

Preliminary draft

"Turmoil, global trade and the internationalisation of production"¹

by

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Abstract

This paper aims to shed light on why the downturn in global trade was so severe and highly synchronized during 2008Q4-2009Q1. The paper finds that a structural imports function which captures the different and time-varying import-intensities of the components of total final expenditure - consumption, investment, government expenditure, exports, etc – can contribute to understanding the recent sharp decline in global imports of goods and services. In particular, panel estimates based on a large number of OECD countries suggest that the high import-intensity of exports at the country-level can explain a significant proportion of the recent decline in world imports, while declines in the highly import-intensive expenditure category of investment also contributed to the remaining fall in global trade. At the same time, the high and rising import-intensity of exports also reflects and captures the rapid growth in "vertical specialisation", suggesting that widespread global production chains may have amplified the downturn in world trade and partly explains its high-degree of synchronisation across the globe. The results are also consistent with the stylised facts that the contraction in global trade was especially pronounced in intermediate and capital goods. The estimates also find that stockbuilding, business confidence and credit conditions also played a role in the global trade downturn.

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1. Introduction

This paper aims to shed light on why the contraction in global trade was so severe and synchronized across the world during 2008Q4-2009Q1, and which was particularly pronounced for exports of capital and intermediate goods. Possible explanations for the trade downturn and these stylised facts range from: problems in trade finance; the internationalisation of production; and the decline capital expenditure.

The prime objective of this paper is to investigate whether part of the explanation for the severity – and internationally synchronised – fall in world trade may depend on the different movements in the components of total final expenditure - consumption, investment, government expenditure, exports, etc - combined with their different import intensities. Such an approach will also provide useful indications of the role of the internationalisation of production as well as the decline capital expenditure. In addition, the impacts of financial constraints and business confidence on the trade decline are also examined.

In an ideal world, input-output tables of sufficient size and detail should be able to tell us the domestic versus import content of different commodities in final demand, thereby enabling the direct and indirect import requirements of the different components of final demand to be worked out in a straightforward fashion. But input-output tables are not available at the global level, while the most recent input-output tables – only available for a limited number of countries - are somewhat outdated, and do not capture the upsurge in world trade in the years leading up to the current crisis.

This paper uses a systematic approach in order to arrive at an imports specification which will reveal the differential effects of individual components of aggregate demand upon imports, and thereby inform us as to how differential demand elasticities may shed light on the reasons behind the recent global downturn in trade. This analysis hopes to answer this question at the global level by using panel estimates for a large number of OECD countries.

The outline of the paper is as follows. In Section 2, we provide the relevant background to the analysis by looking at the stylised facts of the global trade contraction during 2008Q4-2009Q1, focussing on which countries and which products experienced the largest declines in trade, and also comparing developments across the different expenditure categories. In Section 3 we examine the various factors that may account for the severity and highly synchronised downturn in global trade, notably vertical specialisation and the international fragmentation of production. The econometric specification estimated, along with the empirical results and their economic interpretation are described in Section 4. Finally, Section 5 concludes.

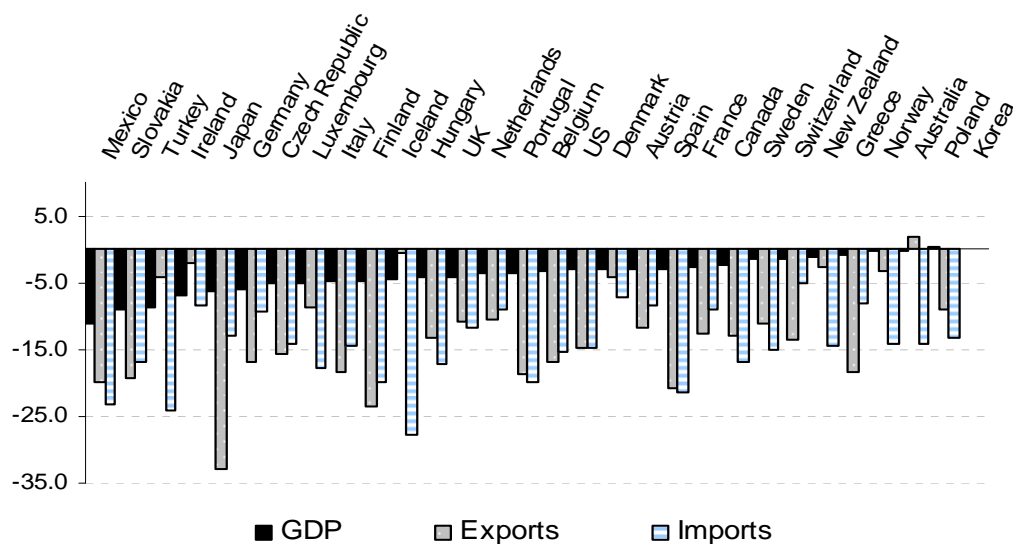
2. Stylised facts of the global trade contraction

