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9 On the gravity of world trade's slowdown

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As time elapses, it is becoming increasingly clear that the trend in world trade growth is below what it used to be before the 2008-2009 Global Crisis. The shaky trade outcomes resulting from the Crisis, with a deep fall in 2009 and a subsequent rebound, do not make it easy to characterise any underlying structural trend. Still, yearly rates of growth in volume in the order of magnitude of 2% to 3%, as consistently observed for world trade since 2012, are in stark contrast to the 7.7% average growth registered over the period 2002-2007. Even the recent slow pace of GDP growth falls short of explaining this trend. While the volume of world trade frequently grew twice as fast as world GDP before the Crisis, its growth has been comparable, and often lower, in the recent period.

Macroeconomic approaches have been favoured so far in analysing these recent trends, which seems logical given the questions surrounding the cyclical nature of observed outcomes. Yet, trade flows are set at the product level, between pairs of countries. Accordingly, a disaggregated analysis may be helpful to better understand the extent to which these outcomes are in line with structural determinants, whether specific patterns emerged across partners and sectors, and whether significant composition effects were at play.

Since the development of global value chains (GVCs) was a defining feature of the rapid development of world trade before the Crisis, it is also natural to wonder whether this phenomenon may be part of the explanation, as already hinted at by Ferrantino and Taglioni (2014) and Constantinescu et al. (2014). Both analyses show that the rise

of GVCs, which had driven the growth of world trade during the 1990s and the 2000s, has stopped playing this role since the 2008-2009 Crisis. However, such country-level trade analyses may be blurred by composition effects, especially in a period when countries' export capacities and import demands have experienced contrasting changes. In what follows, we focus instead on bilateral trade flows at the sector level. A gravity equation is used to provide a benchmark for bilateral trade relationships and their sector-level behaviour in response to specific shocks. Deviations from this benchmark are then used to interpret the recent slowdown, including the possible role played by GVC participation. Before putting this methodology into practice, we first glance at empirical evidence on the recent trade slowdown, in relation to GVC participation.

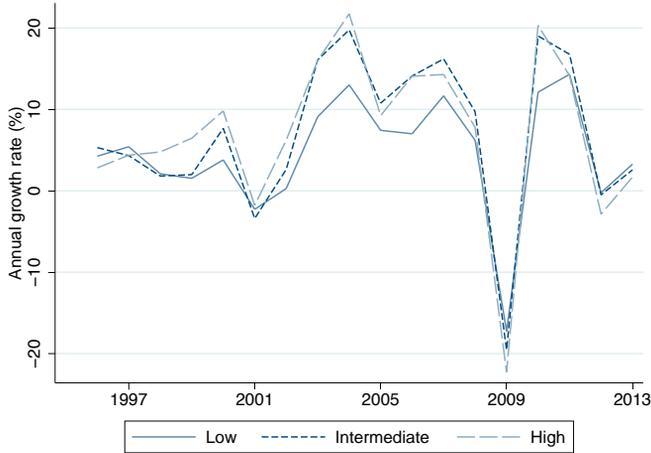
1 Bilateral trade and participation in GVCs: A first glance

Increasingly, products are transformed in one country before being exported to another where they undergo another transformation, often followed by another export and transformation stage. The corresponding development of GVCs transformed international trade over the last quarter of a century. For exports of a given country in a specific sector, GVC participation can be reflected either through the use of foreign inputs in its exports (backward participation) or the use of its exports as imported inputs incorporated in another country's exports (forward participation). Following *inter alia* Koopman et al. (2014), the OECD has built an index measuring GVC participation along these two dimensions (Backer and Miroudot 2013). In view of putting trade outcomes into perspective, we used this index's values from 2008, the last year before the Crisis seriously disrupted trade flows, to classify bilateral trade flows at the sector level into three categories. GVC participation is considered 'high' if both the exporter and the importer exhibit a GVC participation index in this sector above the world median,¹ as 'intermediate' if only one of them is above the median, and 'low' otherwise.

