

WTO 2.0: Global governance of supply-chain trade

Richard Baldwin

Graduate Institute, Geneva, University of Oxford and CEPR

Introduction

The cross-border flows of goods, investment, services, know-how and people associated with international production networks – call it ‘supply-chain trade’ for short – has transformed the world.¹ The WTO has not kept pace. This Policy Insight argues that adapting world trade governance to the realities of supply-chain trade will require a new organisation – a WTO 2.0 as it were.

The argument for a new organisation boils down to profound differences between supply-chain trade and traditional trade.

- Traditional trade means selling into one nation goods that were made in another nation; traditional trade is thus mostly about selling things internationally.

Supply-chain trade is much more complex and much more asymmetric.

- Supply-chain trade arises when high-tech firms combine their know-how with low-wage labour in developing nations; supply-chain is thus mostly about making things internationally, although international selling is also important.

Today’s WTO is crafted to facilitate traditional trade – its nature, membership and rules are designed to support international selling. Supply-chain trade, by contrast, enjoys little or no global regulation. This ‘21st century international commerce’ is currently underpinned by an ad hoc combination of regional trade agreements (RTAs),

Author’s note: I wish to thank Bernard Hoekman, Gary Hufbauer, Simon Evenett, Patrick Low, Peter Draper, Miguel Rodriguez, members of the World Economic Forum’s Global Agenda Council on Trade, participants at the September 2012 World Trade Forum session ‘21st century trade and global trade governance’, and participants at the November 2012 E15 meeting at ICSTD for insights and suggestions. I thank Yuan Zi for excellent proof reading.

¹ See Gereffi (2001), Hummels, Ishii and Yi (1999), Johnson and Noguera (2012b), Koopman, Wang, and Wei (2008), and Lopez-González (2012).

bilateral investment treaties (BITs), and unilateral reforms by developing nations. But supply-chain governance is evolving rapidly.

Advanced-technology nations, especially the US, are leading efforts to knit together the ad hoc governance into ‘mega-regionals’ – like the Trans-Pacific Partnership and Trans-Atlantic Partnership – and mega-bilaterals, like EU-Canada, Japan-EU, etc.

- The mega-regionals and mega-bilaterals may be in place within a few years – at which point global trade governance will be marked by fragmentation and exclusion.
- On current trajectory, the new trade giants – China, India and Brazil – will end up outside this governance superstructure.

The most natural means of avoiding the emergent fragmentation and exclusion would be to multilateralise regional supply-chain disciplines into the WTO. This Policy Insight argues that the WTO does not seem well suited to the task. First, the WTO seems incapable of getting beyond the Doha negotiations, and incapable of addressing supply-chain governance until it does. Second, the nature of the supply-chain governance calls for a very different organisation. It seems impossible to re-craft the existing WTO in a way that would allow it to facilitate cooperation on both traditional trade and supply-chain trade.

Thinking ahead on international trade

Much of this Policy Insight is based on judgements over which reasonable people can disagree. One point is clear, however. WTO centrality in global trade governance is eroding and will continue to erode. Multilateralism will continue to reign when it comes to traditional trade. Fragmentation and exclusion, however, are the most likely outcomes when it comes to the most dynamic segment of international commerce – supply-chain trade.

This two pillar system may well end up as the 'new normal' – with (1) a coherent WTO 1.0 governing traditional trade, and (2) a fragmented and exclusionary system of mega-regionals governing supply-chain trade. China and other large emerging markets may be big enough to counter the exclusion – using the size of their internal markets as a lever to force high-tech firms to offshore factories and technology even without embracing the disciplines smaller developing nations have adopted in the mega-regionals.

This new normal, however, would hardly be the best the world can do. Worse yet, a fragmented world dominated by Great-Power struggles could lead to the steady erosion of the WTO's centrality with respect to traditional trade. Erosion that sooner or later would bring the system to a tipping point – a point beyond which expectations become unmoored and nations feel justified in ignoring WTO rules on traditional trade since everyone else does.

The Policy Insight is organised in six sections. The next two sections discuss, in sequence, how globalisation's second unbundling transformed globalisation and the political economy of trade liberalisation, and how the WTO failed to respond. Sections 4 and 5, the heart of the paper, use the new logic of supply-chain trade to suggest what the WTO 2.0 should look like in terms of areas covered, membership, and special and differential treatment. The final section presents the concluding remarks.

2 Globalisation changed

Today's globalisation really is different. This section presents the prima facie case.

2.1 Globalisation's impact changed

Up to the end of the 1980s, globalisation was associated with rising G7 shares of world trade and income, and a gentle slide in its manufacturing share. Afterwards, globalisation worked very differently.

As supply-chain trade took off between high-tech and low-wage nations in the 1980s and 1990s, G7 world shares of income and exports plummeted while declines in G7 manufacturing shares accelerated (despite steady manufacturing growth globally); see Figure 1.

At about the same time, a handful of developing nations saw their share of global manufacturing output soar. Figure 2 (left panel) shows the nations whose share of global manufacturing GDP rose or fell by at least one percentage point. All the G7 nations lost shares since 1990 and 'seven risers'

saw their shares rise (Figure 2). Note that all the risers except perhaps India are near enough to join US, Japanese or German supply chains.

The geography of share-winners and share-losers is stunning, when taking manufacturing's export share as a measure of success. There are over 200 customs areas in the trade data, but most have populations smaller than the city of Philadelphia. If we limit attention to non-tiny nations (population over five million) and to nations that rely on manufactured exports (manufacturing export shares over 50% in 2007-08), then a very clear pattern emerges (Figure 3). Some of these nations saw manufacturing export shares rise from the 1980s while others saw them fall; winners and losers, however, are remarkably clustered spatially. There seems to be one group of winners and losers around Germany, one around the US, and one around Japan. India may also be at the centre of its own cluster.

2.2 International commerce changed

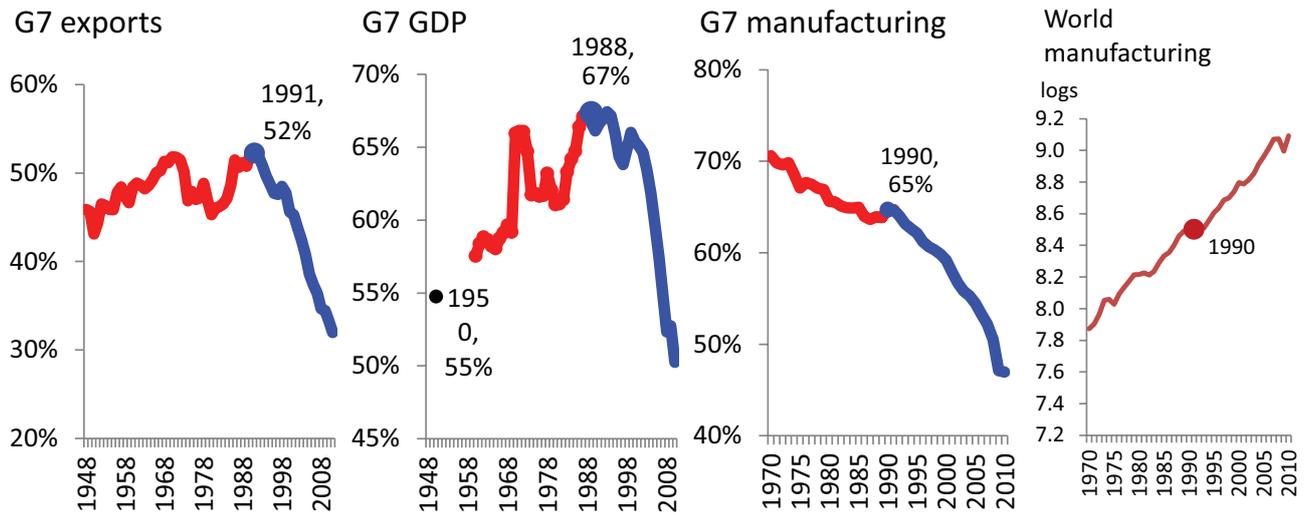
At about the same time, international commerce changed. While supply-chain trade among rich nations (US-Canada and intra-EU) has long been important, from the late 1980s it boomed between high-tech and low-wage nations. Figure 4 illustrates the timing with two proxies for supply-chain trade – a 'vertical specialisation' index and partner-wise intra-industry trade indices. These changes have been widely noted.²

A more direct measure of supply-chain trade is so-called re-import/re-exports. This measures the back-and-forth trade that is common in offshoring relationships where one nation is sending parts to another for processing and then bringing them back for further processing or consumption.

The precise measure we use is the share of, say, Canadian exports to the US that are made up of intermediates that Canada previously imported from the US. This percentage measures the share of the bilateral flow from Canada to the US that is actually the US re-importing its own intermediates. US re-exports are the share of US exports to Canada made up of Canadian intermediates that the US had previously imported.

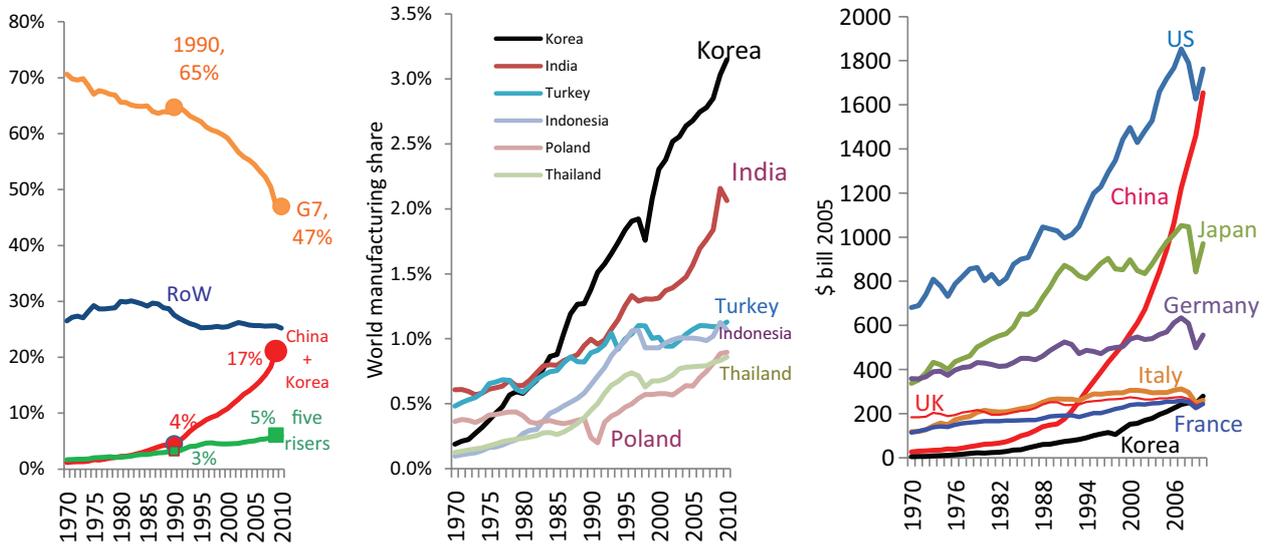
² The mid-1980s structural break has been shown by many (Canas and Coronado 2002, Feenstra and Hanson 1996, Ando and Kimura 2005, Fukao, Ishito, and Ito, 2003) and the trade changes by many others (Hummels, Ishii, and Yi 2001, Yi 2003, Bems, Johnson, and Yi 2010, Koopman, Powers, Wang, and Wei 2011, Johnson and Noguera 2012a,b).

Figure 1 G7 post-war shares of world income, trade and manufacturing



Sources: WTO, World Bank and Maddison, UNstats.

Figure 2 Seven risers and seven losers: Manufacturing reversal of fortunes



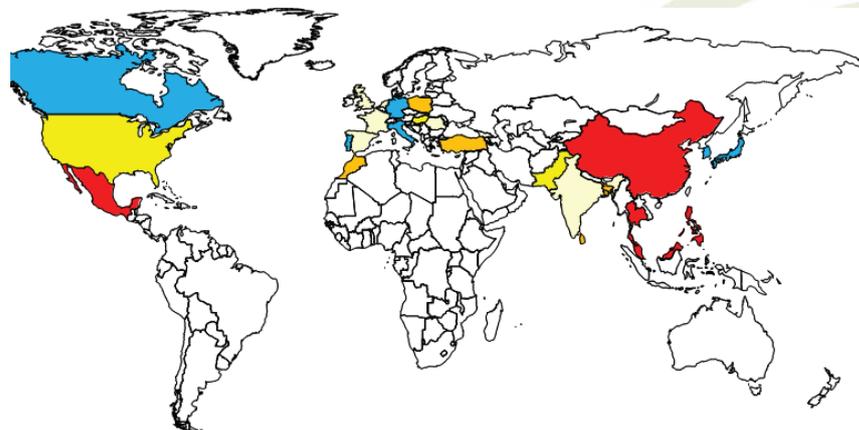
Notes: Left panel show share of world manufacturing GDP, seven risers are China, Korea, India, Turkey, Indonesia, Thailand and Poland; seven losers are G7; middle panel plots global shares of 6 of the 7 risers; right panel shows manufacturing GDP (2005 USDs) of China and the G7.

