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Factors Contributing to Export Performance in the Aftermath of Global Economic Crisis

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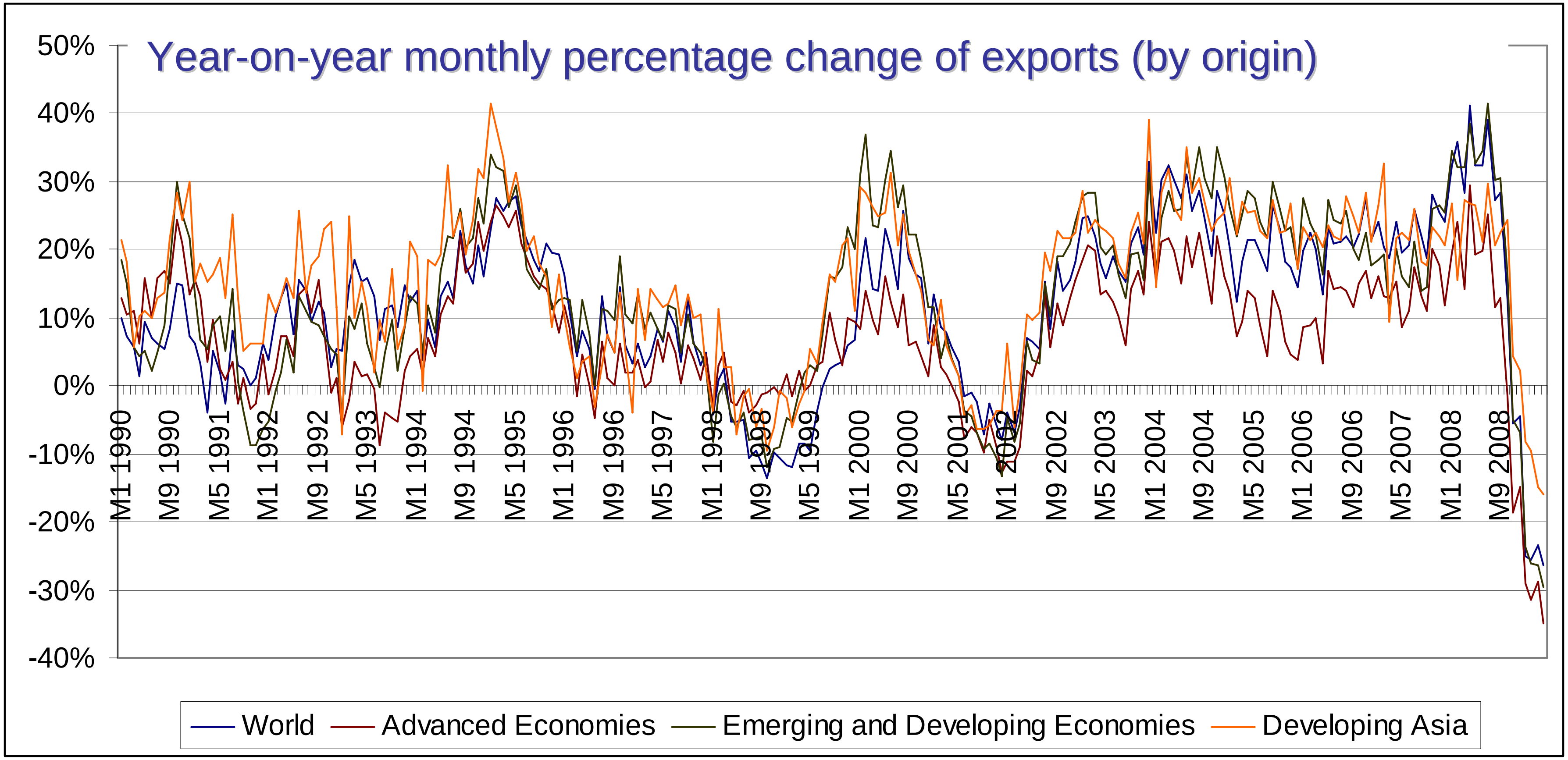
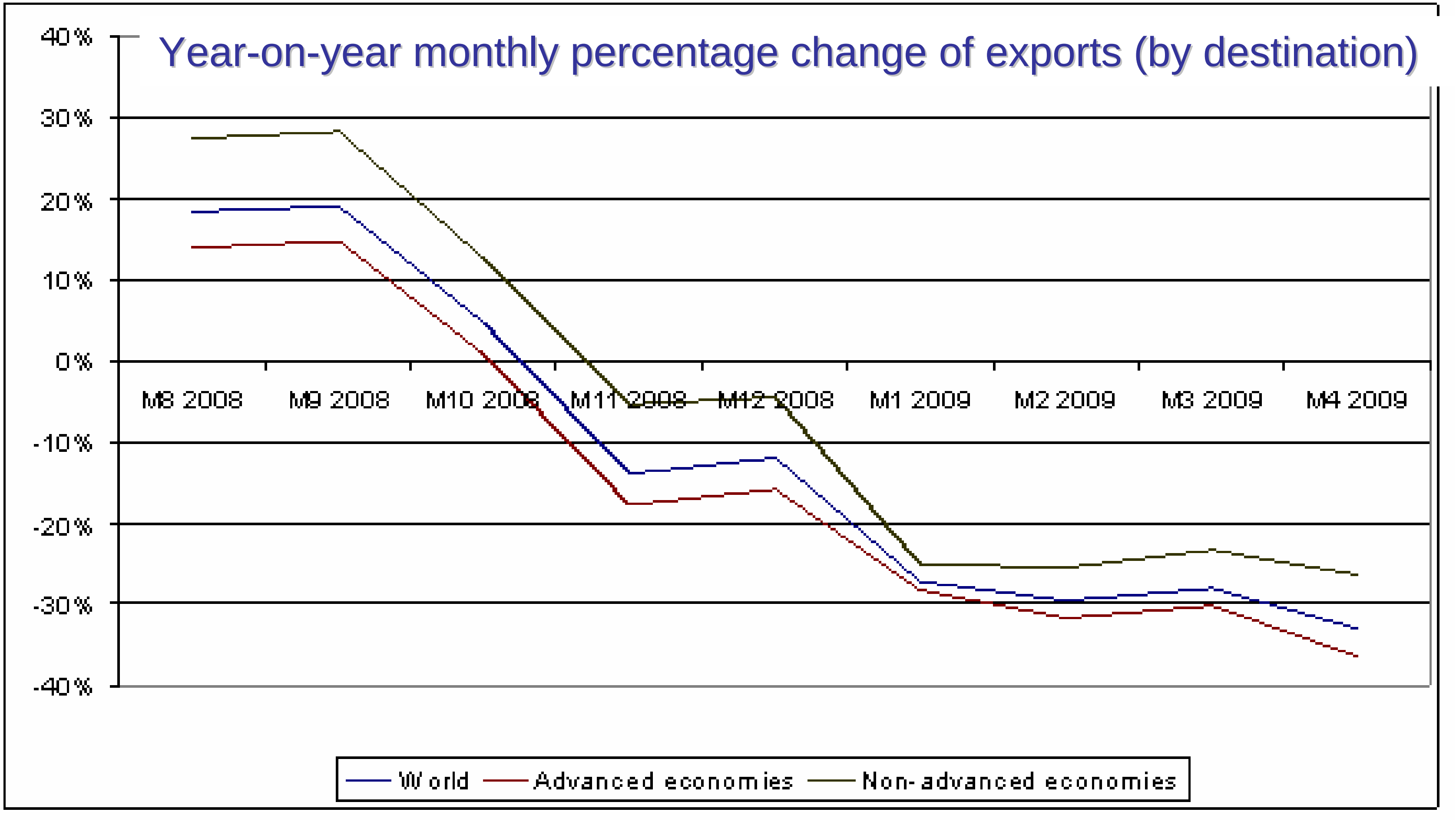
After a period of six years of steady export growth, exports were in a "free fall" – contraction much deeper than in any other recent crisis episode…



Contraction of exports was deeper for exports directed to *advanced* economies. However, even the exports to *non-advanced* economies were affected…



Which factors contribute to export performance in times of economic crisis?