1 The world median is computed based on all country-sector participation index values, for all sectors.

Computing trade growth separately for these three categories gives striking results – in almost all cases until 2008, trade growth turned out to be larger for flows with high or intermediate GVC participation than for those with low participation (Figure 1). However, the reverse is observed for the last two available years (2012 and 2013).

Figure 1 Trade growth by level of GVC participation



Source: Authors' calculations based on BACI (CEPII) and OECD dataset on GVCs (Backer and Miroudot 2013).

Suggestive as this is, these stylised facts may also reflect a composition effect if unrelated sector- or country-specific trends happen to be correlated with GVC participation. To shed further light on the relationship between GVC participation and trade growth, we thus estimate a very general gravity equation of the form:

$$\Delta \ln X_{ijkt} = \Theta_{ijt} + \Psi_{kt} + \lambda_1 \text{interm}_{GVC_{ijk}} + \lambda_2 \text{high}_{GVC_{ijk}} + u_{ijkt} \quad (1)$$

where X_{ijkt} refers to exports in value from country i to country j of product k during year t ; Θ_{ijt} represents a set of yearly country-pair fixed effects taking into account any change in country i 's supply capacity, in country j 's demand, or in bilateral trade costs between these two countries; Ψ_{kt} refers to a set of year-sector fixed effects accounting for sector-specific shocks, for instance of a technological nature; and u_{ijkt} is an error term. The influence of GVC participation is assessed using the above-described characterisation, based on the OECD index. In practice, a dummy variable is used to

denote intermediate GVC participation (as opposed to low participation, the default), and another for high GVC participation. As an alternative, the logarithm of the index of GVC participation for the corresponding trade flow is used as a cardinal variable ($\ln(GVC_{ijk})$).² The estimation results, shown in Table 1, suggest that while GVCs used to boost significantly trade growth before the Crisis, this effect vanished after 2008. While this very general specification leaves many questions unanswered, these results are consistent with GVCs playing a role in the recent trade slowdown.

Table 1 Relationship between participation in GVCs and year-on-year growth of bilateral trade

	Period: 1996-2008		Period: 2009-2011		Period: 2012-2013	
Intermediate GVC (dummy)	0.002		0.003		-0.002	
	(0.86)		(0.90)		(-0.52)	
High GVC (dummy)	0.006***		-0.003		-0.001	
	(2.64)		(-0.61)		(-0.15)	
GVC participation index (ln)		0.003***		-0.001		0.002
		(5.97)		(-1.12)		(1.30)
Constant	0.090***	0.102***	0.009***	0.005	-0.011***	-0.007*
	(65.00)	(62.24)	(2.91)	(1.61)	(-3.09)	(-1.83)
R-squared	0.20	0.20	0.40	0.40	0.15	0.15
N	169,013	167,999	39,003	38,769	26,002	25,846

Notes: ***: significance level = 1%; * : 10% level. T-Students in parenthesis (standard errors are clustered at the country pair-sector level). Estimations are carried out at the sector level, and weighted by the number of non-zero, product-level trade flows with each sector (on average over the estimation period). All regressions include sector-year and origin-destination-year fixed effects. The sample includes the 80 largest countries by trade value in 2008, with EU countries considered individually. Source: Authors' estimates based on BACI (CEPII) and OECD dataset on GVCs (Backer and Miroudot 2013).

2 A gravity-based analysis of trade growth

Achieving a better understanding of recent developments requires an analysis of trade determinants, for which a gravity equation is the most convenient way to proceed. The

2 In practice, the product of each partner's OECD GVC participation index in sector k is used to compute this bilateral, sector-specific index.

traditional gravity equation can rest on a variety of structural models (for a review, see Head and Mayer 2014). Some versions include specific conclusions as to the trade-to-income ratio at the world level. Anderson (2011), for instance, emphasises that in a simple framework where trade frictions are assumed away, “the world is more open the more similar in size and the more specialised the countries are”. However, more complex set-ups do not provide straightforward conclusions as to the level of, or the change in, the world’s openness ratio.³ While there is no reason to conclude that it should systematically increase with income level, nor can it be established that this ratio should be constant, for several reasons. One is that export supply factors may not be exactly proportional to output or GDP, for instance because of changes in the proportion of exporting firms, or because of the changing share of tradable products in total output.⁴ Another noteworthy reason is that import demand is not bound to be proportional to income either.