As relevant background to the more detailed analysis later, we begin by describing the developments in GDP, trade and other expenditure components across the individual OECD countries during the turmoil of 2008Q4-2009Q1. Chart 1 shows the cumulative percentage change in real GDP as well as export and import volumes of goods and services during 2008Q4-2009Q1 (in descending order of the magnitude of decline in GDP). The series are broadly characterised by substantially larger declines in both exports and imports in comparison to GDP, while exports and imports appear to be highly correlated for many of the individual countries. Turning to Chart 2, we see that the decline in fixed capital formation during the crisis period also significantly outweighs the decline in GDP for virtually all of the countries in the sample. By contrast, Chart 3 reveals that private consumers' expenditure fell *less* than GDP, while government expenditure actually rose in the majority of the OECD countries.

One key message from the above charts seems to be that it was especially the import-intensive components of expenditure which experienced particularly marked declines (ie, exports of goods and services and gross fixed capital formation), while the less import-intensive demand categories registered smaller declines or actually increased (ie, private consumers' expenditure and government expenditure).²

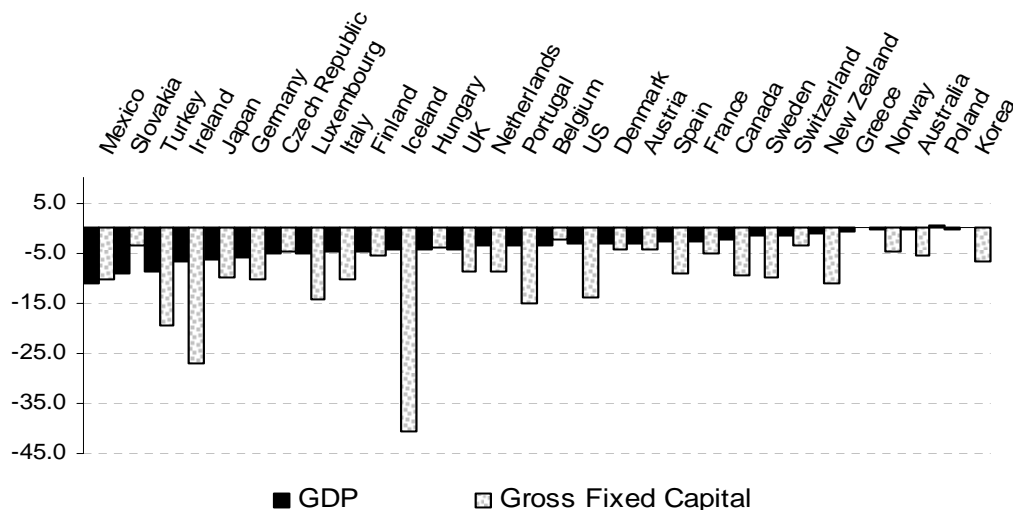
² Although somewhat out-of-date, approximations of the import-intensity of the different components of demand can be calculated from input-output tables. For example, based on input-output tables for the year 2000 for five euro area countries, euro area exports have by far the highest import content

Chart 1: Real GDP and export and import volumes of goods and services.
(cumulative percentage change, 2008Q4-2009Q1)



Source: Haver, ECB calculations.