Source: UNSTAT.org.

Figure 3 The tight geographical clustering of manufactures export swings

Change in national export manufacturing share, 1980s to 2007-08 (percentage points)

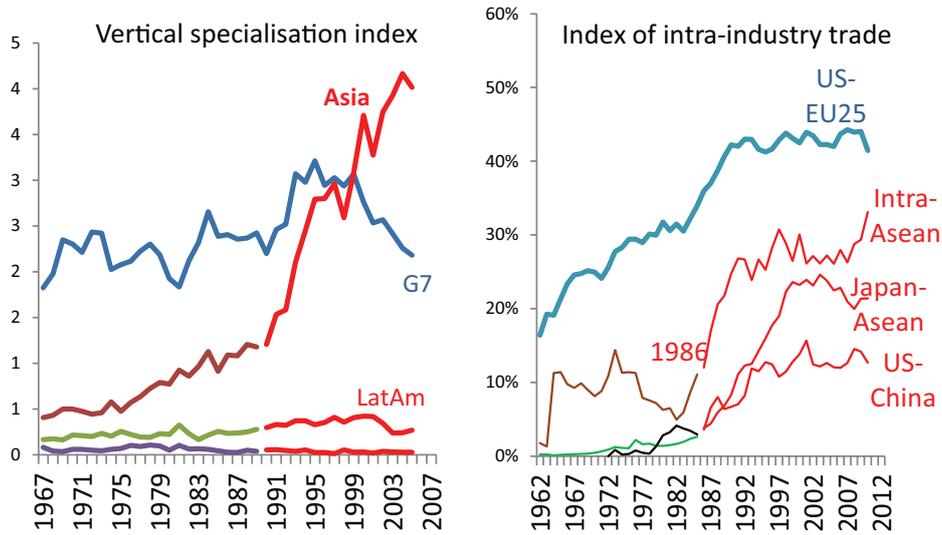
Philippines	59
Mexico	46
China	44
Malaysia	42
Thailand	40
Sri Lanka	35
Turkey	29
Morocco	28
Bangladesh	23
Poland	20
Pakistan	18
Hungary	17
US	10
Romania	9
Netherlands	7
UK	5
India	5
France	5
Spain	5
Italy	-1
Portugal	-1
Korea	-2
Canada	-2
Germany	-2
Japan	-5



Note: World Databank data for all nations with 1) population over 5 million, 2) manufacturing export share over 50% in 2007-08, 3) at least 90% data coverage for 1985 to 2008.

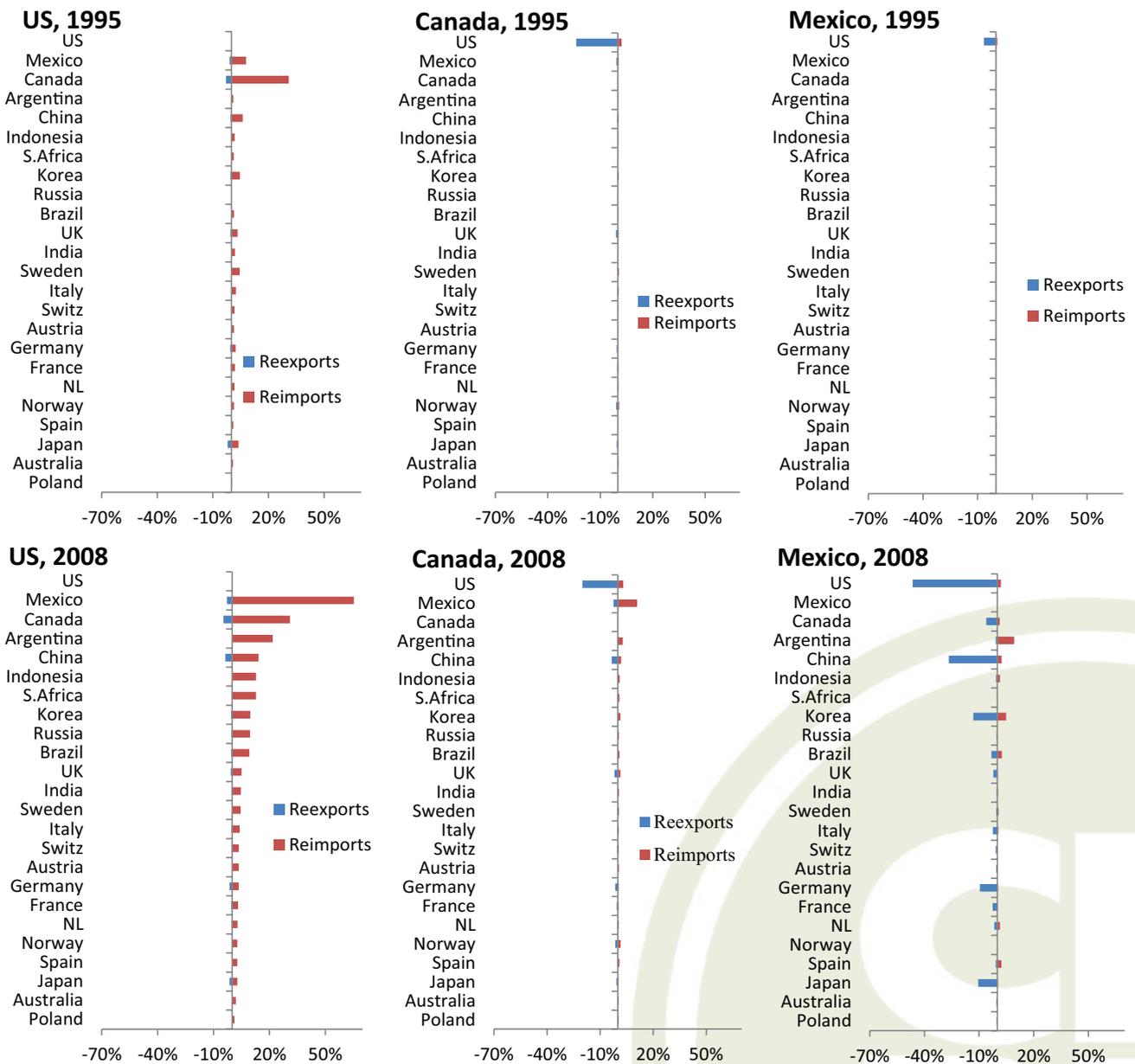
Source: Baldwin and Lopez-Gonzales (2012).

Figure 4 Indirect measures of supply-chain trade from 1960s



Source: Left: Amador and Cabral (2006); right: Brühlhart (2009); adapted from Baldwin and Lopez-Gonzales (2012).

Figure 5 Re-imports and re-exports in factory North America: US, Canada and Mexico



Source: Baldwin and Lopez-Gonzales (2012).

Figure 5 shows how North American re-exporting/re-importing relationships changed between 1995 and 2008. US-Canada supply-chain trade was common since the 1965 US-Canada Auto Pact, so little changed here between 1995 and 2008. The radical change involved Mexico. This North-South offshoring, and the re-importing/re-exporting it sparked, increased enormously. The US started re-importing its own intermediates from a much wider range of partners, including China and Indonesia.³ The changes for Mexico are even starker. In 1995, Mexico's re-exports to the US were a minor story; re-exports to others were non-existent. By 2008, re-exports had boomed with the US and Mexico joined the supply chains of China, Korea, Germany and Japan.

The offshoring revolution has also created what could be called Factory Europe – mostly around Germany. The pattern of re-importing/re-exporting among a high-tech hub and low-wage spoke nations is similar to that of North America. In 1995, Germany was doing a lot of re-importing but mostly with other advanced technology nations. By 2009, the two-way flows had blossomed between Germany and its low-wage neighbours, especially Poland and the Czech Republic. (See Figure 16 in the Appendix.)

The change for China has been even more spectacular (see Figure 17 in the Appendix). In 1995, China did a little re-importing and re-exporting for Japan. By 2008, Chinese-based manufacturers were deeply involved in the supply chains of a wide range of partners, including several natural resource exporters and other emerging economies.

This global trend towards greater internationalisation of supply chains cuts across all industries but is far more advanced in some sectors (Figure 6). The blue bars show final goods' share of world production in the listed sectors (the rest being produced for intermediate goods). For some product categories, like food or footwear, almost 70% of production is for final consumption; these are the traditional trade sectors. At the other extreme, classic raw materials such as fuel and mining products are mostly sold as intermediates, but there is nothing new here. What is new is the big supply-chain trade flows in the sectors like transport equipment, electrical and optical equipment and chemicals. The chart also shows that the final-good shares have retreated in all sectors as supply chains have internationalised. Note that if every stage of production is done in a single factory, the final share would be 100%; as the production process unbundles, the final share

falls whether the unbundled stages are offshored or not.

2.2.1 Supply-chain trade is more regionalised

All trade is quite regionalised, but supply-chain trade even more so. The global pattern of supply-chain trade is illustrated with the matrix in Figure 7. Each element of the matrix shows the row-nation's exports of intermediates to the column-nation as a share of all such trade in the world. To focus on the big picture, elements less than three-tenths of 1% are zeroed out. The nations are arranged by region. The key points are:

- Supply-chain trade is not global – it is regional.

The global production network is marked by regional blocks, what could be called Factory Asia, Factory North America, and Factory Europe.

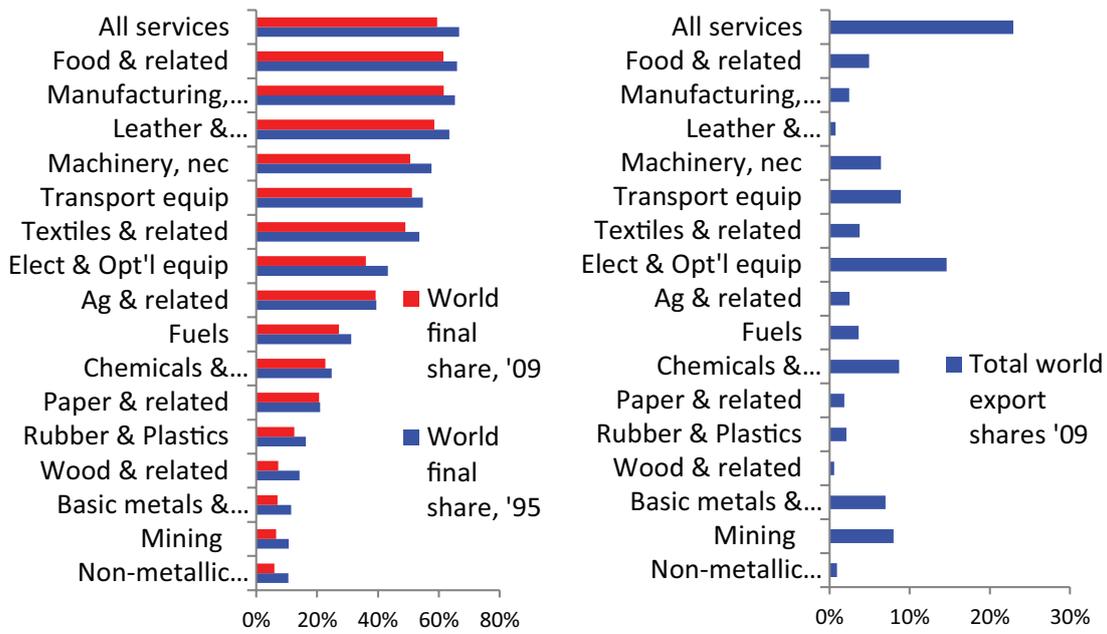
- The matrix is very sparse (very few flows are significant on a global scale).
- The US, China, Germany, and Japan dominate supply-chain trade globally.

Supply-chain trade is also marked by a hub-and-spoke pattern around the four manufacturing giants – China, Germany, Japan and the US. This can be most easily seen in North America where the sales and sourcing flows with the US are all large, but those between Mexico and Canada are small. The same holds for Germany (its row and column are rather full, especially in Europe).

A key distinction that we return to repeatedly below is the technological asymmetry in international production networks, namely 'headquarter economies' and 'factory economies'. Firms in headquarter economies (basically the US, Japan and Germany, with the possible inclusion of Taipei and Korea) orchestrate the production networks directly or indirectly, while factory economies seek to attract the offshored jobs and investment. Korea seems to have transitioned between the two categories in the last decade or so.