Exploring a simple model…

Total effect on demand for exports = income effect + substitution effect + e

income effect: Fall in consumption owing to income reduction

substitution effect: Change in the pattern of consumption & demand for cheaper varieties or products increases

Sophistication of exports - Hausmann, Hwang and Rodrik (2007)

Income effect

Country A | Country B

Basket of exports A **is more sophisticated than** Basket of exports B

Result: Exports of Country A are more vulnerable than exports of Country B to reduction of demand for exports

EXPY index - Hausmann, Hwang and Rodrik (2007)

$$PRODY_j = \sum_j \frac{(x_{jk} / X_j)}{\sum_j (x_{jk} / X_j)} Y_j$$

$$EXPY_j = \sum_l \frac{x_{jl}}{X_j} PRODY_l$$

Y – GDP per Capita

x_{jk} – value of exports of product k of country j

X_j – Total exports of country j

UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

Substitution effect

Country A		Country B
Basket of exports A	is as sophisticated as	Basket of exports B
GDP per capita A	is lower than	GDP per capita B

Result: Country A is able to produce at a lower price than Country B and it may be less affected by the drop in demand for exports

Index of advantage of countries competing in terms of export prices:

EXPY / GDP per capita

Data

Year-on-year monthly percentage change of exports

IMF Direction of Trade Statistics (DOTS) Online

EXPY

HS 1992 (2004 – 2007) – COMTRADE

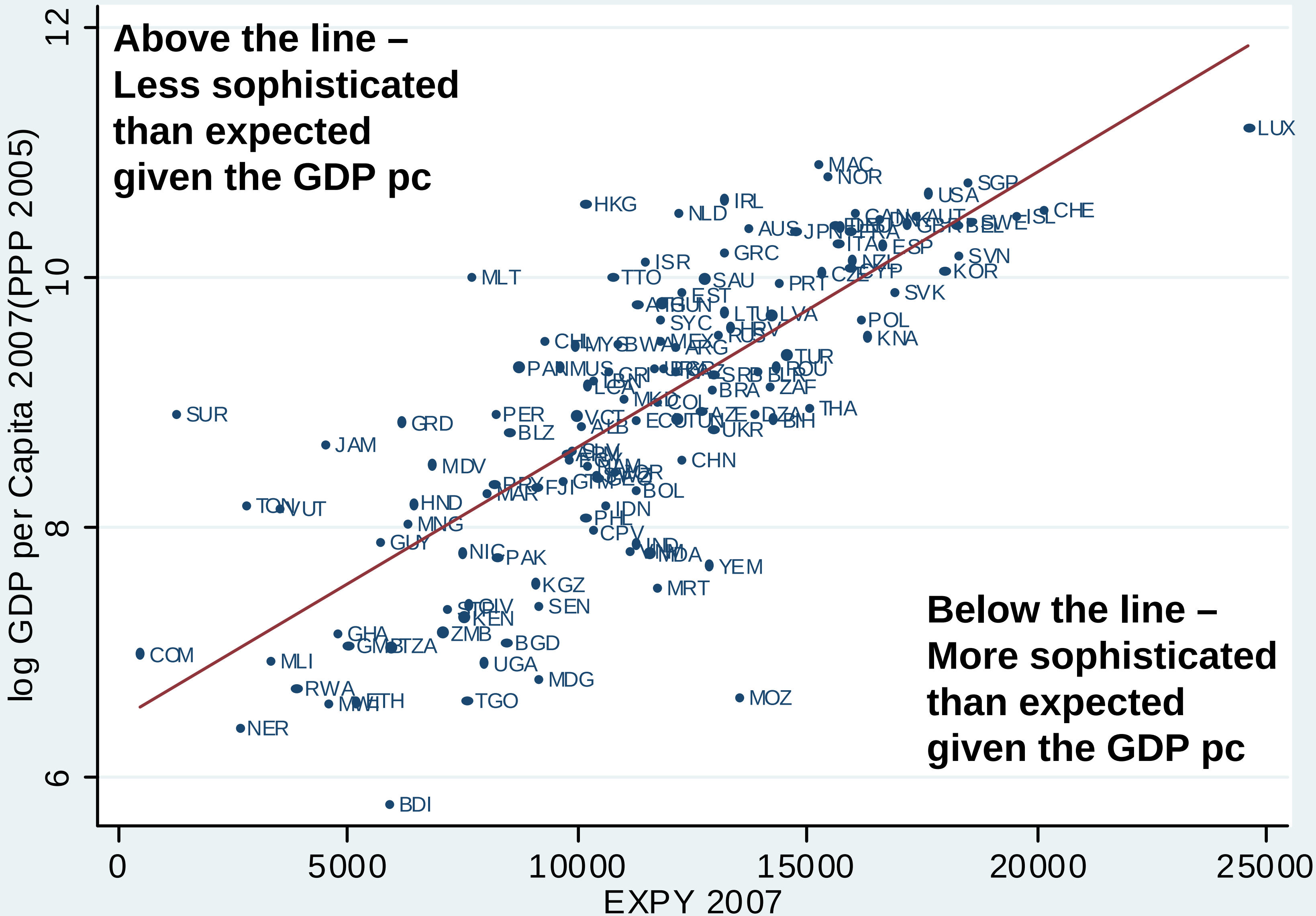
GDP per capita (2005 PPP-adjusted) - World Development Indicators (WDI) (2004 – 2007)