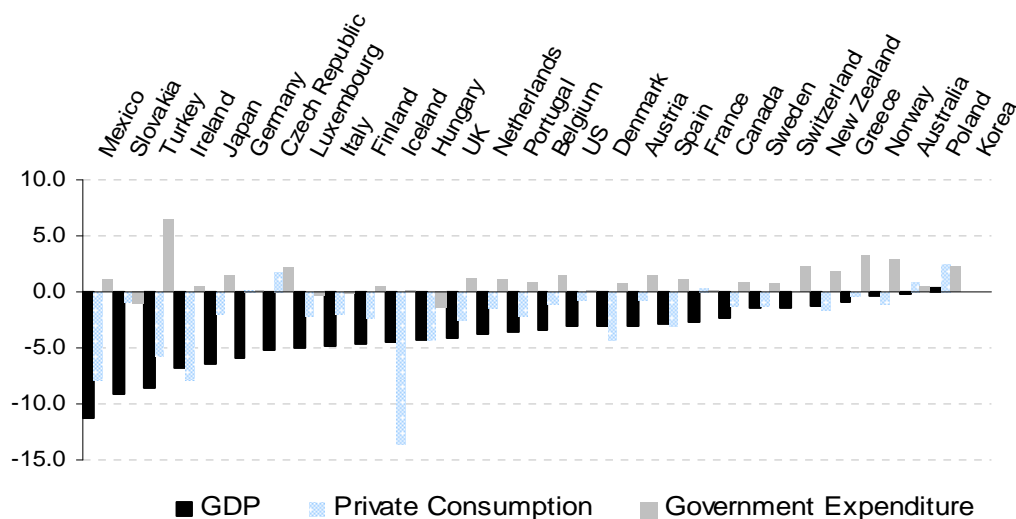
Chart 2: Real GDP and fixed capital formation. (cumulative percentage change, 2008Q4-2009Q1)



(44.2%), followed by total investment (29%), while the import content of private consumption and government consumption was much lower at 19.7% and 7.8% respectively. [Source: ESCB, 2005].

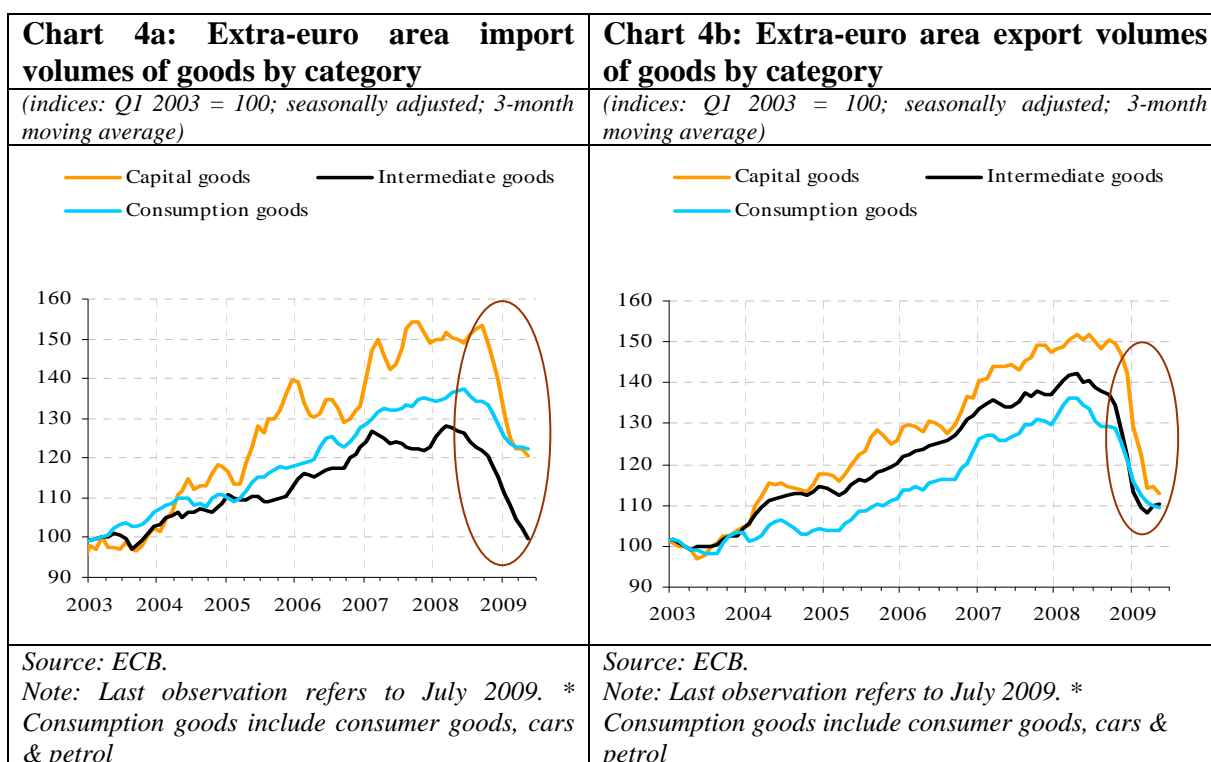
Source: Haver, ECB calculations.