³ Note that reimports here include the full supply chain so US capital good exports are counted in the re-imports if China uses US capital goods to produce, say, mobile phones exports to the US.

Figure 6 Final-good share of production and world export shares by sector



Source: Baldwin and Lopez-Gonzales (2012).

Figure 7 The global supply-chain matrix, 2009

I2P trade, 2009	UK	Germany	France	Italy	NL	Belgium	Austria	Poland	Czech	Denmark	Spain	Portugal	Finland	Greece	Ireland	Turkey	Sweden	Brazil	Russia	India	Indonesia	Australia	Taipei	China	Japan	Korea	US	Mexico	Canada	RoW
UK		0%			0%																									1%
Germany	0%		1%	0%	0%		0%																	1%			0%			2%
France		0%																												1%
Italy																														1%
NL		1%				0%																								0%
Belgium		0%																												
Austria																														
Poland																														
Czech																														
Denmark																														0%
Spain																														0%
Portugal																														
Finland																														
Greece																														
Ireland															0%															0%
Turkey																														0%
Sweden																														0%
Brazil																														0%
Russia																														1%
India																														0%
Indonesia																														0%
Australia																														0%
Taipei																														0%
China		1%																			0%				1%	1%	1%	2%		4%
Japan																								1%		0%	0%			2%
Korea																								1%						1%
US	0%	0%																						1%	0%			1%	1%	4%
Mexico																														1%
Canada																														2%
RoW	1%	1%	1%	1%	1%						0%										1%	0%	0%	0%	4%	2%	1%	3%		

Notes: Bilateral purchases of intermediates by row nation from column nation as % of all I2P flows in WIOD data base; flows under 0.3% set to zero.

Source: Adapted from Baldwin and Lopez-Gonzales (2012).

For comparison, Figure 8 shows the same matrix with the same filter for total trade, i.e. with finals and intermediates included. The most noticeable differences are:

- the total trade matrix is far less sparse, especially within regions; and
- the hub-and-spoke pattern is less pronounced.

This suggests that supply-chain trade is more sensitive to distance than final-good trade – a fact that is in line with recent empirical research (Gamberoni et al 2010, Lopez-Gonzales 2012). One plausible explanation for the greater regionalisation of supply-chain trade is that an international supply chain requires face-to-face and face-to-machine interactions. Given the realities of international travel, this necessity sharply constricts the geographic scope of production networks in most industries. Technological breakthroughs have lowered the cost of moving goods and ideas, but it is still very expensive in terms of time lost to move technicians and managers.

2.2.2 Why the changes? Globalisation's second unbundling

How are all these changes connected? The basic idea is simple. The rise of international production networks from 1985 or so (sometimes called globalisation's second unbundling) involved North-South production sharing. To ensure North and South production stages jived seamlessly, rich-nation firms brought all the missing know-how when moving production stages to developing nations. This combination of high-tech and low wages benefited rich-nation firms because it boosted the value of their firm-specific assets. It benefitted developing nations because it removed many bottlenecks that had previously stymied industrialisation in all but a handful of developing nations.

In short, globalisation's second unbundling is as much a story of heightened international mobility of know-how as it is a story of heightened trade in parts and components. No wonder its impact on global income shares is so different and so momentous.

3 International trade politics changed

At about the same time, say the late 1980s, the political economy of trade liberalisation was turned on its head – and global trade governance started to shift. The internationalisation of supply chains transformed policy in two fundamental ways.

- It created new political-economy 'supply' and 'demand' for openness.
- It created a bond among various strands of policy – some of which had hereto been viewed as purely domestic; trade policy, in a nutshell, became a 'package'.

Consider the two transformations in turn.

3.1 Domestic trade politics changed: Joining a supply chain

From the late 1980s, openness that facilitated international production sharing was suddenly embraced by developing nations – including many who had eschewed all liberalisation for decades. As Figure 9 shows, they:

- slashed tariffs unilaterally (left panel);
- signed Bilateral Investment Treaties, which are mostly unilateral concessions to rich-nation firms seeking to invest (middle panel); and
- signed a massive wave of RTAs with 'deep' provisions that are pro-supply-chain, e.g. assurances for intellectual property, capital movements, competition policy, business visas, etc. (right panel).

Importantly, this is not the 1970s and 1980s view of trade openness embraced by Singapore, Hong Kong and Taipei (lower tariffs, fewer quotas, etc.). This liberalisation wave included many measures traditionally viewed as purely domestic since joining a supply chain meant a much more thorough integration of the developing nation's economy with that of the headquarter nation directing the supply chain.

International supply chains are at the heart of this transformation of developing nation domestic politics.

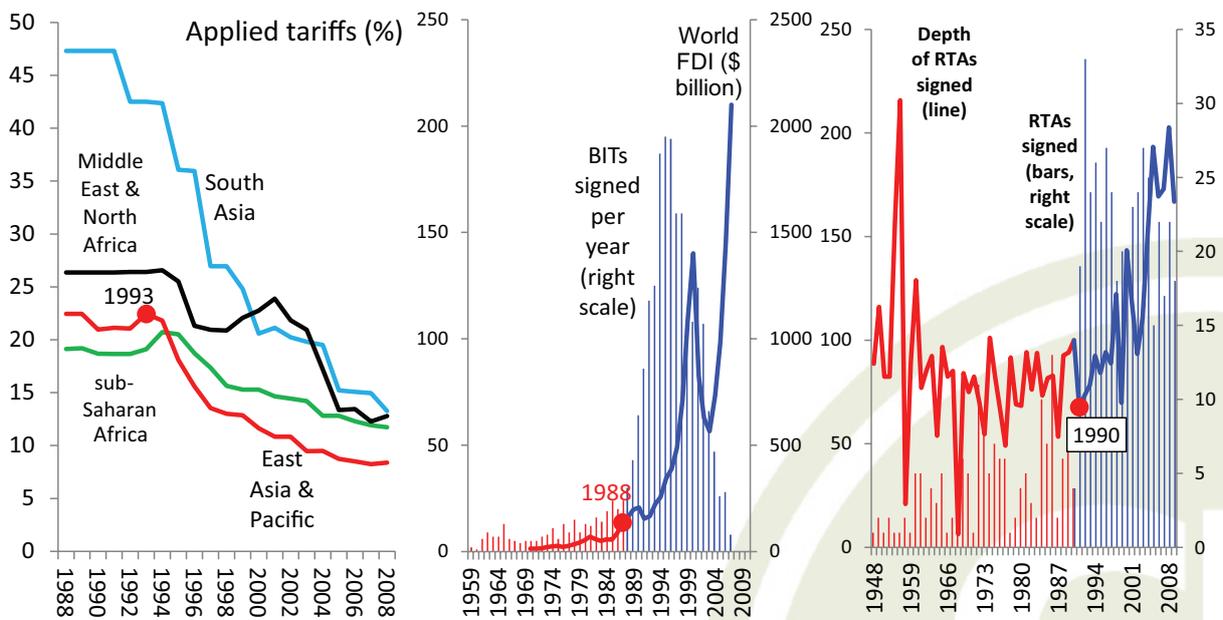
- The new 'supply' of reform came from developing nation governments seeking to industrialise by joining international supply chains.
- The new 'demand' for reform came from headquarter-economy firms seeking to raise the return on their firm specific know-how by combining high-tech with low wages in developing nations.

Figure 8 The global aggregate trade matrix, 2009

2009 total	gbr	deu	fra	ita	nld	bel	aut	pol	cze	dnk	esp	prt	fin	grc	irl	tur	swe	bra	rus	ind	idn	aus	twn	chn	jpn	kor	usa	mex	can	RoW
UK		1%	0%		0%																						1%			
Germany	1%		1%	1%	1%	1%	1%	0%	0%		1%												1%				1%			
France	0%	1%		1%		1%					0%													1%			0%			
Italy		1%	1%																								0%			
NL	0%	1%	0%	0%		1%																								
Belgium	0%	1%	1%		1%																									
Austria		1%																												
Poland		0%																												
Czech		0%																												
Denmark																														
Spain		0%	0%								0%																			
Portugal																														
Finland																														
Greece																														
Ireland						0%																					0%			
Turkey																														
Sweden																														
Brazil																									0%					
Russia		0%																												
India																											0%			
Indonesia																														
Australia																								1%	0%					
Taipei																														
China	1%	1%	1%	0%	0%														0%	0%	0%				2%	1%	4%	0%	0%	
Japan		0%																							2%	1%	1%			
Korea																									1%	0%	1%			
US	1%	1%	0%		0%																			1%	1%	0%		2%	2%	
Mexico																											2%			
Canada																											3%			
RoW																														

Notes: Total bilateral trade normalised as in Figure 7.
 Source: Adapted from Baldwin and Lopez-Gonzales (2012).

Figure 9 Take-off in BITs, FDI, unilateralism, and deep RTAs



In short, production unbundling created a new type of win-win situation in international commerce.

The old type was 'my market for yours'.⁴ The new type is 'my factories for your reform'.⁵

3.2 Trade governance changed

The regionalisation, complexity and interconnectedness of supply-chain trade naturally shifted world trade governance towards regionalism. There was nothing new in this.

Supply-chain trade first boomed in the 1960s but then it was North-North. The simple GATT 1947 rules that were designed to underpin international selling were not sufficient to underpin the complex cross-border flows linked to the supply chains that arose among rich nations in the 1960s and 1970s. Since the trade was regional rather than multilateral and focused on autos, the deeper disciplines underpinning US-centred production sharing were negotiated in the 1965 US-Canada Auto Pact. The deeper rules underpinning European production sharing were placed in the EEC's Common Market. The only other manufacturing giant at the time, Japan, did very little production sharing and so it had no need for deeper disciplines.

The history lessons are twofold. First, complex cross-border flows demand complex rules. Since most supply-chain trade is regional, there is a strong tendency to establish the necessary rules regionally rather than multilaterally. Second, while multilateral rules would almost surely have been more efficient, negotiating them in the GATT would have been too cumbersome and slow because most GATT members at the time were not involved in this type of international commerce.

Moving forward to the rise of North-South production sharing, the same reaction is seen but with a twist. Since property rights of all sorts tend to be more precarious in developing nations, the necessary disciplines focus heavily on tangible and intangible property rights. Specifically, North-South supply-chain trade creates a need for two

types of disciplines corresponding to the two elements of supply-chain trade:

- producing abroad; and
- coordinating internationally dispersed production facilities.

The former requires heightened tangible and intangible property assurances. The latter requires assurances of unhindered two-way flow of goods, services, people, and capital.

In the world of supply-chain trade, these assurances are a package. For example, any threat to property rights or cross-border flows is, de facto, a barrier to supply-chain trade. A developing nation that cannot commit to the whole package is unlikely to see supply-chain trade take off. (China and India with their enormous internal markets are in a somewhat special class.) Section 5 enumerates the items in a typical 'package'.

3.2.1 The WTO's centrality eroded

As the WTO was occupied with the Doha Round and its emphasis on traditional trade issues (tariffs and agriculture), the demand for deeper disciplines was filled by uncoordinated developments in deep regional trade agreements, bilateral investment treaties, and autonomous reforms in emerging economies. The resulting package of deeper disciplines is what I have called 21st century regionalism (Baldwin 2011a) – a theme taken up in the WTO's 2011 World Trade Report (WTO 2011). All this eroded the WTO's centrality in global trade governance – increasingly so as the Doha Round got bogged down.⁶

The latest twist in the erosion of the WTO's centrality is the ongoing negotiations of 'mega-regionals' – the Trans-Pacific Partnership (TPP) being the prime example. The goal of the TPP seems to be the establishment of a single set of disciplines on supply-chain trade that applies to most of Factory Asia and all of Factory North America. The other important mega-regionals include the Trans-Atlantic Partnership (TAP, under discussion, HLWG 2012), a Canadian-EU deep agreement (under negotiation, DFAIT 2012), and possible deep agreements between Japan and the EU, and Japan and Canada (under discussion).

3.3 The WTO did not change

How did the WTO change while globalisation changed, trade changed, trade politics changed and trade governance changed? The answer is simple: it changed very little. The last time multilateral trade rules were updated, Bill Clinton was in his first term

⁴ As Cooper (1971 p.410) puts it: 'The principle of reciprocity is designed to hold out the promise of export gains to certain sectors of the economy, and thereby to establish a counterweight to those who will be hurt by increased imports. Reciprocity attempts to build pluralistic support for tariff reduction.' Well known to trade negotiators, this point was surely not novel to Cooper and many have made it subsequently including Roessler (1978), Blackhurst (1979), and Baldwin (1980). For an early formal treatment see Moser (1990), or Hillman, Long and Moser (1995); the basic logic of these early papers were brought to the attention of the broader community of trade academics by Grossman and Helpman (1995).