Our objective here is not to identify the parameters of a given structural model, but rather to address practical questions about recent trade outcomes. Accordingly, we rely upon a rather general version of the gravity equation:

$$\ln X_{ijkt} = a_{ijk} + b_k \ln S_{ikt} + c_k \ln M_{jkt} + d_k Z_{ijkt} + e_{kt} + u_{ijkt} \quad (2)$$

where X_{ijkt} refers, again, to exports in value from country i to country j of product k during year t , S_{ikt} is an indicator of country i ’s supply capacity in sector k , and M_{jkt} is an indicator of country j ’s demand in sector k . Z refers to additional variables which may influence trade flows, such as the existence of a free trade agreement. a , b , c , d and e (with respective indices) are parameters to be estimated. This standard form assumes any determinant of trade specific to country-pair (i, j) in sector k to be constant over time.

3 See, for instance, Baier and Bergstrand (2001) and Eaton et al. (2011) for analyses of the determinants of global trade growth based on bilateral data and gravity equations.

4 As a matter of fact, the openness ratio differs significantly across countries, so that slower growth in the most open countries might also slow down world trade disproportionately. It might also be the case that a subset of bilateral trade flows accounted for a disproportionate share of the trade slowdown.

Dealing with recent years implies severe data limitations when attempting to measure sector-wise supply and demand capacities, since even output or value added figures by sector are usually not available for a large set of countries before two to three years. We thus use economy-wide variables and measure supply capacity as manufacturing GDP, and demand through GDP.

Importantly, this specification also includes year fixed effects, capturing any time-varying factor influencing world trade uniformly – the ‘gravitational un-constant’, as Baldwin and Taglioni (2006) put it. Little attention is often granted to these effects, beyond controlling them so as to avoid interfering with other terms in the equation. This is not enough in the present case, as changes in worldwide determinants of international trade may explain the recent slowdown. The exact nature of these year-specific effects depends upon the underlying structural model, and its determinants are not well known. They include slow-motion determinants, such as transaction costs and weighted averages of real income growth in world income, but also price levels, which evolve far more quickly, as well as, in most models, the value of world income. Given the limited number of degrees of freedom in the data used to identify the form of this ‘gravitational un-constant’, we rely upon a parsimonious modelling, where only the world GDP in value and its deflator⁵ are taken into account:

$$e_{kt} = a'_k + b'_k \ln(p_{\cdot t}) + c'_k \ln(y_{\cdot t}) + v_{kt} \quad (3)$$

where v_{kt} is an error term, and a' , b' and c' are parameters to be estimated. These two equations jointly provide a framework to analyse trade determinants at the bilateral level, over time. However, a difficulty when relying on this framework to analyse recent developments is that the gravity equation is generally thought of as describing the

5 For the sake of consistency, this deflator is expressed in current dollars, obtained with market exchange rates. We added to this specification a Herfindahl index of GDP concentration across the world, to echo the above-mentioned argument about the positive impact of the similarity of country sizes on the level of world trade. The argument was supported by our estimates, but it did not add much to the goodness of fit, while increasing the model’s degrees of freedom in a context where only a limited number of observations are available. For this reason, it is not shown in the results presented here.

structural determinants of trade, as opposed to its cyclical variability. In addition, time to ship as well as contractual relationships may impose additional delays on trade, so that changes in determinants may influence trade with a lag (e.g. Leibovici and Waugh 2015).

We therefore extend the estimation framework using an error-correction model (ECM) specification, based on equations (2) and (3). The corresponding estimating equations are:

$$\Delta \ln X_{ijkt} = \alpha_{ijk} + \beta_k \Delta \ln S_{ikt} + \gamma_k \ln M_{jkt} + \delta_k \ln S_{ikt-1} + \zeta_k M_{jkt-1} + \zeta_k \Delta Z_{ijkt} + \chi_k Z_{ikt-1} + \eta_k \ln X_{ijkt-1} + \epsilon_{kt} + v_{ijkt} \quad (4)$$