Chart 3: Real GDP and private consumers' expenditure. (cumulative percentage change, 2008Q4-2009Q1)



Source: Haver, ECB calculations.

Charts 4a,b show the impact of the downturn on specific trade categories for the export and import volumes of the euro area. In particular, we see that euro area trade in capital and intermediate goods was particularly badly hit, while the impact on trade in consumption goods was somewhat less severe. Another stylised fact at the global level is that international trade in motor vehicles experienced a particularly strong decline in 2008Q4-2009Q1.



3. Possible factors explaining the severity and highly synchronised downturn in world trade

A number of factors have been suggested as possibly causing the severity of the downturn, ranging from: the internationalisation of production; constraints and costs of trade credit and trade finance; and the decline in global investment. Starting with the *internationalisation of production*, falling costs of transporting not only goods, but also services and information across borders has resulted in an increasing international fragmentation of production. As pointed out by Baldwin (2006), while a “first unbundling” (or a decreasing necessity of making goods close to the point of consumption given falling transportation costs) has been ongoing for many decades, a “second unbundling” (or a decreasing necessity of performing the different stages of the production process geographically close to one another) has more recently extended the first unbundling. As a result of this globalisation of production, the export of a single final good or product may now require numerous intermediate stages of production involving the product in numerous crossings of international borders, with each stage counted as both an import and an export. This vertical specialisation, combined with the fact that trade is measured in “gross” terms while GDP is measured on a “net” basis, seems to be part of the reason for the much faster speed of the growth in world trade relative to GDP.³

³ See, for example, Hummels et al (2001) who estimates that vertical specialisation is responsible for about 30% of the total growth in world trade over past recent decades. In addition, Amador and Cabral

The apparent growth in vertical specialisation also seems consistent with the previously mentioned high and rising import-intensity of exports. In other words, each country's exports are becoming more dependent on imports partly due to the rising use of imported intermediate goods, hence the whole global trade chain has become increasingly interconnected. It therefore seems a reasonable hypothesis that the rapid growth in vertical specialisation and widespread global production chains associated with globalisation may have contributed to both the severity and highly synchronised nature of the downturn in global trade during 2008Q4-2009Q1. This hypothesis is expounded by Yi (2003, 2009) who argues that trade in a world of global supply chains and growing internationalisation of production may result in amplified and potentially non-linear trade responses to international shocks which are also transmitted more rapidly across countries in a more synchronised manner. Furthermore, Yi (2009) claims that the significantly bigger trade downturn in sectors such as motor vehicles provides additional evidence that global supply chains account for some of the severity and synchronisation of the global trade downturn. Against this background, and as highlighted and described by Cheung and Guichard (2009), Chart 1 reveals that the countries which experienced the larger trade declines during 2008Q4-2009Q1 correspond to those with rapidly growing, or higher proportions, of vertical trade according to the Miroudot and Ragoussis (2009) measure (for example: Mexico, Germany, Finland, Korea, Spain, Portugal, Hungary, Czech Republic, Belgium, etc). Furthermore, the declines in imports and exports of intermediate goods in Charts 4a,b are also consistent with the importance of vertical specialisation and the international fragmentation of production playing an important role in the synchronised trade downturn.⁴

Another possible reason for the severity of the downturn in global trade has been the apparent increase in the cost, and reduced availability, of *trade finance*. An IMF survey revealed an acceleration in the decline in the value of trade finance during the period October 2008 and January 2009.⁵ Nevertheless, the survey also showed that after an initial period, the main reason for the decrease in trade finance was due to a fall in the demand for trade finance rather than constraints in the supply of credit. Auboin (2009) claims that the price of trade finance increased particularly sharply for emerging countries due to scarce liquidity and re-assessment of customer and

(2009) show that internationalisation of production has grown rapidly since the early 1990s, a claim that is backed up by Miroudot and Ragoussis (2009) who calculate that vertical specialisation trade is responsible for about a third of trade among OECD and related economies.

⁴ However, note that Anderton and Schultz (1999) show that international outsourcing also uses final goods as well as intermediate goods.

