Protectionist Responses to the Crisis: Damage Observed in Product-Level Trade

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(joint with Brad McDonald)

Key Messages

1. *Where measures have been imposed, they significantly distort trade by 5-7 percent*

2. *The aggregate distortion implied by new measures was limited to 0.2% of world trade only because they were narrowly applied*

3. *Advanced countries caused and bore about 2/3 of the damage*

4. *The average behind-the-border measure was more harmful than the average border measure, but developing countries were more hurt by border measures*

5. *Policymakers need to remain vigilant of protectionist pressures in current economic environment*

6. *Removal of trade-restrictive measures and a start to Doha conclusion would be key signals and underpin trade recovery*

Motivation

- Extensive stocktaking exercises of protectionist measures by WTO and Global Trade Alert (GTA)
- But quantification of harm done by measures is essential to answer key questions:
  - To what extent did protectionism cause the post-Lehman trade collapse?
    Protectionism contributed little to collapse.
  - How much could be gained by removing crisis protectionist measures?
    Moderate gains could be achieved.
  - How much could be lost if policymakers cave in to protectionist pressures?
    Much could be lost by widespread protectionism.
- Existing studies focus on particular classes of measures (e.g., Kee et al, 2009; Bown, 2010)
- Our study accounts for diverse types of measures simultaneously to obtain summary estimate of impact of crisis protectionism

Data

- *Trade data:* monthly bilateral product-level (4-digit) trade data from July 2007-April 2010 as the dependent variable (covers 80% of global trade)
- Match 4-digit data on "red" protectionist measures (from Global Trade Alert, GTA) in form of a 0-1-2... dummy variable counting number of protectionist measures by which an observation is affected
- Further investigate pattern of crisis protectionism by:
  - Categorizing GTA measures by type
  - Breakdown by income level and regions
  - Sectoral breakdown into 9 key sectors
  - Breakdown by time of implementation and time in effect

Summary of measures

- Focus on import measures, because few export measures implemented
- Our estimates are conservative:
  - Due to incomplete data, we can only use 314 out of 508 measures
 - 4-digit trade data may be too aggregate already for measures affecting very specific products

Table 1. Summary of Measures used in the Study

	Total	By region of implementing country 1/				
		Africa	Asia	Europe	LAC	North America
Protectionist measures reported by GTA 2/	508	68	181	163	75	21
Protectionist measures used in study 3/	314	50	132	47	70	15
Import restrictions	239	42	97	23	65	12
Tariffs and Import bans 4/	99	29	41	4	22	3
Trade defense	102	4	45	13	33	7
Non-tariff barriers	16	5	4	0	7	0
Discriminatory purchasing	22	4	7	6	3	2
Behind the border measures 5/	40	2	16	18	3	1
Bailouts	27	0	14	11	1	1
Domestic subsidies	7	0	1	5	1	0
Investment subsidies	6	2	1	2	1	0
Export restrictions	19	4	14	0	1	0
Export support 6/	16	2	5	6	1	2

Raw data reveal visible impact

- When a country imposed import restrictions in a month, T, its imports in succeeding months fell (relative to world trade in the same product).

- Chart shows that this is true for most implementation months

Figure 1. Performance of trade affected by import restrictions
(by month import restrictions were implemented) 1/

Measures implemented in :
- Nov. 08
- Dec. 08
- Jan. 09
- Feb. 09
- Mar. 09
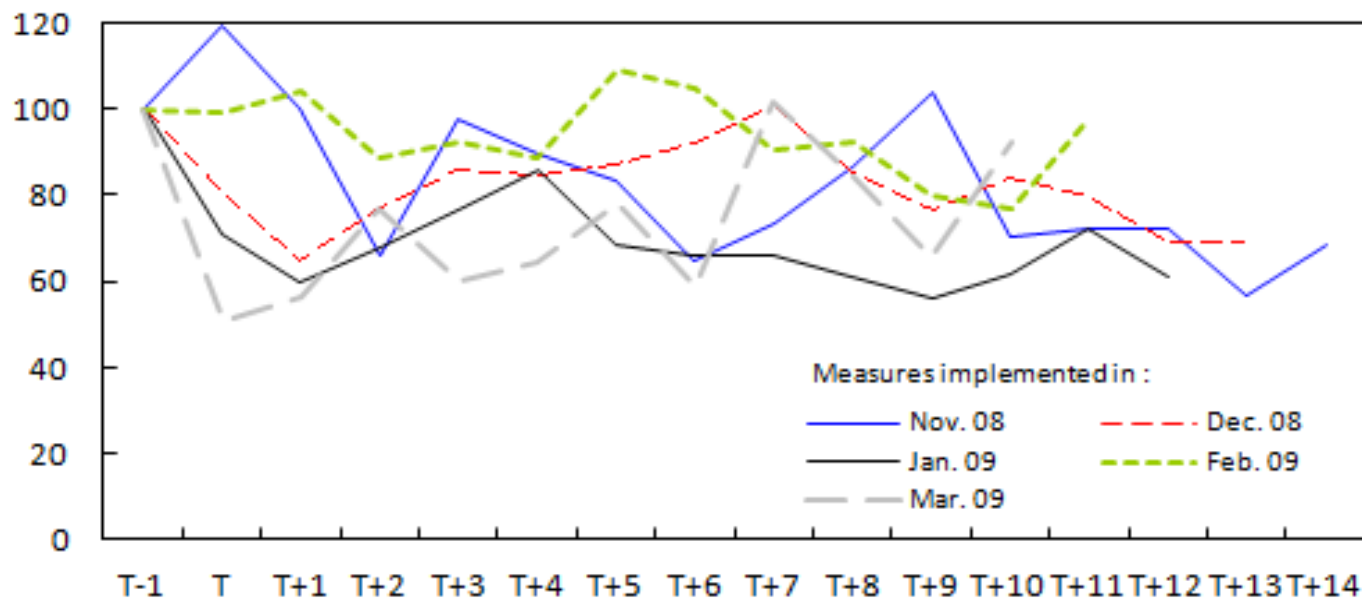
After averaging over implementation months…