$$\epsilon_{kt} = \alpha'_k + \beta'_k \ln(p_{\cdot t}) + \gamma'_k \ln(y_{\cdot t}) + \beta'_k \ln(p_{\cdot t-1}) + \gamma'_k \ln(y_{\cdot t-1}) + v'_t \quad (5)$$

with notations similar to those used before. With this model, the short-term elasticity of exports to supply capacity (i.e. to manufacturing GDP in this case) is β_k and the long-term elasticity is $-\delta_k/\eta_k$. Similarly, γ_k and $-\zeta_k/\eta_k$ are the elasticities with regards to demand capacity (i.e. GDP). Short- and long-run elasticities of world trade to world GDP and to its deflator can also be calculated based on (5). Since it is a priori better suited to coping with the kind of short-term variations at stake here, we use this latter specification in what follows.

To analyse the recent slowdown, we estimate this two-stage model over the period 1996-2008. Eight sectors are considered, a classification guided by our willingness to use the above-mentioned OECD's indicator of participation in GVCs. Sector-specific elasticities resulting from these estimates are shown by sector in Table 1.⁶ For most sectors and on average, the sum of estimated elasticities with respect to exporters' and importers' GDP is close to 1 in the short term, but well beyond this level in the long term (1.71 on average), meaning that GDP growth differentials across sectors and countries are reflected more than proportionately in trade flows. In addition, the

⁶ More detailed results are available upon request.

gravitational un-constant also varies with the world GDP value and with its deflator. Accordingly, the implied elasticity of world trade (in value) with respect to world GDP (in value) is conditional upon changes in the world GDP deflator. Over the estimation period, the world GDP deflator increased at a rate equal to 45% of the growth rate of world GDP in value.⁷ For the sake of illustration, let us assume that this proportion between the growth rates of world GDP value and the deflator holds, and let us consider the hypothetical case where the world economy grows in value in a uniform way (i.e. each country's GDP and manufacturing GDP's value grow at the same rate as world GDP). In such a case, the elasticity of trade with respect to GDP would be the sum of the elasticities with respect to exporters' manufacturing GDP, to importers' GDP and to world GDP, plus 45% of the elasticity with respect to the world GDP deflator. In the short term, this conditional trade-to-GDP elasticity is estimated to equal 1.48 ($0.31+0.78+1.01-0.45*1.38$); in the long term, it is 1.72.

Whether at the disaggregate level or at the worldwide level, these estimates show that, throughout the estimating period, the norm has not been for trade to grow in line with world GDP, but rather as a multiple of the GDP growth rate. This result is obtained controlling for the entry into force of new FTAs (estimated to increase trade by 3% in the short term and 22% in the long term). Different explanations may be put forward for this trend, such as declining transport and transaction costs, or pro-trade policies aimed at supporting exports but also frequently at easing imports, at a time when the potential benefits from participation in GVCs were increasingly obvious for a number of developing countries (Baldwin 2012). However, adding a linear time trend to the estimations above does not alter the results significantly, suggesting that this trade-income nexus is more than a coincidence, even though disentangling the corresponding main channels and mechanisms is outside the scope of this chapter.

⁷ The average world GDP yearly growth rate was 5.8%, compared with 2.6% for world GDP deflator. The ratio between these growth rates remained similar over the period 2008-2013, at 51%.

Table 2 Estimated pre-Crisis elasticities of trade

	Elasticity wrt exporter's manuf. GDP		Elasticity wrt importer's GDP		Conditional, total trade-to- GDP elasticity	
	Short term	Long term	Short term	Long term	Short term	Long term
Food	0.24	0.45	0.66	0.76	0.01	1.49
Textile	0.23	0.60	0.72	0.69	1.15	0.67
Wood-Paper	0.20	0.78	0.77	0.94	2.02	1.33
Chemicals	0.31	0.77	0.46	0.56	0.49	1.79
Metals	0.19	0.83	0.78	0.89	2.95	2.41
Machinery	0.48	1.17	0.79	0.93	1.27	1.94
Transport	0.39	0.95	1.24	1.12	2.02	2.20
Electrical- Optical	0.43	1.22	0.85	0.95	1.93	1.85
Average	0.31	0.85	0.78	0.86	1.48	1.72

Note: Two-stage estimates, based on (4) and (5), for the period 1996-2008. All variables are expressed in value. The sample includes the 80 largest countries by trade value in 2008. Estimations are carried out at the sector level (eight sectors, see Figure 4), and weighted by the number of non-zero, product-level trade flows with each sector (on average over the estimation period). The conditional, total elasticity is computed according to assumptions described in the text.