⁵ See IMF Finance and Development, March 2009.

country-risks (“spreads on 90-day letters of trade credit rose spectacularly during the latter part of 2008, increasing from 10-16 basis points on a normal basis, to 250 to 500 basis points for letters of credit issued by emerging and developing countries”).⁶

Of course, trade finance problems may exacerbate the downturn in trade that may be associated with global supply chains and the international fragmentation of production (ie, the failure to obtain trade finance by one producer/trading partner can disrupt the whole global supply chain for a particular product). Similarly, sectors more acutely responsive to credit conditions and most affected by the financial crisis, such as motor vehicle production and capital-expenditure (investment) goods, are also those characterised by a high degree of vertical specialisation from a trade angle, and which also experienced strong falls in exports and imports during 2008Q4-2009Q1 (see Charts 4a,b).

4. Econometric specification

We begin with a standard import specification expressed in first differences where imports are determined by demand and relative prices:

$$\Delta \ln \text{impgs}_{j,t} = c + \alpha_1 \Delta \ln \text{tfe}_{j,t} + \alpha_2 \Delta \ln \text{rpm}_{j,t} + \varepsilon_t \quad (1)$$

where: $\Delta \ln \text{impgs}_{j,t}$ is the quarterly change in the log of real imports and services for country j ; $\Delta \ln \text{tfe}_{j,t}$ is the quarterly change in the log total final expenditure; $\Delta \ln \text{rpm}_{j,t}$ is the quarterly change in the log of relative import prices (defined as the imports deflator divided by the GDP deflator); and a constant (c).⁷

In order to respecify (1) in terms of the separate I components of tfe , we can use the following approximation:

$$\Delta \ln \left(\sum_i \text{tfe}_i \right) = \sum_i \left(\text{tfe}_i / \sum_i \text{tfe}_i \right) \Delta \ln \text{tfe}_i \quad (2)$$

Where the tfe_i components consist of: real consumers’ expenditure (conex); real government expenditure (govex); real gross fixed capital formation (gfcf); and real exports of goods and services (expgs). To keep the approximation accurate, the weights $\text{tfe}_i / \sum_i \text{tfe}_i$ should

⁶ Auboin (2009) – writing in June 2009 – argued that the market gap between the supply and demand for trade credit could be at the lower end of around \$25 billion, but was more likely to be above \$100 billion and possibly up to \$300 billion (out of a global market for trade finance estimated at some \$10-12 trillion).

⁷ All data used in this analysis are obtained from the OECD’s Main Economic Indicators.

not be constant but moving shares; for example, values as of the most recent past. Denoting the moving shares by λ , we can rewrite (1) as:

$$\Delta \ln \text{impgs}_{j,t} = c + \sum_i \alpha_{1i} \lambda_i \Delta \ln \text{tfe}_{ij,t} + \alpha_2 \Delta \ln \text{rpm}_{j,t} + \varepsilon_t \quad (3)$$

In (3), we have allowed the individual α_{1i} coefficients to be different rather than restricting them to be the same, as (1) implicitly does. In addition, we can see the sorts of specification errors that would occur if a researcher simply respecifies (1) in terms of the components of *tfe* by simply introducing $\Delta \ln \text{tfe}_i$ (ie, one would be estimating the composite terms $\alpha_{1i} \lambda_i$ rather than α_{1i}).

Although stockbuilding is part of demand,⁸ technical reasons prevent us from including it in the approximation of *tfe* as specified in (2) and we therefore include stockbuilding (*stocks*) as a separate term as shown in equation (4).⁹ In addition, we also augment equation (4) with terms which seem to have played an important role during the recent sharp downturn in trade, namely: the reduced availability and higher cost of trade credit (*credcon*); and business confidence (*bconf*):

$$\Delta \ln \text{impgs}_{j,t} = c + \sum_i \alpha_{1i} \lambda_i \Delta \ln \text{tfe}_{ij,t} + \alpha_2 \Delta \ln \text{rpm}_{j,t} + \alpha_3 \text{bconf}_{j,t} + \alpha_4 \text{credcon}_{j,t} + \alpha_5 \text{stocks}_{j,t} + \varepsilon_t \quad (4)$$

Trade credit conditions (*credcon*) are approximated by the product of US credit standards and the US high-yield spread.¹⁰ Business confidence (*bconf*) is proxied by the OECD survey measure and is included partly as a possible leading indicator of movements in demand. *A priori*, positive signs are expected for the individual components of demand (*tfe_i*) as well as business confidence (*bconf*) and stockbuilding (*stocks*), while negative signs are expected for both relative import prices (*rpm*) and credit conditions (*credcon*).