Methodology

PRODY - Consistent sample of 128 countries - HS1992 – period 2004-06

EXPY
EXPY/GDP per Capita

144 countries – year 2007



R-squared = 0.5808

log (EXPY/GDP pc) = .0002188 * EXPY2007 + 6.455011

Empirical analysis

$$Y_{ij} = b_{0j} + b_{1j} EXPY_i + b_{2j} \log EXPYGDPratio_i + u_{ij}$$

Where: Yij is year-on-year percentage change of total exports of a country *i* in a particular month *j*

Results

	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09
EXPY2007	-.00097	0.0011*	0.0014*	0.0012	-0.0006	-0.0017***	-0.0016***	-0.0004	-0.0010**	-0.0004	-0.0014***	-0.0011***
logEXPYGDPratio	-1.256	1.417	5.120	9.828***	2.004	2.538	2.875	11.33***	6.791***	9.527***	5.921***	5.272***
Constant	40.31***	13.69*	14.66	5.973	33.73***	26.28***	9.165	-0.876	-14.19**	-21.16***	-6.860	-16.12***
Observations	120	115	118	119	119	120	121	121	122	121	121	122
R-squared	0.01	0.03	0.04	0.07	0.02	0.10	0.16	0.12	0.20	0.29	0.21	0.20

***** p<0.01, ** p<0.05, * p<0.1**

What it means?

The more sophisticated basket of exports ⇨ higher impact on the export performance

The more sophisticated than it is expected given their level of GDP pc ⇨ lower impact on export performance

When?