Source: Authors' estimates based on BACI (CEPII), GeoDist (CEPII), WDI (World Bank) and OECD dataset on GVCs (Backer and Miroudot 2013).

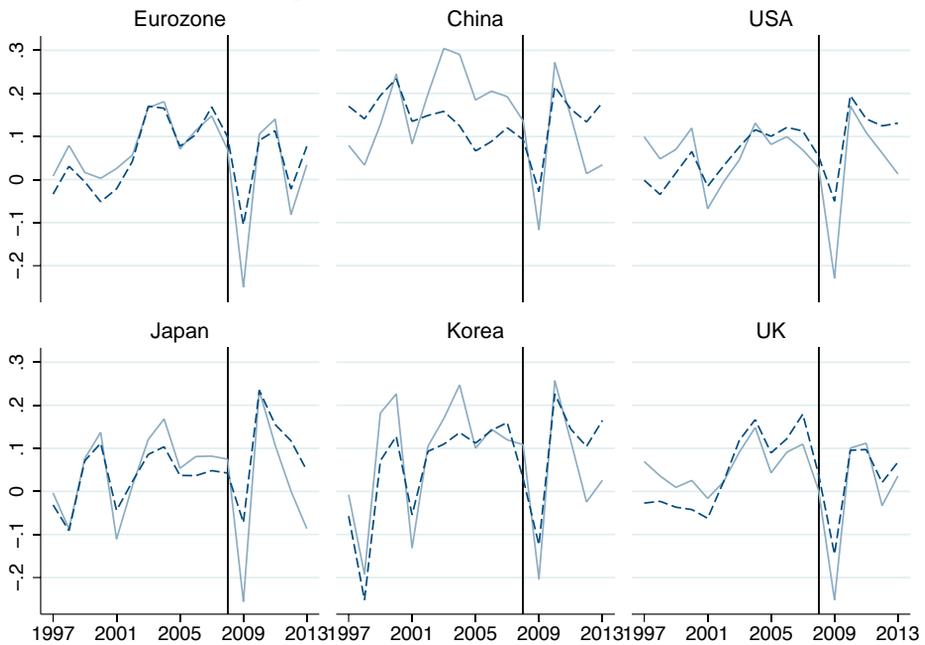
3 Post-Crisis outcomes fall short of predictions based on the pre-Crisis trade model

Comparable elasticity estimations for the Crisis and post-Crisis periods would lack robustness, given the limited number of observations available. Instead, we use out-of-sample predictions to analyse whether a structural break may have occurred. Based on observed changes in GDP and in its deflator (at the country and world level, and for manufacturing in the case of exporters), these predictions are carried out for the second-stage estimation of the yearly gravitational un-constant, and then to first-stage estimates, based on predicted yearly fixed effects. These predictions are made at the sector level, by country-pair (predicted and observed values of trade growth at the individual flow level exhibit a correlation coefficient of 56% before 2008, and 36% afterwards). To illustrate how this model fits with trade outcomes observed after 2008, predictions and observations were then aggregated.

At the world level, our model predicts an average yearly growth of trade in value of 8.1% over the period 2012-2013. This is significantly less than the model's average yearly prediction for 2002-2008 (10.6%), but slightly more than for the period 1996-2008 (6.7%). The dollar value of world trade actually stagnated in 2012-2013, in stark contrast to its average actual yearly growth over 2002-2008 (11.5%), and even between 1996 and 2008 (8.5%). Accordingly, the slowdown in world trade is far from being explained by its determinants. According to our pre-Crisis model, slower growth explains a decline of 2.5 points in the yearly growth rate in value compared to the immediate pre-Crisis period, when the total decline amounted to 11.5 points.