Empirical estimation

⁸ Note that $\text{GDP} = \text{conex} + \text{govex} + \text{gfcf} + \text{stocks} + \text{expgs} - \text{impgs}$, while $\text{TFE} = \text{GDP} + \text{impgs} = \text{conex} + \text{govex} + \text{gfcf} + \text{stocks} + \text{expgs}$.

⁹ There are computational difficulties in entering stockbuilding as a separate category in the approximation specified in (2), partly related to the fact that stockbuilding accounts for an extremely small share of *tfe* and can not be logged as it frequently registers negative values.

¹⁰ Credcon is based on a similar variable used by the OECD to proxy financial conditions. See Box 1.2 “The role of financial conditions in driving trade” (OECD, 2009).

Panel estimates of equation (4) are obtained by pooling the data across a large number of OECD countries and thereby providing an estimate of the parameters for the OECD as a whole. We also use a 6-quarter moving average share for the λ_t .¹¹ In effect, the same slope parameters are imposed across the different countries, but fixed effects allow each country to have a different intercept.¹²

Our estimation strategy is to estimate the imports function as specified in equation (4) using different techniques and to compare the results in the following way. First, the LSDV estimator is used. These results are then checked for robustness by estimating the same equation by GMM. Given the rejection of the common slope restriction, we estimate the equation using the Mean Group estimator, which is the simple arithmetic average of the individual countries' coefficients. Furthermore, we estimate the equation using only contemporaneous first difference terms for the dependent as well as explanatory variables relating to the components of demand.¹³ Unit root tests show that all of the components of demand are I(1) variables. All of the explanatory variables are instrumented by their own lagged values in order to avoid simultaneity problems. A first step is to estimate equation (4) by including as many of the OECD countries for which the bulk of the data are available. However, we initially have to drop the *bconf* and *stocks* terms as these are not available for all OECD countries.

The results for the period 1995Q1-2009Q1 for the LSDV estimator for 28 OECD countries are displayed in the first row of Table 1 and show that all of the variables are statistically significant and have the expected signs (ie, *rpm* and *credcon* have negative signs, while the components of *tfe* are positively signed). The α_{it} parameters of the *tfe* components now provide a clear view of the relative importance of imports for the various expenditure components uncontaminated by their differing

¹¹ A 6-quarter moving average share for the λ_t has the benefits that it reduces the volatility of the share while also capturing the most recent movements in the share.

¹² A simple F-test shows that the restriction of equal slope parameters for each country is rejected (the F-test of equal slope parameters is $F[\dots]= \dots$). However, we note that Baltagi and Griffin (1983) argue that the empirical test of equal slope parameters in panel estimation is frequently rejected despite the fact that there may be a strong economic rationale for imposing common slope parameters.

¹³ Given that the sharp downturn in global trade in 2008Q4-2009Q1 seemed to be contemporaneously associated with the fall in global demand, it seems worthwhile to focus on how much of this decline can be explained by the contemporaneous trade/demand relationships. However, experimenting with lags on the explanatory variables did not make any significant difference to the size of the demand parameters.

weights in *tfe*. In particular, exports have the highest import intensity followed by gross fixed capital formation and consumers' expenditure, while government expenditure seems – as expected - to be a low import-intensive activity. Comparing with the other estimation techniques, we see that the GMM and LSDV results are very similar. Although the Mean Group estimator gives virtually the same results for credit conditions, exports and gross fixed capital formation, the parameter for consumers' expenditure is substantially lower in comparison to the LSDV estimator, while government expenditure is not statistically significant. Nevertheless, the relative size of the expenditure components parameters are in line with the LSDV results and, overall, we can say that the results tend to be similar across the three techniques, with the LSDV and GMM results particularly close. Our strategy is therefore to carry out the rest of the estimation using the LSDV estimator.¹⁴