⁵ For details see Baldwin (2010) on the link with supply-chain trade. Other theories on unilateralism include Coates and Ludema (2001), Krishna and Mitra (2008), Ludema, Mayda and Mishra (2010), and Conconi and Perroni (2009).

⁶ See Baldwin (2008) for an early analysis of WTO centrality and its erosion.

of office, email was for computer scientists only, cell phones looked like bricks, and calling costs were measured in dollars per minute. Apart from a few useful initiatives in 1997 (e.g. the ITA), the WTO has made only very limited progress towards adjusting to the new world of supply-chain trade. The on-going multilateral talks (Doha Round) have focused almost exclusively on 20th century trade issues – tariffs, agricultural subsidies, etc.

Looking forward, it seems clear that the Doha Round will not finish in this decade due to sharp differences between the world two largest traders – the US and China. As the breakdown in 2011 revealed, market access concessions the US says it needs to close the deal are said, by China, to be unreasonable. Since Chinese trade and industry is flourishing despite the WTO stalemate and US industry sees only meagre gains from concluding the Round, there seems to be little hope of getting past the large-member stalemate this decade.

Without a conclusion to the Round, it seems politically impossible for the WTO to move on to new issues, i.e. to address the deeper disciplines needed to underpin supply-chain trade. The reason is that few WTO members have a significant stake in supply-chain trade and many have a stake in settling market access and agriculture issues. The latter fear that talk of ‘new issues’ is another way for rich nations to (once again) avoid opening their markets to the goods in which developing nations have their comparative advantage.

Instead, these supply-chain trade rules have been, and continue to be, written outside the WTO. The supply-chain governance gap is being filled by uncoordinated developments in deep regional trade agreements, bilateral investment treaties, and autonomous reforms in emerging economies. In particular, the existing deep RTAs signed by the big outsourcing nations – especially, the US, Japan and the EU – have set a template for the sort of disciplines that seem necessary. Mega-regionals like TPP are trying to harmonise the rules across a broad range of nations (see Figure 18 in Appendix for a comparison of the size of mega-regionals and existing RTAs). Even if TPP ultimately fails or slips into limbo, the TPP negotiations have already strongly conditioned the shape of harmonised rules that will eventually emerge.

In a nutshell, this reasoning suggests that:

- harmonised rules on deeper disciplines linked to supply-chain trade are likely to be written by the end of this decade;
- the rules are likely to be harmonised in mega-regionals; and
- the WTO will have no part in this rule writing.

So what is the future of the WTO?

4 The WTO's future

Looking forward, two background facts are important to keep in mind.

- When it comes to traditional trade, i.e. the international selling of goods, the WTO is in excellent health.

The basic WTO rules for this sort of ‘20th century trade’ are almost universally respected. The WTO’s court decisions are almost universally complied with in letter (if not always in spirit). Nations – even big nations like Russia – seem willing to pay a high political price to join the organisation. Where the WTO’s future seems cloudy is on the supply-chain trade front.

- The status quo that is comfortable for key WTO members will, on current trajectory, be gone in a few years; mega-regionals will have transformed world trade governance.

The mega-regionals will have established global trade governance on the most dynamic segment of world trade – the segment that is most critical to today’s industrialisation of developing nations, i.e. supply-chain trade. As such, these mega-regionals will, de facto, become major pillars of world trade governance.

This prospective ‘second pillar’ of trade governance is likely to exclude the largest emerging markets, most importantly, the world’s largest exporter, China. In response, Asian nations have launched their own mega-regional initiatives, but the political landing zone for these initiatives is seriously narrowed by well-known industrial and political tensions. To say the very least, the future of mega-Asian arrangements is much less clear than it is for the TPP, TAP and the mega-bilaterals (EU-Canada, Japan-EU, and Japan-Canada). In any case, the global trade governance system is on a course for fragmentation by the end of the decade. The successful conclusion of other mega-regionals that include the Asian giants will diminish exclusions but magnify fragmentation.

The implications are clear.

- The WTO’s future will either be to stay on the 20th century trade side track on to which it has been shunted, or to engage constructively and creatively in the new range of disciplines necessary to underpin supply-chain trade.

The only way to avoid this governance fragmentation would be to move the deeper disciplines into the WTO. This, however, would

require a new structure – a WTO 2.0 as it were. The reason has to do with politics and broken status quos.

4.1 WTO 2.0

If the mega-regionals and mega-bilaterals being negotiated among the old GATT Quad (US, EU, Canada and Japan) do go through, three of the four hubs in the world's hub-and-spoke supply-chain system will find global governance to be reasonably coherent. Japanese, German and the US firms will find global supply-chain governance to be rather well organised. Chinese firms will not (along with Indian, Brazilian, Russian, and South African firms).

This awkward state of affairs may well become the 'new normal'. It may prove impossible to bring supply-chain trade rules to the multilateral level in any event. The old Quad may have only weak incentives to compromise once the new status quo is in place. Likewise, China and India may not find it too inconvenient since they may have the clout needed to deal with the fragmented system without joining it. However, if China and the other BRICS want a say in which of the TPP-like rules will be raised to the multilateral level, the rules must be negotiated into a multilateral institution. The natural candidate for this – the WTO – does not seem to be a suitable vehicle.

First, the multilateralisation process would be extremely difficult to start in the WTO before the 20th century issues raised by the Doha Round are settled – i.e. probably not before 2020. However by this time, it is quite likely that the old GATT Quad will have completed mega-regionals and mega-bilaterals. This means that the old Quad would be in a position where the status quo was relatively comfortable while the emerging economic giants would be the demandeurs. For political reasons, the US and perhaps other Quad members are likely to want to negotiate multilateralisation in an organisation where all large exporters were treated equally, i.e. with no special and differential treatment for manufacturing giants like China and India.⁷

Second, while eliminating special and differential treatment (SDT) for brand new disciplines in the WTO – say, capital movement – could be envisioned, eliminating it for matters currently covered by the Enabling Clause's treatment of developing nation preferential trade agreements

⁷ More profoundly, the US, inter alia, views the asymmetric, developing-nation status of China as unacceptable. As the US seems to perceive things, China is a poor nation, but it does not look like a developing nation in the GATT sense of the word – not the sort of country diplomats had in mind when special and differential treatment was introduced in the 1950s and renewed and strengthened in the 1960s, 1970s and 1980s.

would be almost impossible. As Figure 12 shows, these provisos would apply to many disciplines that seem to be core to supply-chain governance.

Third, as Figure 7 and Figure 15 show, the vast majority of WTO members are only tangentially involved in supply-chain trade. Given this, the near-universal membership and consensus decision-making procedures of WTO 1.0 would make the multilateralisation negotiations very problematic, to say the least. The parties that would really have to agree would be the old Quad and the new manufacturing giants, particularly China.

This logical thread leads to a rather strange conclusion – one that is long way from where I started when I began writing about the multilateralisation of deep regionalism in 2009.⁸ The world will need two organisations to reunify global trade governance – WTO 1.0 (the current one) for issues and members where spillovers are universal and SDT is important, and WTO 2.0 where spillovers are mostly limited to major supply-chain traders and where the SDT concept is harmful rather than helpful to developing nations.

5 The shape of WTO 2.0

Successful international organisations facilitate win-win outcomes in situations that would otherwise produce lose-lose outcomes. The nature of an international organisation must respond to the type of the cooperation it hopes to facilitate. Disciplining wars required a Security Council-type structure in the UN. Lending money required a weighted voting structure as in the World Bank. This section considers the type of institution that would best help the WTO 2.0 accomplish its task of multilateralising rules on supply-chain trade.

The key institutional questions include: Should all members be treated equally? Who should join? What issues should be covered? Before addressing these, it is instructive to review the economic and political economic logic underpinning the answers to these questions as far as the GATT/WTO is concerned.

5.1 WTO 1.0 institutions and the nature of cooperation fostered

The GATT's issue coverage followed a very strong logic. Traditional trade refers to goods made in one nation and sold in another. Thus the natural issues for GATT were border barriers (tariffs, etc.) and policies that could directly offset the effects of removing them (subsidies, unfair competition, etc.).

⁸ Baldwin, Evenett and Low (2009).

The logic of universal GATT membership follows directly from the political economy of how tariffs and other border barriers work. Before the second unbundling, tariffs shifted production to the protecting nation while simultaneously improving its terms for trade. Since one nation's terms-of-trade gain is another nation's terms-of-trade loss, tariff policy is a giant prisoners' dilemma. GATT can be thought of as turning the 1930s lose-lose outcome into a postwar win-win outcome (Figure 10). This gain from cooperation is the touchstone of GATT/WTO cooperation.⁹

Figure 10 The political economy gains from GATT

		Tariffs	
		High	Low
Tariffs	High	Nation A Nation B Smoot-Hawley	Exploitation
	Low	Exploitation	GATT

Source: Author's elaboration.

The connection to universal membership is quite direct. As Figure 10 shows, each nation would like to exploit other nations by protecting while others liberalise, but all prefer global openness to global protectionism. Thus,

- GATT was set up to discipline selfish behaviour that harmed others with the negative effects coming via world prices (i.e. terms of trade).

While many WTO scholars think in terms of 'market access' instead of 'terms of trade', these are two sides of the same coin. A terms-of-trade loss is the 'price symptom' of restricting market access. Tariffs reduce market access and exporters naturally react by some combination of reduced sales and lower border prices – in effect, exporters find it optimal to absorb some of the tariff by lowering border prices.

Because the negative spillovers of the selfish behaviour (protection) work through world prices, spillovers are intrinsically global. It therefore makes perfect economic sense to agree disciplines of this selfish-but-harmful-to-others policy at the global level. Moreover, if nations try to settle this bilaterally or in small groups, they automatically spread negative effects to non-members via

⁹ The basic point that international agreements can switch lose-lose outcomes into win-win ones by encouraging self-restraint is an ancient insight. It was brought into modern economics by Wolfgang Mayer (1985) in *The political economy of tariff agreements*, Peter Moser (1990) in *The political economy of the GATT*, Paul Krugman (1991a), Bernard Hoekman (1993) in *Multilateral trade negotiations and coordination of commercial policies*, and, more recently, by Kyle Bagwell and Robert Staiger (1999) in *An Economic Theory of GATT*.

trade diversion. Thus something like a political economy domino effect supports the logic of universal membership. As more nations joins, WTO membership becomes more important for the outsiders.

Finally, SDT follows straight on from this reasoning. Thinking of GATT as a way of disciplining selfish-but-harmful-to-others policies turns SDT into a gift; it allows developing countries to shift the me-versus-them balance towards their own needs (more on this below). As we shall see, the nature of many supply-chain barriers is fundamentally different. Many of them are not of the selfish-but-harmful-to-others type. This matters hugely when thinking about the nature of WTO 2.0. The first task, however, is to think about which issues should be covered.

5.2 Issues to be covered by WTO 2.0

When it comes to tariffs, the global negative spillovers make global governance the natural solution. When it comes to the deeper disciplines needed to underpin supply-chain trade, the most efficient level of governance is less clear. There is a good analogy with what goes on in the EU where the question is: Which policies should be decided at the national level and which at the EU level? The answer in the EU is guided by a general principle – the subsidiarity principle that says policy should be set at the lowest level that is efficient. Policies that have important EU-wide spillovers (positive or negative) tend to get regulated at the EU level.

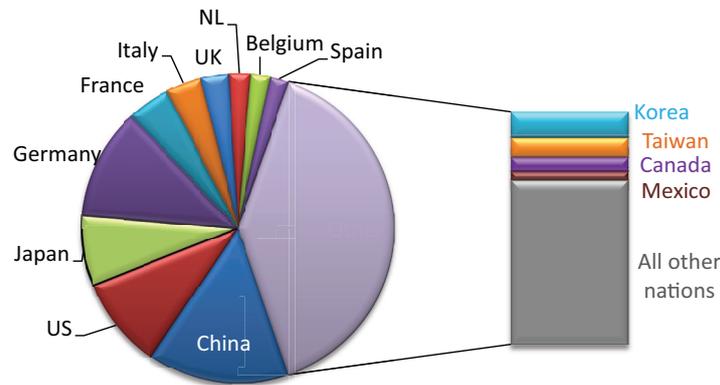
Future research should probably apply this subsidiarity logic to supply-chain trade issues to see what can be said. It seems plain, however, that clear-cut answers will not be found due to the lack of clear information on the trade-offs involved. An alternative approach is to look at the sorts of issues that have been widely included in deep RTAs signed by the advanced technology hubs – the US, Japan and Germany (EU). China has not signed any deep agreements of note.