Disaggregation by country shows that observed trade growth fell short of what the model predicted in most countries. This is the case for 18 of the 20 largest countries (counting the Eurozone as one), Mexico and India being the only exceptions. The six largest trading countries all exhibit a negative prediction-to-realisation gap (Figure 2). The most striking feature is probably the very large gap observed for China – growth was as much as 15 percentage points lower than predicted by our model, while the opposite held for the country in the early 2000s, with observed trade growth then substantially outperforming model predictions. This result presumably reflects the ongoing rebalancing of the Chinese economy towards domestic consumption, and more generally the ongoing structural change of Chinese foreign trade, in which normal exports by Chinese companies are now the most dynamic component, while processing trade by foreign companies is significantly slowing down (e.g. Lemoine et al. 2015).

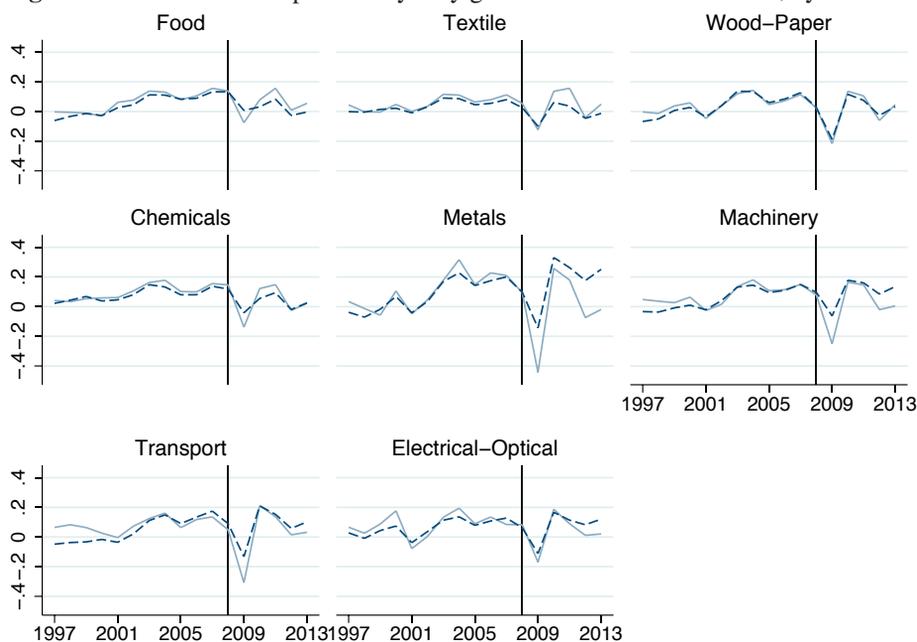
Figure 2 Observed and predicted yearly growth rates of trade in value, by country



Note: The solid lighter line represents the observed yearly growth rate of trade in value (computed as the mean between import and export growth rates). The darker dashed line represents the predicted growth rate, according to our model. The vertical line materialises the year 2008, the last used in the estimation sample. The first six countries are shown (taking the Eurozone as a single country), ranked by decreasing importance in world trade in value in 2013. Annual growth rates are computed as log-differences in value.

The prediction-to-realisation gaps also differ significantly across sectors, with the poor trade growth for metals, machinery and electrical and optical equipments standing out compared to the model's predictions (Figure 3).