- … we find visible impacts for both border and behind-the border measures—no matter which averaging technique we choose.

Figure 2. Average performance of trade affected by import restrictions
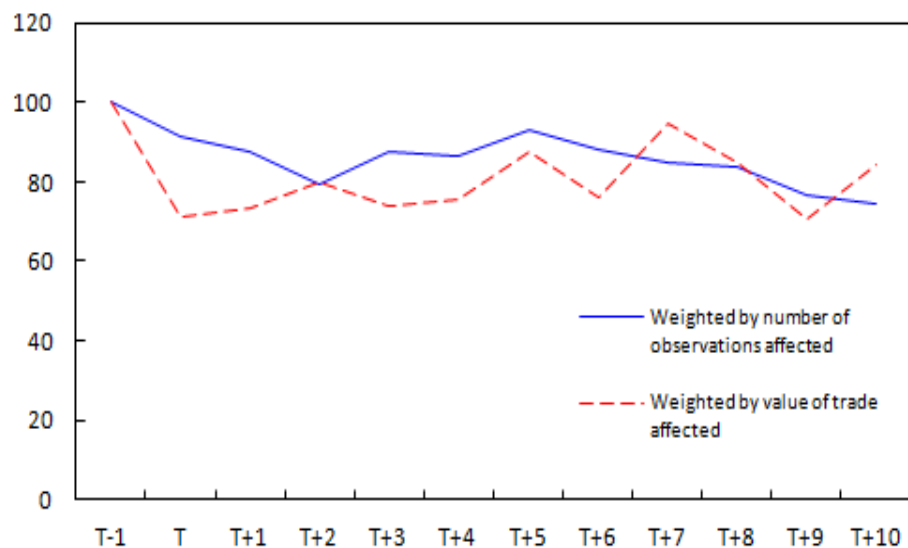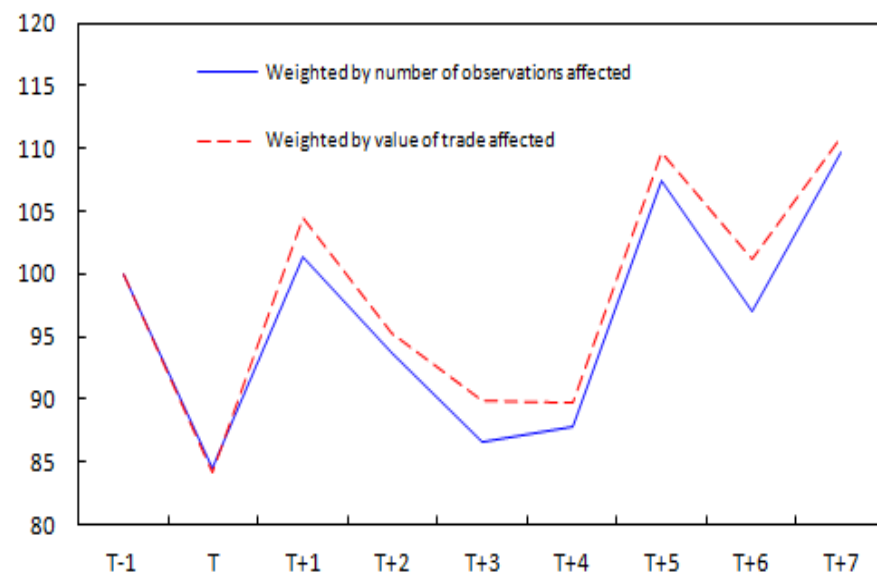(averages over implementation months)1/

Figure 3. Average performance of imports affected by behind-the-border measures
(averages over implementation months)1/

The econometric specification

- Regress Y-o-Y percentage change in import value on protectionist dummies and time-varying fixed effects

$$\Delta_{12} \ln(\text{Imports}_{ijpt}) = \text{TVFE} + \beta\, \Delta_{12}(\text{Imports}_{ijpt}) + \varepsilon_{ijpt}$$

- Time-varying fixed effects (TVFE) disentangle the protectionist impact from other factors by accounting for:
  - The crisis induced more severe changes in demand for some products than for others,
  - As the crisis progressed, some countries faced more severe declines in income than did others, and
  - Exchange rates, inflation rates, and transport costs could vary between two countries during the crisis.