**Table 1: OECD imports equation;
LSDV GMM and MG results (95Q1-09Q1)**

	LSDV	GMM	MG
$\Delta \ln rpm$	-0.262891*** (0.026761)	-0.194828 *** (0.026103)	-0.08628381 * (0.05085593)
$\lambda \Delta \ln conex$	1.451112 *** (0.476043)	1.413165 *** (0.235624)	0.759041 ** (0.3369492)
$\lambda \Delta \ln govex$	1.173106 *** (0.348935)	0.959578 * (0.398336)	0.4091122 (0.49093363)
$\lambda \Delta \ln gfcf$	1.507195 *** (0.333874)	2.189341 *** (0.301721)	1.69902362 *** (0.24634634)
$\lambda \Delta \ln expgs$	1.959667 *** (0.258367)	2.096546 *** (0.166041)	1.91968207*** (0.24697579)
credcon	-0.000000622 ** (0.000000309)	-1.88E-07 (0.000000207)	-0.00000039 ** (0.00000015)
C	0.000429 (0.002605)	-0.002113 (0.001487)	0.0024938** (0.0011755)
R-squared	0.612895	0.598560	0.8237401
Number of observations	1413	1413	1347

Note: (*) significant at 10 percent level, (**) significant at 5 percent level, (***) significant at 1 percent level; unbalanced panel includes 29 OECD countries; panel estimates based on Least Squares Dummy Variables (LSDV) results estimated by instrumental variables (all variables instrumented by own lagged values); country specific fixed effects included; GMM=Arellano and Bond Generalised Method of Moments; MG=Mean Group Estimator.

¹⁴ In addition, the reason for the weakness of the Mean Group parameters may be partly due to the short sample period. Hence, another argument in favour of the LSDV estimator is that the efficiency gains of pooling the data seem to outweigh the losses from the bias induced from heterogeneity.

Table 2 shows the LSDV results for equation (4) for a smaller sample of 21 OECD countries for which the data for all variables in equation (4) are available, hence we can include the *bconf* and *stocks* variables. Column (1) of Table 1 shows business confidence is statistically significant and, as expected, positively signed. The same regression shows that stocks are not statistically significant. However, the relative importance of imports for the various expenditure components are similar to the Table 1 results for 28 OECD countries, with exports and investment expenditure registering the highest import intensities, followed by consumers' expenditure and then government expenditure. Dropping the insignificant stocks term (see column 2 in Table 2) marginally changes the expenditure import intensities with the parameter for consumers' expenditure falling somewhat, while credit conditions (*credcon*) remains correctly signed but is statistically significant only at the 10% level of significance.

Finally, we test whether any of the parameters of the variables in column (1) in Table 2 change during the crisis. We therefore multiply each variable by a dummy variable for the crisis period 2008Q4-2009Q1 (ie, DUMCRIS=1 for 2008Q4-2009Q1, and zero otherwise) and add the dummy variables to the equation in column 1 of Table 2. In addition, we also add DUMCRIS itself to the equation to see if there is a decline in imports that remains unexplained by our equation during 2008Q4-2009Q1. The results are given in column 3 of Table 2 and show that only the stocks dummy is statistically significant, with its positive sign revealing that the decline in stocks had a significant negative impact on imports during the crisis period. Meanwhile, the dummy variable DUMCRIS is not statistically significant implying that our equation fully explains the severe downturn in trade during the crisis period.

**Table 2: OECD imports equation;
LSDV results (95Q1-09Q1)**

	(1)	(2)	(3)
$\Delta \ln rpm$	-0.126506*** (0.034389)	-0.133362 *** (0.034089)	-0.161808 *** (0.035474)
$\lambda \Delta \ln conex$	1.653442 ** (0.695869)	1.297364 ** (0.592213)	1.561245** (0.688416)
$\lambda \Delta \ln govex$	1.273557*** (0.420433)	1.005739** (0.413552)	1.235547*** (0.415846)
$\lambda \Delta \ln gfcf$	1.805512*** (0.495982)	1.630598 *** (0.474651)	1.505542 *** (0.495647)
$\lambda \Delta \ln expgs$	1.829989 *** (0.235533)	1.943285 *** (0.224224)	1.807359 *** (0.226588)
credcon	-0.00000043 * (0.000000252)	-4.39E-07 * (2.41E-07)	-0.00000033 (0.00000025)
bconf	0.000311 *** (0.000104)	0.000299 *** (0.000103)	0.000318 *** (0.000104)
stocks	-0.0000000583 (0.0000000532)		-0.00000010 * (0.00000005)
DUMCRIS*stocks			0.0000012*** (0.00000036)
DUMCRIS			-0.005198 (0.008061)
C	-0.000514 (0.002570)	0.000115 (0.002379)	0.00156 (0.002560)
R-squared	0.564966	0.561532	0.576083
Number of observations	908	918	908

Note: (*) significant at 10 percent level, (**) significant at 5 percent level, (***) significant at 1 percent level; unbalanced panel includes 21 OECD countries; panel estimates based on Least Squares Dummy Variables (LSDV) results estimated by instrumental variables (all variables instrumented by own lagged values); country specific fixed effects included; GMM=Arellano and Bond Generalised Method of Moments; MG=Mean Group Estimator.