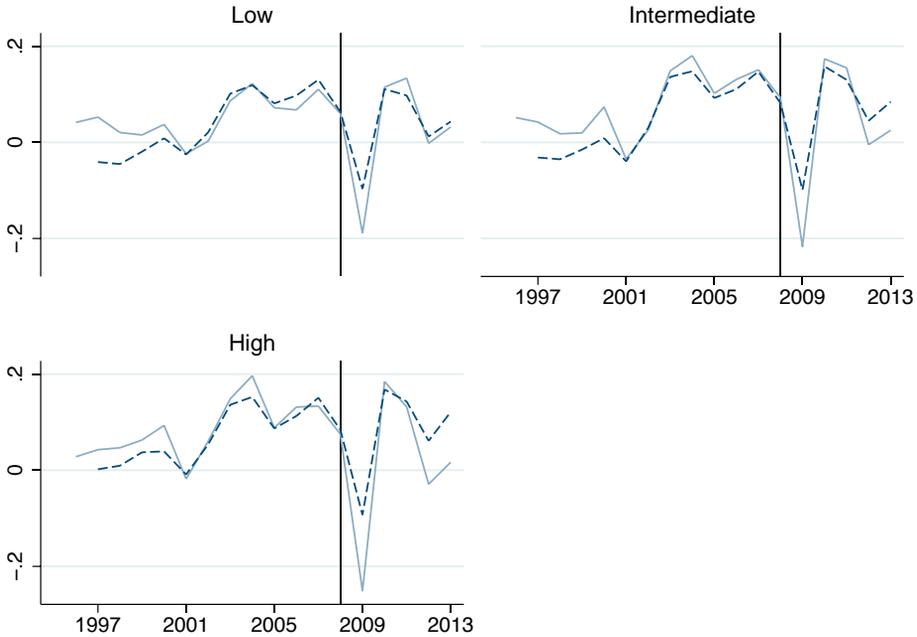
Figure 3 Observed and predicted yearly growth rates of trade in value, by sector



Note: See Figure 2.

In order to analyse the potential relationship with GVCs, we then aggregate the figures separately for three categories of trade flows, defined by level of participation in GVCs according to the above-described typology. For years 2012 and 2013, our main subject of interest here, the gap between predicted and observed trade growth differs strikingly across these three categories (Figure 4). While the model does a pretty good job of predicting trade values for flows with low participation in GVCs, it strongly over-predicts trade growth when participation in GVCs is intermediate or high, by 5.5% and 9.7% on average over these two years, respectively. Put differently, observed trade growth in 2012 and 2013 appears to be in line with its structural determinants for flows with low GVC participation, but it was consistently lower than might have been expected in other cases, especially when GVC participation was high. This result is all the more striking given that flows with intermediate or high GVC participation tended to exhibit higher-than-predicted trade growth before the Crisis, especially between 2002 and 2007, while the opposite was true for trade flows with low GVC participation.

Figure 4 Observed and predicted yearly growth rates of world trade in value, by level of GVC participation



Note: see Figure 3.

To assess whether these differences are significant, we carry out econometric estimations of the determinants of this gap between predicted and observed trade growth, at the individual country pair-sector level. The results show that GVC participation indeed led to lower observed trade growth compared to what could be expected based on the above-estimated model (Table 3). For 2012-2013, the yearly gap was estimated to be -5.6% for intermediate GVC participation and -9.9% for high GVC participation (column 2). This contrasts with the years from 1996 to 2008, when low GVC participation was associated with below-predicted trade growth and no significant deviation was found for intermediate or high GVC participation. Using a cardinal index instead of dummies to characterise GVC participation (columns 4 and 7) confirms this correlation, since higher GVC participation is associated with more negative gaps.

Protectionist measures might also contribute to this slowdown. While no detailed, consistent evaluation of the potential trade-restrictiveness impact of such measures is available, Evenett (2014) tracks their use since the Crisis period. Dummies signalling the existence of at least one such new measure are thus included in all our estimates, without resulting in any significant correlation after the Crisis.⁸ While this cannot be considered as a proof of the innocuousness of these measures, no hint is found of their impact being significant.

Country-specific developments might have played a significant role in these outcomes. Two such developments stand out – the above-mentioned rebalancing of the Chinese economy, and the Eurozone Crisis. Accordingly, a robustness check is carried out using dummies to control for potentially specific trends for imports or exports of each of these areas (columns 3 and 5). The conclusions about the correlation between the trade slowdown and GVC participation are not substantially altered.⁹

8 The positive correlation found before the Crisis may be interpreted as a sign of endogeneity, protectionist measures being more abundant in sectors where imports were previously most dynamic.

9 Finding a positive effect for Eurozone exports might come as a surprise. What that means is not that Eurozone exports grew more rapidly than others exports did, but only that they decelerated less than might have been expected based on the poor GDP growth record of Eurozone countries. Symmetric remarks hold for China where, despite its dynamism compared to other countries, trade growth did not match what could have been expected based on the country's growth.