5.2.1 Revealed preference evidence

The idea here is that the firms of these 'headquarter economies' – the high-tech firms that organise most international supply chains – have already identified the disciplines necessary to underpin supply-chain trade and have implemented them via bilaterals where possible. The nature of such bilaterals should therefore help us identify the core disciplines that a WTO 2.0 should address.

Before turning to the nature of the RTAs, it is worth looking at the global distribution of supply-chain exports to identify the big players. As Figure 11 shows, the trio on whose RTAs we focus – the US, EU, and Japan – account for about half of

Figure 11 National shares of global supply-chain exports, 2009



Source: WIOD.org database.

global supply-chain industrial exports.¹⁰ This is a large share, but hardly dominant. China is a huge player and Korea, Taiwan, Canada and Mexico are important players. This confirms the Figure 8 point that relatively few nations are heavily involved in supply-chain trade.

Turning to the content of the key deep RTAs that currently set the rules for supply-chain trade, we rely on an excellent dataset assembled by the WTO Secretariat as part of its 2011 World Trade Report. A team of trade lawyers read through the text of about 120 agreements and noted the issues mentioned in each. The lawyers used a checklist of measures that was drawn up by Horn, Mavroidis and Sapir (2009). This checklist includes 52 measures – 38 of which are ‘beyond WTO’ disciplines, i.e. they involve disciplines that do not exist in WTO agreements today (e.g. prohibition of capital controls). The other 14 measures touch on disciplines that are covered by existing WTO agreements, but where the RTA goes beyond the disciplines in the WTO (e.g. tariffs reduced below the WTO-bound MFN rate). For each measure, the lawyers noted whether the RTA text covering the various provisions involved legally enforceable language or simply mentioned intentions in the area covered.

The goal here is to find a consistent pattern of provisions. If a pattern does emerge from existing RTAs, revealed preference reasoning suggests that these provisions are likely to be the core issues included in WTO 2.0 – should such an organisation ever arise.

To this end, consider the share of US bilaterals that include each of the 52 provisions (Figure 12 left panel). The provisions are listed in reverse

alphabetical order with the beyond-WTO issues coming first (up to agriculture) and then the existing WTO provision at the bottom, again in reverse alphabetical order. The blue bars show the share of all US agreements in the WTO database that mention each provision; the red bars show the share where the provision enters with legally enforceable language. Two points stand out.

- The US is remarkably consistent in the provision-coverage of its RTAs; i.e. there is something like a US template.
- Most provisions that enter US agreements enter with legally binding language.

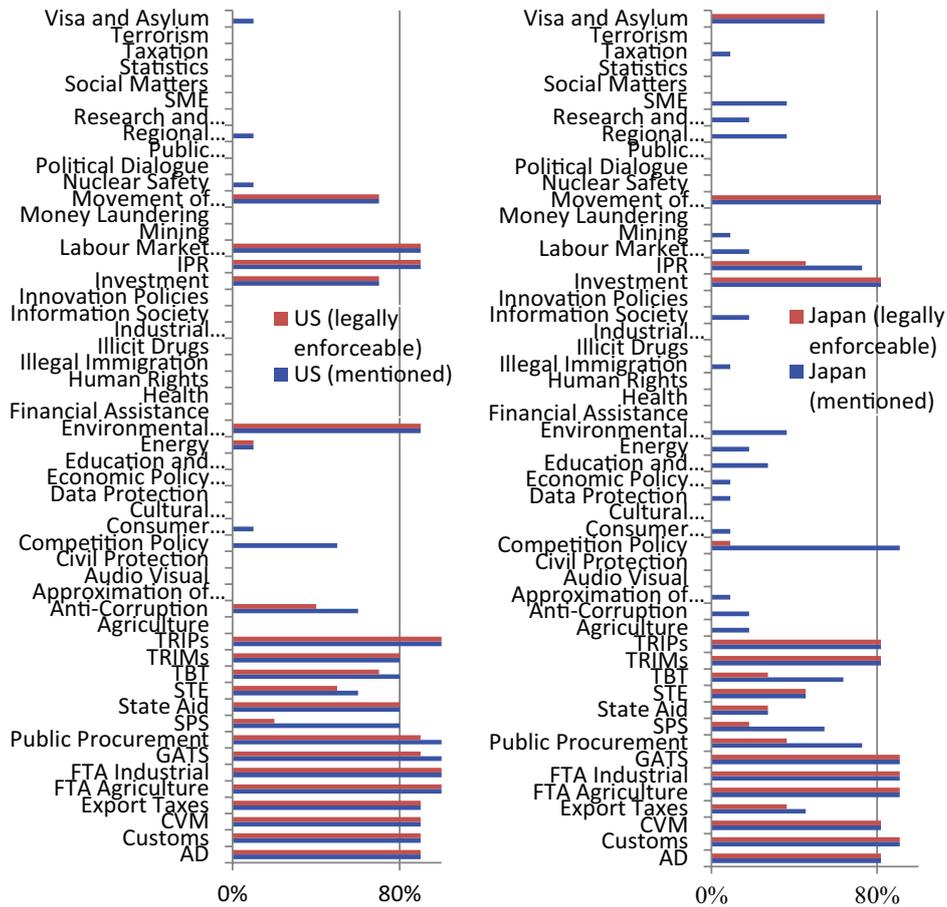
Only 12 of the 52 provision enter into 80% or more of US RTAs (i.e. RTAs where the US is a signatory). Setting the threshold lower to two-thirds, the number rises to only 17. The bulk of these involve disciplines that are already covered by the WTO, but where the RTA goes further – the most notable as far as supply-chains are concerned are the deeper commitments in services, TRIPs, TRIMs, customs cooperation, and procurement.¹¹ Only five beyond-WTO provisions make it into at least two-thirds of the RTAs: three measures are clearly aimed at underpinning internationalised production (intellectual property rights, IRPs, investment restrictions and assurances, and the free movement of capital), and two that reflect deeply entrenched US domestic concerns (labour and environment).

The right panel of Figure 12 show the same facts for Japan’s RTAs. The basic pattern is not too dissimilar to that of the US. Most of the legally binding provisions are extension of existing WTO disciplines (bottom of the chart). Again,

¹⁰ It should be noted however, that most of the EU’s supply-chain is inside the Single Market and so are governed by a regional trade agreement that is a quantum leap deeper than others. For instance it embraces the free intraEU movement of goods, services, labour and capital, and common policies on competition, subsidies, etc. All of these are enforced by a supranational court whose authority exceeds that of national courts on Single Market issues.

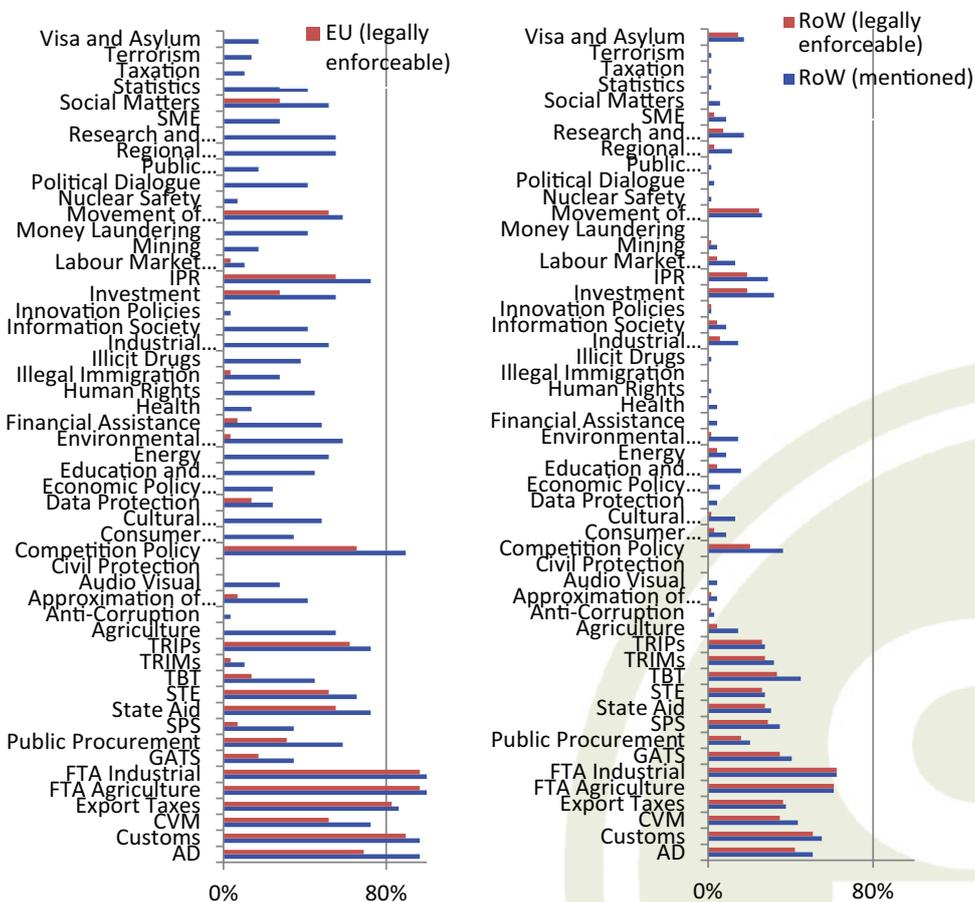
¹¹ The list includes standard border measures like tariffs on industrial and agriculture goods, standard measures that could offset the lowering of border measures (subsidies, unfair competition, biased public procurement, onerous customs procedures), and a few behind the border barriers such as investment restrictions, trade-related intellectual property rights and technical barriers to trade (basically standards for industrial goods).

Figure 12 Share of US & Japanese agreements with deeper provisions



Source: WTO RTA database, 2011.

Figure 13 Share of EU & Rest of World (RoW) agreements with deeper provisions



Source: WTO RTA database, 2011.

the supply-chain relevant ones are TRIPs, TRIMs, services and customs cooperation. Among the beyond-WTO provisions, the ones that appear most frequently in Japanese RTAs are movement of capital, IPR, investment, and visa and asylum (mostly dealing with business mobility issues). Competition policy is almost always mentioned but almost never legally binding.

The facts for the EU's RTAs are much less clear (Figure 13, left panel). This may have to do with the fact that most of 'Factory Europe' is inside the EU itself – and the EU is the ultimate deep RTA. As such, the EU itself is the guarantor of supply-chain disciplines for European high-tech firms.¹² It may also be related to the fact that the EU has a much longer and richer history with RTAs. The WTO database has information on 10 US RTAs, 11 Japanese RTAs and 58 EU RTAs. The earliest US and Japanese arrangements come from the 1990s, while Europe's date back to the 1960s.

Only a handful of provisions appear in at least two-thirds of the EU agreements, two of which are the classic, 20th century trade provisions – namely, tariffs on industrial and agricultural goods and export taxes. The only near-universal supply-chain linked provisions are customs cooperation and competition policy as far as legally binding provisions are concerned. The key deeper provisions seen in US and Japanese arrangements also appear in EU agreements, but without legally binding language, specifically movement of capital, IPR, and investment.

Facts for the remainder of agreements in the database are shown in the right panel of Figure 13. Here we see that these RTAs are much more diverse and much, much shallower on average. Only 60% of them include deeper than MFN tariff cuts, to say nothing of more forward-leaning disciplines. There is, however, some comfort in the pattern of beyond-WTO provisions that are included. The spikes in frequency occur in movement of capital, IPR, investment, and competition policy – all supply-chain related provisions. In this sense, the shape of these other agreements is not radically at odds with the shape of US and Japanese agreements.

5.2.2 Summary: What issues for WTO 2.0?

Pulling all this together, we see that the disciplines necessary for supply-chain trade to flourish include deeper disciplines on the WTO-covered areas of services, TRIPs, TRIMs, and customs cooperation, and beyond-WTO disciplines on IPR, investment assurances, and the free movement of capital. Think of these as two categories:

¹² Note that the list of 52 provisions does not include the large number of extremely deep integration provisions in the EU's Treaties since Horn, Mavroidis and Sapir (2009) considered EU RTAs with third nation.

- Disciplines that assure the two-way flows of goods, information, capital and people that are necessary to run an international production network.
- Disciplines that guarantee tangible and intangible property rights, and a favourable business climate.

The former include liberalisation of infrastructure services, some financial services, capital flows, and barriers to trade in parts and components. The latter include assurances on movement of capital, IPR, investor rights, and competition policy or some other policies that guard against ill treatment of foreign-owned firms.