Income effect

Substitution effect

Does the direction of exports matter?

$$Y_{ij} = b_0 + b_1 EXPY_i + b_2 \log EXPYGD\Pr atio_i + \sum_{k=1}^{6} b_{3k} dummymonth_k + u_i$$

Where: Yij is year-on-year percentage change of total exports of a country *i* in a particular month *j*

Results

	World	Advanced Economies	World (excl. Advanced Economies)
	(1)	(2)	(3)
VARIABLE - Y			
EXPY	-0.000875***	-0.000631***	-0.00106***
logEXPYGDPratio	5.660***	3.571***	3.926***
dummy (Nov 08)	-14.38***	-14.47***	-13.11***
dummy (Dec 08)	-12.18***	-8.929***	-12.78***
dummy (Jan 09)	-29.85***	-25.35***	-31.64***
dummy (Feb 09)	-28.17***	-24.14***	-32.34***
dummy (Mar 09)	-27.12***	-22.52***	-31.31***
dummy (Apr 09)	-32.85***	-31.01***	-32.59***
Constant	14.06***	4.020	22.92***
Observations	841	828	843
R-squared	0.372	0.189	0.466

*** p<0.01, ** p<0.05, * p<0.1

1) Income and substitution effects are significant to explain variation of exports to advanced and non-advanced economies.

2) Model fits better exports to non-advanced economies

Does the origin of exports matter?

$$Y_{ijm} = b_0 + b_1 EXPY_i + b_2 \log EXPYGD\Pr atio_i + \sum_{k=1}^{6} b_{3k} dummymonth_k + b_4 dummydestination + u_i$$

Where: Yij is year-on-year percentage change of total exports of a country *i* in a particular month *j* to area m

Groups of countries

a) **World Bank income group classification** – Low, Lower middle, Upper middle and High income countries

b) **Countries with special needs** – Least Developed Countries (LDC), Landlocked Developing Countries (LLDC), and Small Island Developing States (SIDS)

c) **Geographical groupings** -Asia-Pacific, Asia-Pacific developing economies, Asia-Pacific developing economies excluding China, Latin America, Caribbean, and Sub-Saharan Africa

d) **Asia-Pacific subregions** -South-East Asia (SEA), East and North-East Asia (ENEA), South and South-West Asia (SSWA), Pacific Islands, and North and Central Asia excluding Russian Federation (CIS Asia + Georgia).

World Bank income group classification

Significant to Low, Lower-middle, **Upper-middle** but not to High income countries

	Low	Lower-middle	Upper-middle	High
	(2)	(3)	(4)	(5)
VARIABLE - Y				
EXPY	-0.000966**	-0.00133***	-0.00225***	-0.000329
logEXPYGDPratio	10.19***	10.28***	16.30***	-0.00451
dummy (Nov 08)	-8.725*	-18.34***	-11.52***	-16.36***
dummy (Dec 08)	-1.977	-18.06***	-10.74***	-11.57***
dummy (Jan 09)	-21.66***	-35.26***	-31.49***	-25.50***
dummy (Feb 09)	-19.41***	-34.97***	-31.61***	-26.83***
dummy (Mar 09)	-19.73***	-33.57***	-29.86***	-25.12***
dummy (Apr 09)	-20.67***	-41.30***	-34.04***	-30.93***
dummy (World excl. Adv. Econ)	11.92***	12.08***	10.74***	6.247***
Constant	-9.321*	14.39***	30.17***	-0.398
Observations	439	484	315	391
R-squared	0.199	0.390	0.478	0.419

*** p<0.01, ** p<0.05, * p<0.1

Countries with special needs

Significant to Least Developed Countries (LDC) & Landlocked Developing Countries (LLDC) but not to Small Island Developing States (SIDS)

	LDC	LLDC	SIDS
	(6)	(7)	(8)
VARIABLE - Y			
EXPY	-0.00114*	-0.00110*	-0.000212
logEXPYGDPratio	11.22***	9.512***	1.200
dummy (Nov 08)	-9.555	-12.74**	-9.183
dummy (Dec 08)	1.670	-7.955	-14.19*
dummy (Jan 09)	-17.28**	-24.60***	-26.10***
dummy (Feb 09)	-14.41**	-24.23***	-28.02***
dummy (Mar 09)	-16.21**	-16.56***	-26.80***
dummy (Apr 09)	-19.82***	-23.12***	-33.27***
dummy (World excl. Adv. Econ)	6.872*	18.22***	9.514**
Constant	-9.913	-12.39	7.166
Observations	266	229	212
R-squared	0.140	0.287	0.166

*** p<0.01, ** p<0.05, * p<0.1

Geographical groupings

Significant to Asia-Pacific, Asia-Pacific developing economies, Asia-Pacific developing economies excluding China and Sub-Saharan Africa but not to Latin America & Caribbean.