Economic interpretation of the results

For an economic interpretation of the results for the differential demand elasticities, we use the parameters of the equations columns 1 and 2 of Table 2, which therefore gives us a range of parameter estimates. These weighted elasticities of the expenditure categories are listed in the first block of Table 3 as the α_{i_i} coefficients. To obtain the elasticity with respect to each expenditure component we multiply the α_{i_i} coefficients by λ_i . As the λ_i used in constructing the variables are moving averages, the component elasticities are also variable over time. One can use the sample average λ_i for the

component shares to obtain mean elasticities for the different expenditure categories, and compare with the start and end period elasticities using the corresponding start and end period λ_i 's in order to see how the elasticities change over time. The λ_i 's are reported in the second block of Table 3 (headed " λ_i "), while the component elasticities are given in the final block of Table 3 (headed " $\alpha_{1i} \lambda_i$ "). The final row of Table 3 also gives the total *tfe* elasticity which is the sum of the individual component elasticities.

Table 3: Weighted and component elasticities

	α_{1i}		λ_i			$\lambda \alpha_{1i}$		
	Weighted elasticity	Start period	End period	Average weight	Component elasticity	Start period	End period	Average
	(1)	(2)	95Q1 - 96Q2	07Q1 - 08Q2	95Q1 - 09Q1			
conex	1.65	1.30	0.43	0.38	0.41	0.72 - 0.56	0.63 - 0.50	0.67 - 0.53
govex	1.27	1.01	0.16	0.12	0.14	0.20 - 0.16	0.15 - 0.12	0.17 - 0.14
gfcf	1.81	1.63	0.15	0.16	0.16	0.27 - 0.25	0.29 - 0.26	0.28 - 0.26
expgs	1.83	1.94	0.26	0.35	0.30	0.47 - 0.50	0.64 - 0.68	0.55 - 0.59

$$tfe = \quad 1.66 - 1.46 \quad 1.72 - 1.56 \quad 1.68 - 1.50$$

Note: λ_i is the unweighted average of the 21 OECD countries in the panel estimation.

In general, the component elasticities seem quite sensible as a percentage increase in the largest component of TFE (that is, *conex*) generates a much larger increase upon imports of goods and services than, say, an increase in the smallest component (*govex*). The λ_i 's in Table 3 also show how the share of exports in *tfe* increases over time, rising from 26% to 35% from the start to the end of the sample resulting in a corresponding increase in the component elasticity for exports. As mentioned previously, the high and rising import-intensity of exports may be interpreted as a reflection of the rapid growth of vertical specialisation and the international fragmentation of production whereby the export of a single good or product requires numerous intermediate stages of production involving the product in numerous crossings of international borders, with each stage counted as an import and export.

If we simply multiply the above parameters by the change in the variables over the period 2008Q4-2009Q1 we find that the fall in exports can explain more than half of the decline in world imports, while declines in the highly-import-intensive category of investment also explains a notable proportion of the remaining fall in global trade. Calculations also show that stockbuilding, business confidence and credit conditions also played a role in the trade downturn, but that these factors had relatively smaller impacts.

5. Conclusions

By attempting to disaggregate the total demand variable in a systematic way we have provided estimates of the relative import intensities of the individual expenditure components of demand for a panel of OECD countries. The paper finds that a structural imports function which captures the different and time-varying import-intensities of the components of total final expenditure - consumption, investment, government expenditure, exports, etc – can contribute to understanding the recent sharp decline in global imports of goods and services. In particular, panel estimates based on a large number of OECD countries suggest that the high import-intensity of exports at the country-level can explain a significant proportion of the recent decline in world imports, while declines in the highly import-intensive expenditure category of investment also significantly contributed to the remaining fall in global trade. At the same time, the high and rising import-intensity of exports also reflects and captures the rapid growth in “vertical specialisation”, suggesting that widespread global production chains may have amplified the downturn in world trade and partly explains its high-degree of synchronisation across the globe. The results are also consistent with the stylised facts that the contraction in global trade was especially pronounced in intermediate and capital goods. The estimates also find that stockbuilding, business confidence and credit conditions also played a role in the trade downturn.

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