Other measures that are sure to be raised but less likely to be included due to differences among the outsourcing giants are: visa issues, procurement, labour issues and environmental issues. Of course, many new issues might also arise including state-owned enterprises, and standing committees to address business concerns that arise continually in this fast-developing world.

Important issues concerning the interaction between WTO 1.0 and WTO 2.0 would arise if WTO 2.0 addressed issues that are already covered by WTO agreements. This might argue for limiting WTO 2.0 to issues that involve beyond-WTO disciplines. Further legal and political economy research is needed on this issue.

5.2.3 Basis of cooperation

When it comes to tariffs, mega-regionals and mega-bilaterals pose no new challenges. When it comes to the new, beyond-WTO issues, a sweeping rethink is necessary. I shall argue that the intrinsic nature of these barriers is radically different from tariffs as far as the gains from cooperation are concerned.

The fundamental difference between tariffs and supply-chain disciplines are illustrated schematically by the comparison of Figure 14 – which shows the basis for supply-chain trade cooperation – and Figure 10, which does the same for traditional trade cooperation.

The point of departure is a fundamental asymmetry of supply-chain trade relations.¹³ While supply-chain trade is very much two-way, the linchpin flows that trigger it are not. The key is the application of an advanced-tech firm's know-how inside a developing nation. The choices and actors are not symmetric as in GATT cooperation (Figure 10). Firms from a headquarter economy decide whether to invest in a particular developing

¹³ Baldwin (2006) refers to the two types of players as 'HQ' economies and 'factory' economies.

nation. The developing-nation government decides whether to provide strict or lax supply-chain disciplines.

Two choices by two actors yield four outcomes. The government provides strict disciplines and (1) the high-tech firm engages or (2) not, or government provides lax disciplines and (3) the high-tech firm engages or (4) not. The win-win outcome is (1) – engage with strict disciplines. The worst outcome for the high-tech firm is the rip-off scenario (3), i.e. engage with lax disciplines. Outcome (4) maintains the pre-offshoring status quo.

Since the high-tech firm will never invest in a nation with lax disciplines, the best strategy for the developing-nation government is to adopt strict disciplines – and this regardless of what the advanced technology firm decides to do.¹⁴ If the investment happens, the government wins rapid industrialisation. If no engagement happens, the government loses little. Thus a simple-minded analysis suggests that there is no gain from cooperation. Both parties have an incentive to do the right thing with or without a WTO 2.0 or mega-regional agreement.¹⁵ But then why do we observe so many deep RTAs signed despite their high political price (e.g. US-Korea FTA)?

Figure 14 The gains from cooperation on supply-chain policies

		<i>Advance-tech firm choices</i>	
		<i>Engage</i>	<i>Don't engage</i>
<i>Developing nation government choices</i>	<i>Strict</i>	Supply-chain industrialisation	No supply-chain industry
	<i>Lax</i>	Rip off	No supply-chain industry

Source: Author's elaboration.

5.2.4 The 'hold-up problem' and WTO 2.0 cooperation

The problem arises from what economists call the 'hold-up problem'. Once the offshoring investment is made, the developing nation government has an incentive to backslide towards lax disciplines since this would allow its citizens to directly or indirectly expropriate some of the high-tech firm's tangible and intangible assets. In anticipation of this, the firm may not engage, or engage too little, or offshore only simple processes that involve low technology. This is an inferior outcome for both the firm and the government concerned. Thus, a slightly more forward-looking analysis suggests

14 This may explain why Washington Consensus policies have been so widely adopted, even by nations who have not received offshored manufacturing jobs.
 15 Technically, strict disciplines is the dominate play for the government and give this, invest is the dominate strategy for the firm, so offshoring industrialisation is the iterative dominate strategy in a one shot game.

that assuring the win-win outcome will require some agreement that makes backsliding unlikely. This is the critical difference.

- The gain from supply-chain disciplines is based on a hold-up problem, not a prisoner's dilemma.
- This means that the optimal form for the WTO 2.0 might be very different than that of WTO 1.0.

5.3 Who should join?

If WTO 2.0 is successful, it could well eventually attract all nations. But what would be the minimum members for a viable WTO 2.0?

One way to approach this is to think about the institution's goal. Since the world already has a great deal of supply-chain governance, the goal of WTO 2.0 should be to make supply-chain trade governance more harmonious by multilateralising deep regionalism.¹⁶ Plainly, then, membership must be cross-regional if the organisation is not to be redundant to existing bilaterals and mega-regionals under discussion.

This leads us to ask what sort of trade flows should come under a new WTO 2.0? We start by looking at the global pattern of supply-chain dependency. The elements in Figure 15 show the share of the column nation's intermediates sourced from the corresponding row nation. This table displays the same data as Figure 7, but normalised by each nation's total use of intermediates rather than global imports of the same. From the large numbers on the diagonal, we know that most nations source most of their intermediates from themselves. In this sense, the internationalisation of supply-chains has only just begun. The off-diagonal elements show where nations depend upon other nations for their inputs.¹⁷ The dominate role of three of the four manufacturing giants is clear from the full rows of Germany, China and the US. Japan's role as an intermediate supplier is limited to Asia. Russia's oil and gas exports make important for many nations, but this traditional trade is a non-issue for supply-chain governance.

To see which of the important supply-chain dependencies is already covered by deep RTAs, we use a blue, solid border to encompass nations sharing a deep RTA. The largest is the EU itself (the customs union with Turkey is also shown). The next largest is NAFTA in the lower right corner. Apart from these, there are only two RTAs that cover substantial amounts of supply-chain trade,

16 For early thinking on the multilateralisation of deep regionalism, see Baldwin, Evenett and Low (2009).
 17 The matrix includes all to the nations in the WIOD database (Figure 8 eliminated small nations).

Figure 15 Supply-chain trade dependency matrix and deep RTA

		GB	DE	FR	IT	AL	BE	BG	CY	CZ	DN	ES	ES	FI	GR	HL	IR	LT	LU	LV	ML	NL	PC	PR	RC	SV	SV	SV	TU	RU	BR	IN	TW	CH	AU	JPI	KC	IDI	US	ME	CA	Ro											
2009		UK	Germany	France	Italy	Austria	Belgium	Bulgaria	Cyprus	Czech R	Denmark	Spain	Estonia	Finland	Greece	Hungary	Ireland	Lithuania	Luxemb	Latvia	Malta	NL	Poland	Portugal	Romania	Slovakia	Slovenia	Sweden	Turkey	Russia	Brazil	India	Taiwan	China	Australia	Japan	Korea	Indonesia	US	Mexico	Canada	RoW											
GBR	UK	82					2			2						12		22		5	4																																
DEU	Germany		79	3	10	5	2	2	8	5		3	3	3	9	2	3	6	2	3	4	5	2	4	6	5	3																		2								
FRA	France			84		3												4		3																																	
ITA	Italy				85		3							3				4		7				2		4																											
AUT	Austria					72									3												3																										
BEL	Belgium						66												7		3																																
BGR	Bulgaria							75																																													
CYP	Cyprus								71																																												
CZE	Czech R									72																																											
DNK	Denmark										70																																										
ESP	Spain											85												6																													
EST	Estonia												70																																								
FIN	Finland													3	78																																						
GRC	Greece								3							72																																					
HUN	Hungary																59																																				
IRL	Ireland																	54																																			
LTU	Lithuania																		62		3																																
LUX	Luxemb																			38																																	
LVA	Latvia																				78																																
MLT	Malta																					61																															
NLD	NL					7					3												67																														
POL	Poland																							77																													
PRT	Portugal																								80																												
ROM	Romania																								77																												
SVK	Slovakia																										66																										
SVN	Slovenia																											69																									
SWE	Sweden										3		2																																								
TUR	Turkey																																																				
RUS	Russia						5					2	2	2	2		17		2						4																												
BRA	Brazil																																																				
IND	India																																																				
TWN	Taiwan																																																				
CHN	China							3								4		3		4	3																																
AUS	Australia																																																				
JPN	Japan																																																				
KOR	Korea																																																				
IDN	Indonesia																																																				
USA	US																																																				
MEX	Mexico																																																				
CAN	Canada																																																				
RoW	RoW																																																				

Note: Elements less than 2% are zeroed. Purchases of intermediates by column nation from row nation as a share of the column nation's total usage of intermediates.
 Source: Author's elaboration of WIOD.org data.

namely China's agreement with ASEAN (which covers Indonesia) and the US-Korea RTA.¹⁸ The dashed, red borders indicate flows that would be harmonised by mega-regionals like the Trans-Pacific Partnership and the proposed Trans-Atlantic Partnership.

Roughly speaking, the gains from a WTO 2.0 that multilateralised supply-chain trade disciplines would be to include the flows that have neither red nor blue borders in Figure 15. The most obvious omissions are China and Russia. Russian participation in supply-chain trade is largely that of a natural resource exporter where supply-chain disciplines are less important.

18 It is important to note, however, that this information is severely incomplete when it comes to East Asia where supply-chain trade is rampant, RTAs are abundant, but participation in the WIOD project is scarce (only Japan, China, Korea, Indonesia and Taiwan). All the major ASEAN nations have RTAs with Korea, Japan and China as well as with themselves, so surely some of these would have blue borders if they were in the data set. The lack of information on Latin American and African nations is less problematic since they have many RTAs but engage in relatively little supply-chain trade.

The chart illustrates two key points:

- If a WTO 2.0 is to be a step beyond the mega-regionals, it must include China.
- Many nations are largely uninvolved in supply-chain trade.

WTO 2.0 membership for such nations could be considered as a luxury rather than a necessity – a luxury that would be worth having if it did not come at the price of overly sluggish decision making.

5.3.1 Bilateral rather than global spillovers and WTO 2.0 membership

More directly, the argument for limited membership is based on the nature of the spillovers that WTO 2.0 would be designed to prevent. For instance, the intense supply-chain trade between Canada and the US is organised almost entirely by large corporations – not competitive markets. The international exchanges involved are a

bundle of cross-border flows of goods, services, investment, know-how, and people. This is why most supply chains are regional rather than global and why the spread of supply-chain trade is so tightly concentrated around the world's four manufacturing giants – the US, China, Japan and Germany.

This suggests that the economic logic for universal membership is weak. Put simply, the direct spillovers are not global, so the membership of WTO 2.0 need not be global.¹⁹ For WTO 2.0, the issues are much more bilateral – an issue that primarily concerns the firms that are potentially expropriated and the people tempted to expropriate. This suggests that the main players in supply-chain trade should be members, but does not argue for membership beyond that as a matter of first-order importance. This reasoning for limited membership, however, begs the question: 'If the spillovers are mostly regional, why have a global institution at all?'

The answer lies in network externalities. While most offshoring relationships are primarily bilateral – typically organised by US, German or Japanese firms – the industries and firms involved are global. The US automobile company GM, for instance, runs an elaborate supply-chain trade network in and around Factory Europe, another one in and around Factory Asia, and yet another in Factory North America. There would be synergies for the high-tech companies to have similar supply-chain disciplines in all three zones. Moreover, network externalities work two ways.

Developing nations who have already joined supply chains would find the bargaining power of high-tech firms mitigated by a standardisation of supply-chain trade disciplines. If US, Japanese and German firms were all set up for a global standard, firms from these three headquarter economies would be more substitutable as a source of offshored industrial jobs in any given developing nations. Or to put it differently, the existence of US-centric disciplines in NAFTA-like RTAs that differ from, say, Japan-centric disciplines in EPA-like RTAs, tends to tie particular developing nations to particular high-tech partners. A multilateralisation of the rules would make it easier to play off US firms against, say, Japanese firms. For the same reason, multilateralisation would make it easier for new nations to jump on the supply-chain industrialisation path.

5.3.2 Summary: Why the WTO 1.0 and WTO 2.0 membership differences?

As noted above, GATT was set up to discipline selfish behaviour that harmed others with the

negative effects coming via world prices. As world prices are global, the 'spillovers' are global, so membership should be global. WTO 2.0 would be set up to solve bilateral hold-up problems that operate through the expropriation of property. As these are intrinsically more bilateral than terms-of-trade effects, the logic for universal membership in WTO 2.0 is much weaker. The economic argument for multilateralising the existing supply-chain disciplines turns on network effects – i.e. the gains from having a single set of rules globally. The political argument is that multilateralisation would be necessary to prevent or remove the exclusion that is emerging with mega-regionals and mega-bilaterals.

5.4 Special and differential treatment

A cornerstone of WTO 1.0 is special treatment of developing country members.²⁰ Should it also be part of WTO 2.0?