	Asia-Pacific	Asia-Pacific Developing	Asia-Pacific Developing (excl. China)	Latin America	Caribbean	Sub-Saharan Africa
	(9)	(10)	(11)	(12)	(13)	(14)
VARIABLE - Y						
EXPY	-0.000520*	-0.000574*	-0.000693**	-0.000454	-0.000382	0.000120
logEXPYGDPratio	4.519***	5.991***	5.405***	-0.0180	-1.060	3.954**
dummy (Nov 08)	-16.17***	-15.85***	-15.59***	-12.94***	2.299	-5.003
dummy (Dec 08)	-15.17***	-13.70***	-13.16***	-12.66***	-19.52	5.148
dummy (Jan 09)	-30.04***	-29.61***	-29.25***	-30.90***	-49.02***	-15.34***
dummy (Feb 09)	-32.36***	-31.29***	-30.96***	-30.54***	-30.39*	-14.43***
dummy (Mar 09)	-33.13***	-32.58***	-32.04***	-25.75***	-41.04**	-11.93**
dummy (Apr 09)	-32.68***	-31.52***	-30.88***	-29.97***	-56.62***	-16.86***
dummy (World excl. Adv. Econ)	10.18***	11.07***	11.59***	11.79***	23.47**	11.17***
Constant	6.236	4.154	4.303	10.47**	10.74	-10.50*
Observations	387	345	331	255	53	305
R-squared	0.315	0.324	0.323	0.389	0.413	0.146

*** p<0.01, ** p<0.05, * p<0.1

Asia-Pacific subregions

Significant to South-East Asia (SEA), East and North-East Asia (ENEA), South and South-West Asia (SSWA) & Pacific Islands but not to CIS Asia

	SEA	ENEA	SSWA	Pacific Islands	CIS Asia
	(15)	(16)	(17)	(18)	(19)
VARIABLE - Y					
EXPY	-0.000935*	-0.000196	-0.000989	0.0246**	0.000380
logEXPYGDPratio	0.652	9.547***	15.97***	-141.0*	0.545
dummy (Nov 08)	-11.94**	-17.60***	-25.48***	-1.313	-15.62
dummy (Dec 08)	-18.28***	-19.26***	-15.65**	12.86	-13.35
dummy (Jan 09)	-32.40***	-32.27***	-35.51***	4.714	-34.56***
dummy (Feb 09)	-27.72***	-31.34***	-36.70***	-22.12	-32.55***
dummy (Mar 09)	-28.86***	-35.80***	-34.65***	-21.29	-35.77***
dummy (Apr 09)	-28.07***	-32.50***	-32.58***	-25.90	-32.14***
dummy (World excl. Adv. Econ)	1.233	12.32***	3.808	1.841	34.11***
Constant	15.58*	5.425	11.34	-103.7**	-24.54
Observations	84	84	70	41	66
R-squared	0.504	0.572	0.567	0.379	0.471

*** p<0.01, ** p<0.05, * p<0.1

Conclusions and policy considerations

- In times of reduced demand, the pattern of year-on-year percentage change of a country's exports can be partially attributed to the reduction in the consumption of sophisticated products and the substitution of consumption towards lower-priced products

- Impact was larger on 'traditional exporters of sophisticated products'; countries that despite lower GDP per capita managed to export equally or similarly sophisticated products have been less affected

- Result implies an important policy consideration which is intuitive but not often pursued: increasing product sophistication increases economies' resilience in terms of export performance in times of economic downturn

Your feedback is much appreciated

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