	178.7	310.1	125.0	95.8	156.6
2013	171.3	303.9	122.7	96.7	152.9
2014	162.3	286.8	121.3	96.2	150.6
2015	133.0	182.1	118.0	95.2	143.4
2016	123.3	167.9	114.3	94.2	137.0
2017	129.2	195.6	116.1	93.9	141.4
2018	131.6	209.7	116.0	90.9	149.0
2019	131.5	208.6	115.6	90.6	146.5
2020	126.1	182.8	115.3	91.1	145.0
2021	147.5	280.5	124.0	90.8	165.4
2022	162.1	307.4	132.6	93.4	176.9

Source: compiled from US Bureau of Labour Statistics:
https://www.bls.gov/news.release/ximpim.t05.htm).

Table A-3: US real import volume indexes (2000 = 100), 1992-2022

	Total imports	Primary products	Manufactures		
			Total	GVC products	Other manufactures
1992	45.8	77.9	40.5	33.8	50.2
1993	50.0	81.6	45.1	38.1	55.1
1994	56.2	83.1	52.1	45.6	61.6
1995	60.3	81.8	57.3	51.7	65.2
1996	63.6	88.9	60.0	55.2	66.7
1997	73.0	100.4	68.6	63.6	75.6
1998	80.6	102.7	77.4	71.9	84.8
1999	91.1	103.7	89.6	86.7	93.4
2000	100.0	100.0	100.0	100.0	100.0
2001	97.0	102.9	95.9	93.9	98.4
2002	104.6	109.8	103.6	101.0	107.1
2003	111.4	119.0	109.6	106.8	113.3
2004	122.6	124.2	122.9	123.6	123.0
2005	124.8	120.6	129.3	132.4	127.4
2006	124.9	117.6	134.9	144.7	128.5
2007	118.1	113.7	128.4	137.6	123.8
2008	108.0	112.6	120.5	131.4	116.8
2009	91.9	99.6	99.6	109.8	95.1
2010	109.0	105.7	121.8	144.8	107.7
2011	105.3	98.8	127.1	152.9	111.1
2012	101.3	90.8	128.0	159.4	108.3
2013	104.8	85.0	133.0	161.5	112.6
2014	116.9	89.9	144.8	170.6	126.5
2015	133.9	96.7	151.3	176.7	133.9
2016	139.7	98.0	152.1	174.2	136.2
2017	144.6	92.2	162.0	201.6	132.1
2018	150.5	94.2	170.7	213.9	136.3
2019	142.6	84.6	164.1	204.7	133.3
2020	139.1	84.1	156.0	194.5	126.5
2021	145.9	70.8	176.3	226.5	142.3
2022	159.7	85.6	194.7	246.3	166.5

Source: compiled from US Bureau of Labour Statistics:

https://www.bls.gov/news.release/ximpim.t05.htm) and the UN Comtrade:

https://comtradeplus.un.org/

Table A-4: US import-GDP ratio in current prices (%), 1992-2022

	Total imports	Primary products	Manufactures		
			Total	GMVC products	Other manufactures
1992	6.6	1.4	5.3	2.7	2.5
1993	6.9	1.3	5.6	3.0	2.6
1994	7.5	1.3	6.2	3.3	2.9
1995	8.0	1.3	6.7	3.6	3.1
1996	7.9	1.4	6.5	3.5	2.9
1997	8.2	1.5	6.7	3.7	3.1
1998	8.1	1.2	6.9	3.7	3.2
1999	8.6	1.3	7.3	4.0	3.2
2000	9.1	1.6	7.6	4.3	3.3
2001	8.3	1.4	6.9	3.8	3.1
2002	8.5	1.4	7.1	3.9	3.2
2003	8.9	1.7	7.1	3.9	3.3
2004	9.7	2.0	7.7	4.1	3.6
2005	10.3	2.4	7.9	4.1	3.7
2006	10.7	2.6	8.1	4.2	3.9
2007	10.4	2.7	7.7	3.9	3.8
2008	11.0	3.4	7.6	3.7	3.9
2009	8.3	2.1	6.1	3.1	3.0
2010	9.9	2.7	7.3	3.8	3.4
2011	10.9	3.2	7.8	4.0	3.7
2012	10.4	2.8	7.6	4.1	3.5
2013	10.0	2.5	7.5	4.0	3.5
2014	10.1	2.4	7.7	4.1	3.7
2015	9.2	1.6	7.6	4.0	3.6
2016	8.6	1.4	7.2	3.8	3.4
2017	9.0	1.5	7.5	4.2	3.2
2018	9.0	1.5	7.5	4.1	3.3
2019	8.2	1.3	6.9	3.8	3.1
2020	7.8	1.2	6.6	3.7	2.9
2021	8.6	1.4	7.3	3.9	3.4
2022	9.5	1.7	7.9	3.9	3.9

Source: compiled from US Bureau of Labour Statistics: https://www.bls.gov/news.release/ximpim.t05.htm), UN Comtrade: https://comtradeplus.un.org/ and US Bureau of Economic Analysis: https://www.bea.gov/products/national-income-and-product-accounts

Table A-5: US import-GDP ratio in constant (2000) prices (%), 1992-2022

	Total imports	Primary products	Manufactures		
			Total	GVC products	Other manufactures
1992	5.7	1.7	4.2	1.9	2.2
1993	6.0	1.7	4.5	2.1	2.4
1994	6.5	1.7	5.0	2.5	2.6
1995	6.8	1.6	5.4	2.7	2.7
1996	6.9	1.7	5.4	2.8	2.6
1997	7.6	1.8	5.9	3.1	2.8
1998	8.0	1.8	6.4	3.3	3.0
1999	8.6	1.7	7.0	3.8	3.2
2000	9.1	1.6	7.6	4.3	3.3
2001	8.8	1.6	7.2	4.0	3.2
2002	9.3	1.7	7.6	4.2	3.4
2003	9.6	1.8	7.8	4.3	3.5
2004	10.2	1.8	8.5	4.8	3.7
2005	10.0	1.7	8.6	5.0	3.7
2006	9.8	1.6	8.7	5.3	3.6
2007	9.1	1.5	8.2	4.9	3.4
2008	8.3	1.5	7.6	4.7	3.2
2009	7.2	1.3	6.5	4.0	2.7
2010	8.4	1.4	7.7	5.2	3.0
2011	7.9	1.3	7.9	5.4	3.0
2012	7.5	1.1	7.8	5.5	2.9
2013	7.6	1.1	8.0	5.5	2.9
2014	8.3	1.1	8.5	5.6	3.2
2015	9.2	1.1	8.6	5.7	3.3
2016	9.5	1.1	8.5	5.5	3.3
2017	9.6	1.0	8.9	6.2	3.2
2018	9.7	1.0	9.1	6.4	3.2
2019	9.0	0.9	8.6	6.0	3.0
2020	9.0	0.9	8.4	5.9	3.0
2021	8.9	0.7	8.9	6.5	3.1
2022	9.6	0.9	9.7	6.9	3.6

Source: compiled from US Bureau of Labour Statistics:

https://www.bls.gov/news.release/ximpim.t05.htm),

UN Comtrade: https://comtradeplus.un.org/ and US Bureau of Economic Analysis:

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