The economic and political economic rationales for SDT in the GATT and WTO are many, varied and sometimes contradictory (Kleen and Page 2005). They fall into three categories. Developing nations need different and special policies to become developed nations, or they need more time and assistance to implement the same policies, or they deserve special treatment as compensation for current or past injustices.

Over-layering these intellectual rationales is what might be called the negotiators' instinct. In an organisation whose DNA is structured on what Paul Krugman calls 'enlightened mercantilism', disciplines and rules are instinctively viewed as preventing members from doing things that are good for them but bad for others (Krugman 1991). In this mind set, avoiding discipline is a gift. Or as Page and Kleen (2005) put it, GATT/WTO rules are designed to allow members to grow without impeding the progress of others; SDT allows developing countries to shift me-versus-them balance towards their own needs.

5.4.1 Protectionism becomes destruction-ism

These justifications for SDT were logically consistent in the world that the GATT and WTO 1.0 were designed to govern – one where most production was bundled so trade involved goods made in one nation being sold in another. In this world, the primary barriers to trade were border measures, especially tariffs, and border barriers protected industry. Allowing poor nations to keep tariffs while rich nations liberalised was one way of fostering production in poor

²⁰ The WTO classifies SDT measures into six categories: granting better market access to developing countries, safeguarding interests of developing countries, flexibilities and longer transitions, technical assistance; and flexibilities for Least Developed Countries (LDCs).

¹⁹ See Baldwin, Evenett and Low (2009) for an analysis of why many supply-chain trade disciplines are not discriminatory per se.

nations. Globalisation's second unbundling – the internationalisation of supply chains – changed this. As I have argued elsewhere, in a world where production unbundling is pervasive; protection doesn't protect industry, it destroys it (Baldwin 2010).

Of course, the protection still protects at the very last stage of the supply chain – final consumer goods like shoes, clothes and food. And reverse protection (export taxes) still protects at the very beginning of the supply chain. But for most industrial goods, the rise of supply-chain trade flipped the logic that underpins SDT in WTO 1.0.

This is not an intellectual point. It has been fully embraced by developing country policymakers as the rush to unilateral tariff-cutting plainly shows (Figure 9). Nevertheless, it is worth contemplating the elementary economics that turned protectionism into destructionism.

The basic economic logic is ancient. Cheaper imported intermediates foster downstream production, e.g. producing industrial chemicals is more attractive where the costs of imported precursors are lower; making cars is more profitable when imported components are cheaper, etc. In such situations, protection of intermediates destroys rather than protects downstream industry.²¹ This is the political economy reason for the tariff escalation that has so long been a feature of global trade policy. In a world of bundled production, low tariffs on raw materials and high tariffs on final goods promoted local industry.

The new part of the logic lies in the massive increase in the range of imported intermediates. As production unbundled internationally, many inputs that previously had to be made locally could now be sourced from abroad. Naturally, this massively increased the range of goods where higher tariffs were bad for industry. Even more directly, the rise of supply-chain trade means that nations must import components from the most competitive sources if their own output is to be globally competitive since everyone else is sourcing internationally.

In sectors where international supply chains are important, protecting local, inefficient producers of the component may save a few jobs in the upstream sector. However, the inefficient upstream sector can only sell in the domestic market and thus creates few jobs. The downstream industry, by contrast, can sell to the world, and so entails many more jobs. In other words, tariffs on intermediates destroy more jobs downstream than they create upstream. Protectionism became destructionism.

²¹ Technically this is just the effective rate of protection argument.

5.4.2 SDT when barriers to trade and industry involve property rights

The second big change concerns the nature of the relevant barriers. To understand the point, it helps to re-think goods. Think about a 1982 Toyota Land Cruiser not as a vehicle but rather as a bundle of Japanese labour, Japanese capital, Japanese innovation, and Japanese managerial, marketing, engineering and production know-how. In 1982, the Land Cruiser could be exported to any nation without regard to the destination's property rights since it was basically impossible to unbundle the inputs. Toyota's intangible property rights were protected by law in Japan, and by physics abroad. In 2012, things are quite different.

Today, Toyota assembles Land Cruisers in several nations and sources the parts and components from factories around the world, including many developing nations. Since the parts have to all fit together seamlessly, Toyota does rely only on local know-how. It combines Japanese capital, Japanese innovation, and Japanese know-how with local labour when producing parts for its international supply chain. As such, physics provides much less protection for Toyota's intangible property. Production unbundling, in other words, creates new vulnerabilities to intangible property.

Deeper disciplines are necessary to assure Toyota's property rights are respected in the developing nations that get the Toyota factories. Economists can argue about the impact of such property rights on the poor nation's development prospects, but no one can argue with the simple reality of offshoring. There are dozens of nations that would love to have the factory and are thus willing to sign up to tough property right disciplines to make it happen. Nations that do not provide such assurances in the form of Bilateral Investment Treaties, deep RTAs, and unilateral, pro-business reforms will not get the supply-chain industrialisation and spectacular manufacturing growth that it has produced in a handful of developing nations.

In this world, granting SDT in the form of slower implementation or weaker property right assurances will destroy rather than protect industry. In short, supply-chain trade with its trade-investment-services-IP nexus has flipped the primary logic underpinning SDT in the WTO.

5.4.3 Summary: Why WTO 2.0 should not include SDT

As noted above, GATT was set up to discipline selfish behaviour (tariffs) that harmed others. Allowing poor nations to escape such discipline was viewed originally as a way of helping them industrialise. Back then, tariff protection protected domestic industry. In the world of supply-chain trade, however, the disciplines are necessary

conditions for a poor nation to join the supply-chain industrialisation parade. Allowing poor nations to escape such discipline would thus harm rather than help their development prospects.

6 Conclusions

The complex international flows of goods, investment, services, know-how and people associated with international production networks – call it ‘supply-chain trade’ for short – has transformed the world. The WTO has not kept pace.

The new rules and disciplines underpinning the rise of supply-chain trade have been and continue to be written outside the WTO – primarily in deep RTAs, BITs, and autonomous reforms by emerging economies. Efforts to harmonise these new disciplines are taking place in mega-regionals (TPP, TAP, etc.) and mega-bilaterals that are under negotiation or discussion. As the Doha Round is unlikely to conclude before 2020 and WTO engagement in supply-chain issues is unlikely before it does, world trade governance is headed for fragmentation. Specifically, supply-chain disciplines will be harmonised by mega-regionals and mega-bilaterals that will, on current trajectory, exclude China and other large emerging economies.

Repairing the fragmentation and exclusion will require supply-chain disciplines to be multilateralised into a new organisation – call it WTO 2.0. A new organisation is needed since today’s WTO is not suited to the task.

The GATT/WTO’s success was based on win-win cooperation whose nature followed from the nature of traditional trade – i.e. goods crossing borders. With traditional trade, tariffs help the protecting nation while harming others, so the end result of individually rational protection is collective folly. The GATT/WTO flourished by solving this coordination problem – by disciplining selfish-but-harmful-to-others policies. The basic GATT/WTO bargain that underpinned the discipline was ‘my market for your market’. Negative third-nation effects were global, so universal membership was the natural outcome. Given vast market-size and income differences, SDT was a natural part of the package.

Supply-chain trade poses radically different coordination problems, so it is natural that the structure of the organisation that solves it would be radically different. The cross-border flows that trigger supply-chain trade tend to be one-way. Advanced-technology firms offshore tangible and intangible assets, combining them with low-wage labour in developing nations. The firms get higher

returns on their firm-specific assets; the developing nations get fast-track industrialisation.

As such, the basic deal in supply-chain cooperation is not ‘I’ll keep my market open if you keep yours open’, as in WTO 1.0. It is ‘I’ll offshore my factories and technologies if you assure my tangible and intangible assets are protected’. The negative third-nation effects are limited, so the logic of universal membership in WTO 2.0 is weak. The justification for SDT also disappears. The cooperation helps developing nations credibly commit to policies that are good for them. Allowing a poor nation to not assure protection of the assets that trigger supply-chain trade would harm rather than help. In the world of supply-chain trade, protectionism is destructionism as far as developing nations are concerned. Given that WTO 1.0 has universal membership and SDT in its DNA, multilateralising supply-chain disciplines will require a new organisation – WTO 2.0 as it were.

Thinking ahead on international trade

Much of this Policy Insight is based on judgements and conjectures that are debateable. One point that is not debatable, however, is that WTO centricity in global trade governance is eroding and will continue to erode. On current trajectory, multilateralism will continue to reign for traditional trade, but fragmentation and exclusion are the most likely outcomes when it comes to the most dynamic segment of international commerce – supply-chain trade.

This may well end up as the new normal. China and other large emerging markets may be big enough to counter the exclusion. They may continue to attract offshored factories with a ‘my internal market for your factories and technology’ deal instead of the ‘your factories for my reform’ deal that most developing nations must make.

This new normal, however, would hardly be optimal and the resulting Great-Power struggles could lead to the steady erosion of the WTO’s centricity that sooner or later brings the world to a tipping point, and an unwinding of the respect for WTO 1.0 norms that have served the world so well over the last 60 years.

I am not sure that the solutions proposed here are the right ones, but I am sure that solutions must be found if the world trade system is to avoid fragmentation and exclusion. It’s time to start thinking ahead on global trade governance.