Table 3 Determinants of the gap between observed and predicted trade growth

	Period: 2012-2013			Period: 1996-2008			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GVC participation index (ln)				-0.007** (-2.54)	-0.006 (-2.12)		0.001 (1.51)
Low GVC (dummy)		-0.019 (-1.28)	-0.023 (-1.17)			-0.010*** (-3.82)	
Intermediate GVC (dummy)		-0.056*** (-4.48)	-0.047*** (-3.08)			0.004 (1.02)	
High GVC (dummy)		-0.099*** (-7.28)	-0.097*** (-5.47)			-0.001 (-0.39)	
Protectionist measures (dummy)		0.012 (1.12)	0.012 (1.07)	0.011 (1.06)	0.010 (0.90)	0.007*** (2.24)	0.007*** (2.60)
China, imports (dummy)			-0.081** (-2.38)		-0.084** (-2.35)		
China, exports (dummy)			-0.049** (-2.22)		-0.049** (-2.16)		
Eurozone, imports (dummy)			-0.008 (-0.56)		-0.014 (-1.00)		
Eurozone, exports (dummy)			0.043*** (2.84)		0.042*** (2.74)		
Constant	-0.078 (-9.77)			-0.090 (-6.23)	-0.082 (-4.63)		
R-squared	0	0.084	0.102	0.002	0.022	0.001	0.001
N	42,212	23,652	23,652	23,652	23,652	141,912	141,912

Note: Year fixed effects included in each case. OLS estimates, standard errors clustered by country pair. 'High' and 'intermediate' are dummy variables referring to the level of participation in GVCs, as measured by the OECD. 'GVC participation index' refers to the logarithm of the OECD GVC participation index (with zeros replaced by its minimum value). 'Protectionist measure' is a dummy for the existence of at least one new protectionist measure taken by the importer in the sector during the Crisis period (2008-2013), according to the Global Trade Alert database. For the sake of consistency with aggregate developments, all regressions are weighted by the lagged trade value. The estimating equation for column (2), for instance, is: $gap_{ijkt} = \alpha GVC_{ijk} + \beta protection_{ijkt} + u_{ijkt}$, where u_{ijkt} is an error term.

4 Concluding remarks

Using a gravity model allows casual observations about the recent trade slowdown to be put into perspective, with a benchmark analysis of its structural determinants. Our analysis shows that trade growth since 2012 indeed fell short of what a pre-Crisis structural model of trade growth would have predicted. Lower GDP growth compared to the pre-Crisis period thus explains part, but not all, of the recent trade slowdown. Further examination shows that this structural change is not evenly shared. Compared to what might have been expected based on GDP growth rates, the slowdown was especially severe for Chinese imports, and worldwide in metal products, machinery and electrical and optical equipments. More generally, the slowdown proved more pronounced for trade flows where participation in GVCs was more widespread. Beyond the rebalancing and structural change of the Chinese economy, the recent trade slowdown thus seems to reflect an inflexion in the development of GVCs. While the underlying determinants remain to be identified, a few elements of interpretation can be put forward. First, financial stress may have increased the uncertainty associated with foreign trade relationships, for example through more difficult access to trade finance or through decreased confidence in the financial health of trading partners. Second, the Crisis period, as well as specific events such as the Japanese earthquake and the Thai flooding in 2011, may have led a number of firms to reconsider the cost of finely splitting their value chains across countries. In addition, it is likely that the development of GVCs has been facing declining returns, as the low-hanging fruit had already been picked before the Crisis. Although we could not find any significant hint of their influence based on available measures, protectionist policies may also be part of the explanation, to the extent that processing trade is likely to be disproportionately sensitive to transaction costs.

The recent slowdown may therefore mark the end of an era where the spread of GVCs significantly boosted world trade. GVCs are now widespread, meaning that less scope exists for their future development. The slowdown also underlines the sensitivity of

world trade and of associated efficiency gains to transaction costs and to uncertainty, which calls for renewed attention to the need to make trade rules and trading conditions as transparent and fair as possible.

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