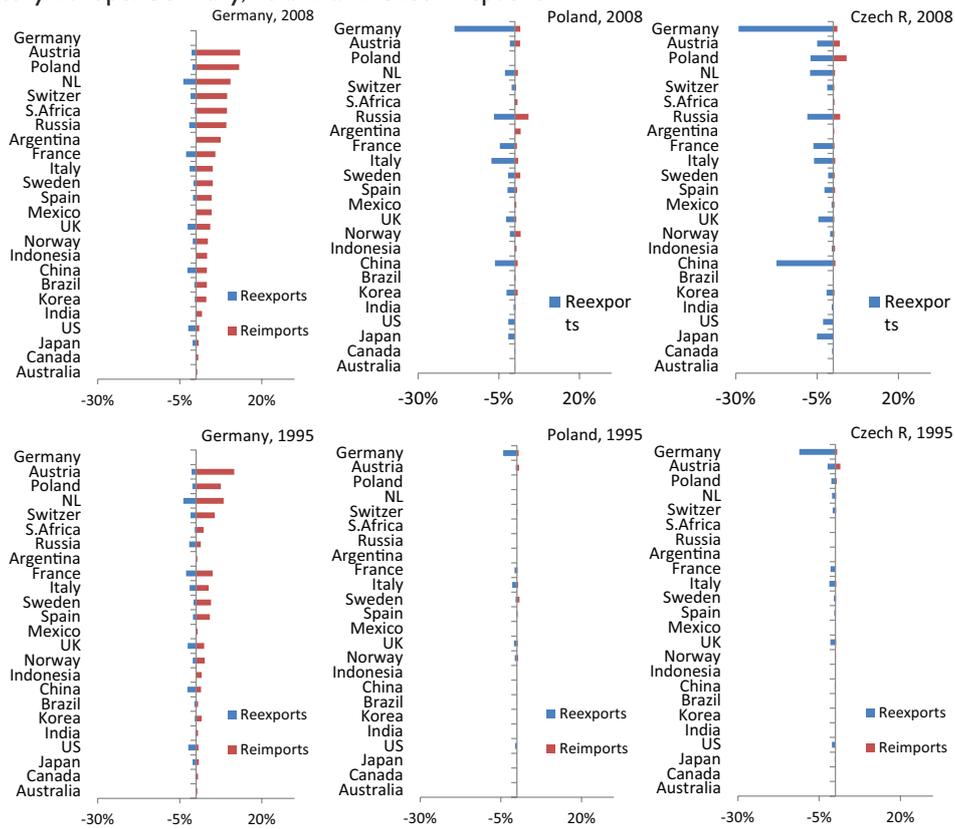
References

- Amador, J. and S. Cabral (2009), 'Vertical specialization across the world: A relative measure', *The North American Journal of Economics and Finance* 20(3): 267–280.
- Ando, M. and Kimura, F. (2005), 'The formation of international production and distribution networks in East Asia', in T. Ito and A. Rose (Eds.), *International trade* (NBER-East Asia seminar on economics, volume 14), Chicago: The University of Chicago Press. First version, NBER Working Paper 10167.
- Bagwell, K. and R. Staiger (1999), 'An Economic Theory of GATT', *American Economic Review* 89(1): 215-248.
- Baldwin, R. (2006), 'Managing The Noodle Bowl: The Fragility Of East Asian Regionalism,' CEPR Discussion Papers 5561, also published in *Singapore Economic Review* 53(3), pages 449-478, 2008.
- Baldwin, R. (2010), 'Unilateral tariff liberalisation', *The International Economy, Journal of The Japan Society of International Economics* 14, pp 10-43. 2010. Also NBER WP 16600, 2010.
- Baldwin, R. (2011a), '21st Century Regionalism: Filling the gap between 21st century trade and 20th century trade rules', *CEPR Policy Insight* No. 56.
- Baldwin, R. (2011b), 'Trade and industrialisation after globalisation's 2nd unbundling: How building and joining a supply chain are different and why it matters', NBER Working Paper No. 17716, December 2011.
- Baldwin, R. (2008), 'Managing the noodle bowl: The fragility of East Asian regionalism', *The Singapore Economic Review* 53(03), 449--478.
- Baldwin, R. (1980), 'The Economics of the GATT', *Issues in international economics*, vol. V. London: Oriel Press.
- Baldwin, R., S. Evenett and P. Low (2009), 'Beyond tariffs: multilateralizing non-tariff RTA commitments', in Richard Baldwin and Patrick Low (eds) *Multilateralizing Regionalism: Challenges for the Global Trade System*, Cambridge UK: Cambridge University Press.
- Baldwin, R. and J. Lopez-Gonzalez (2012), 'Supply-chain trade: A portrait of global patterns and several testable hypotheses', manuscript.
- Bems, R., R. Johnson and K. Yi (2010), 'Demand spillovers and the collapse of trade in the global recession', *IMF Economic Review* 58(2), 295--326.
- Blackhurst, R. (1979), 'Reciprocity in trade negotiations under flexible exchange rates', *Trade and payments adjustments under flexible exchange rates*, London: Macmillan.
- Blinder, A. (2006), 'Offshoring: The next industrial revolution?' *Foreign Affairs*, March/April.
- Brühlhart, M. (2009), 'An Account of Global Intra-Industry Trade, 1962-2006', *World Economy* 32(3): 401-459.
- Canas, J. and R. Coronado (2002), 'Maquiladora Industry: Past, Present and Future.' Federal Reserve Bank of Dallas, El Paso Branch, Issue 2.
- Coates, D. and R. Ludema (2001), 'A theory of trade policy leadership', *Journal of Development Economics* 65(1), 1--29.
- Conconi, P. and C. Perroni (2009), 'Do credible domestic institutions promote credible international agreements?' *Journal of International Economics* 79(1), 160--170.
- Cooper, R. (1971), 'Third World Tariff Tangle', *Foreign Policy* 4, 35--50.
- DFAIT (2012), 'Canada-Japan Free Trade Agreement Negotiations', [Department of Foreign Affairs and International Trade Canada](#)
- Duer, A., L. Baccini, M. Elsig, and K. Milewicz (2012), 'The Design of International Trade Agreements: Introducing a New Database', paper prepared for the 25th conference of the German Political Association, September 24-281.
- Ethier, W.J., (1982) 'National and international returns to scale in the modern theory of international trade', *American Economic Review* 72, 389-405.
- Federal Reserve Bank of Dallas (2002), 'Maquiladora Industry: Past, Present and Future.' Federal Reserve Bank of Dallas, El Paso Branch, Issue 2.
- Feenstra, R.C. and Hanson, G.H. (1996), 'Globalization, Outsourcing, and Wage Inequality', *American Economic Review* 86, pp. 240-45.
- Fukao, K., H. Ishito and K. Ito (2003), 'Vertical intra-industry trade and foreign direct investment in East Asia', *Journal of the Japanese and International Economies* 17, 468–506.
- Gamberoni, E, R. Lanz, and R. Piermartini (2010), 'Timeliness and Contract Enforceability in Intermediate Goods Trade', World Bank Policy Research Working Paper 5482.

- Gereffi, G. (2001), 'The Value of Value Chains: Spreading the Gains from Globalisation', *IDS Bulletin*, Vol. 32, Num. 3, July.
- Grossman, G. and E. Rossi-Hansberg (2008), 'Trading Tasks: A Simple Theory of Offshoring', *American Economic Review*.
- Grossman, G. and E. Helpman (1995), 'Technology and trade', *Handbook of international economics* 3, 1279--1337.
- Hillman, A, N. Van Long, and P. Moser (2008), 'Modelling Reciprocal Trade Liberalization: The Political-economy and National-welfare Perspectives', *Swiss Journal of Economics and Statistics* (SJES) 131(III), 503--515.
- HLWG (2012), '[Interim Report to Leaders from the Co-Chairs EU-US High Level Working Group on Jobs and Growth](#)', 19 June.
- Hoekman, B. (1993), 'Multilateral trade negotiations and coordination of commercial policies', Chapter 2 in *The multilateral trading system: Analysis and options for change*, R. Stern (editor), Harvester-Wheatsheaf, NY.
- Horn, H., P. C. Mavroidis and A. Sapir (2009), 'Beyond the WTO? An Anatomy of EU and US Preferential Trade Agreements', CEPR Discussion Paper No. 7317.
- Hummels, D., J. Ishii and K.-M. Yi (2001), 'The nature and growth of vertical specialization in world trade', *Journal of International Economics* 54(1), 75--96.
- Hummels, D., J. Ishii and K.-M. Yi (1999) 'The nature and growth of vertical specialization in world trade,' Staff Reports 72, Federal Reserve Bank of New York.
- Johnson, R. C. and G. Noguera (2012a), 'Proximity and Production Fragmentation,' *American Economic Review*, *American Economic Association* 102(3), pages 407-11, May.
- Johnson, R. C. and G. Noguera (2012b), 'Accounting for intermediates: Production sharing and trade in value added,' *Journal of International Economics* 86(2), pages 224-236.
- Koopman, R., W. Powers, Z. Wang and S.-J. Wei (2011), 'Give credit to where credit is due: tracing value added in global production chains', NBER Working Papers Series 16426, September 2010, revised September 2011.
- Koopman, R., Z. Wang and S.-J. Wei (2008) 'Give Credit where Credit is due: Tracing Value Added in Global Production Chains' NBER Working Paper No. 16426.
- Krishna, P. and D. Mitra (2008), 'Reciprocated unilateralism in trade reforms with majority voting', *Journal of Development Economics* 85(1), 81--93.
- Krugman, P. (1991a) 'Increasing Returns and Economic Geography', *Journal of Political Economy* 99, 483-99.
- Krugman, P. (1991b), 'The Move Toward Free Trade Zones', in 'Policy Implications of Trade and Currency Zones', A Symposium Sponsored by The Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 22-24.
- López-González, J. (2012), 'Vertical Specialisation and New Regionalism', PhD thesis, University of Sussex
- Ludema, R., A. Mayda and P. Mishra (2010), 'Protection for Free?: The Political Economy of US Tariff Suspensions', CEPR Discussion Paper No. 7926.
- Mayer, W. (1985), 'The political economy of tariff agreements', *Schriften des Veriens fur Sozialpolitik* 148, pp 428-437.
- Moser, P. (1990), *The political economy of the GATT*, Verlag Ruegger, St Gallen.
- Niepmann, F. and Felbermayr, G. (2010), 'Globalisation and the Spatial Concentration of Production', *World Economy* 33(5), pp 680-709.
- Page, S and P. Kleen (2005), 'Special and Differential Treatment of Developing Countries in the World Trade Organization', *Global Development Studies* No. 2, Ministry for Foreign Affairs, Sweden.
- Yi, K.M. (2003), 'Can vertical specialization explain the growth of world trade?', *Journal of Political Economy* 111(1), 52-102.

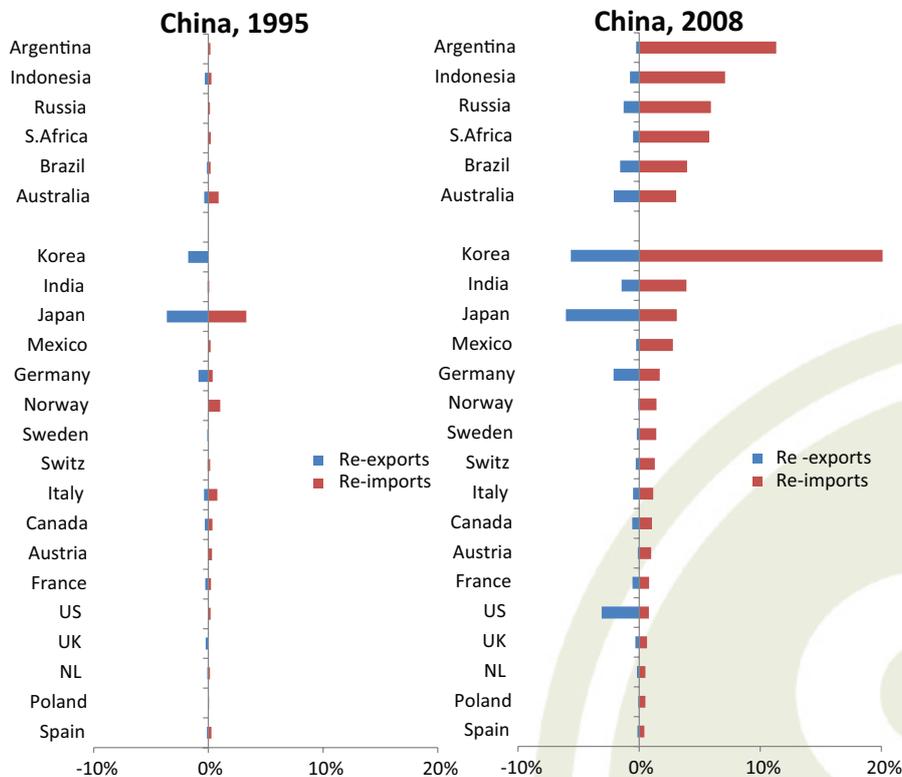
Appendix

Figure 16 Factory Europe: Germany, Poland and Czech Republic



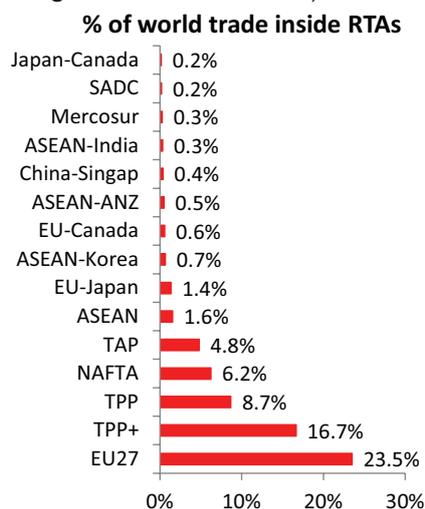
Source: Baldwin and Lopez-Gonzales (2012).

Figure 17 Chinese reimports and reexports, 1995 and 2008



Source: Baldwin and Lopez-Gonzales (2012).

Figure 18 Size of mega-regionals (share of global trade inside RTAs), 2009



Notes: TPP includes (US, Canada, Mexico, Peru, Chile, New Zealand, Australia, Vietnam, Malaysia, Singapore, Brunei); TPP+ is TPP and Japan, Korea and all other ASEANs; TAP is US-EU. EU's bilaterals don't include intra-EU trade.

Richard Edward Baldwin is Professor of International Economics at the Graduate Institute, Geneva since 1991, Policy Director of CEPR since 2006, and Editor-in-Chief of Vox since he founded it in June 2007. He was Co-managing Editor of the journal *Economic Policy* from 2000 to 2005, and Programme Director of CEPR's International Trade programme from 1991 to 2001. Before that he was a Senior Staff Economist for the President's Council of Economic Advisors in the Bush Administration (1990-1991), on leave from Columbia University Business School where he was Associate Professor. He did his PhD in economics at MIT with Paul Krugman. He was visiting professor at MIT in 2002/03 and has taught at universities in Italy, Germany and Norway. He has also worked as consultant for the numerous governments, the European Commission, OECD, World Bank, EFTA, and USAID. The author of numerous books and articles, his research interests include international trade, globalisation, regionalism, and European integration. He is a CEPR Research Fellow.

The **Centre for Economic Policy Research**, founded in 1983, is a network of over 800 researchers based mainly in universities throughout Europe, who collaborate through the Centre in research and its dissemination. The Centre's goal is to promote research excellence and policy relevance in European economics. Because it draws on such a large network of researchers, CEPR is able to produce a wide range of research which not only addresses key policy issues, but also reflects a broad spectrum of individual viewpoints and perspectives. CEPR has made key contributions to a wide range of European and global policy issues for almost three decades. CEPR research may include views on policy, but the Executive Committee of the Centre does not give prior review to its publications, and the Centre takes no institutional policy positions. The opinions expressed in this paper are those of the author and not necessarily those of the Centre for Economic Policy Research.