Product-Level Results

- Trade measures significantly and distorted affected trade flows
- Estimates robust to different TVFEs and other robustness ➡
- Preferred regression 3 quantifies this impact on affected 4-digit product categories at 5% for border measures and 7% for behind-the-border measures
- Where measures cover only a portion of a 4-digit category, our results understate the impact on the subcategories covered

Table 2. Baseline results

	Estimation of product-level trade impact 1/		
Time-varying fixed effects	Product	Product & Importer	Product & Countrypair
Regression #	1	2	3
Import Restrictions	-0.048 ***	-0.050 ***	-0.051 ***
	(-5.09)	(-4.46)	(-4.77)
Behind-the-border measures 2/	-0.165 ***	-0.092 ***	-0.073 ***
	(-10.86)	(-5.37)	(-4.53)

Aggregate-Level Results

- To approximate how much aggregate trade was reduced, we multiply our product-level coefficient by the amount of trade affected by measures

- Result is a 0.21% decrease, or $4.6 bn (in 2009Q4), or $30-35 bn annually in a "normal" year (when trade is less depressed)

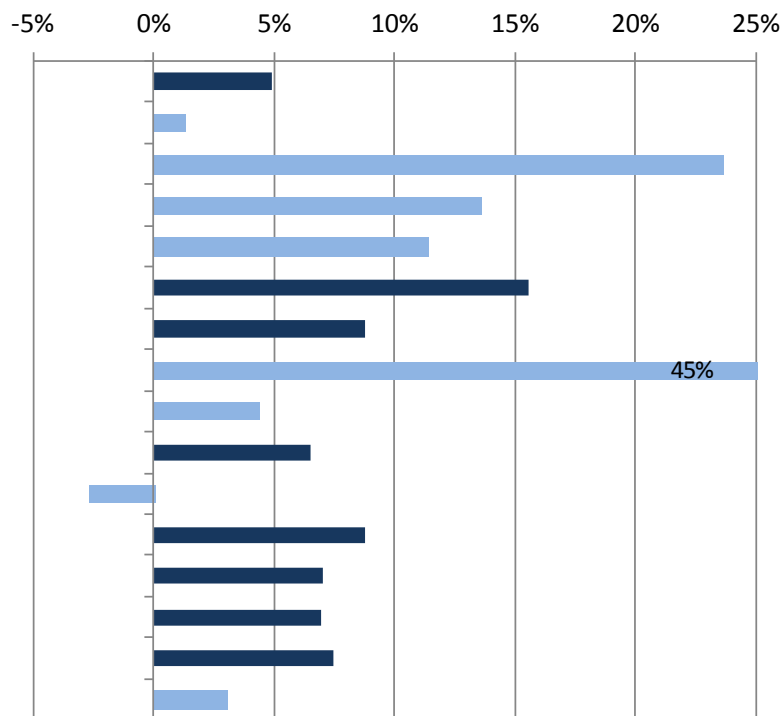- Aggregate impact would likely be higher if data for all measures were usable

Table 2. Baseline results

Estimation of product-level trade impact 1/			
Time-varying fixed effects			Product & Countrypair
Regression #			3
Import Restrictions			-0.051 ***
			(-4.77)
Behind-the-border measures 2/			-0.073 ***
			(-4.53)

Calculation of aggregate trade impact 3/ 6/			
	No. of meas. 4/	Affected quarterly trade 6/	Agg. quarterly trade impact:
Total	279	$77,668	-$4,568
		3.58%	-0.21%
Import Restrictions	239	$42,722	-$2,105
		1.97%	-0.10%
Behind-the-border measures 2/	40	$34,946	-$2,462
		1.61%	-0.11%

Results by type of measure

- 'Murkier' border measures seem to hinder trade more than implemented tariff increases
- Both bailouts and domestic subsidies had high impact

Product-Level Trade Reductions (Percent)

Aggregate-Level Trade Reductions (Percent of Global Trade)

BORDER MEASURES
Tariff
Quota
Import ban
Competitive Devaluation
Trade Defense Measures
Licensing requirements
Sanitary and Phytosanitary
Other NTBs
Local Content
Public Procurement
Consumption Subsidies
BEHIND-THE-BORDER MEASURES
Bailouts
Domestic Subsidies
Investment Subsidies
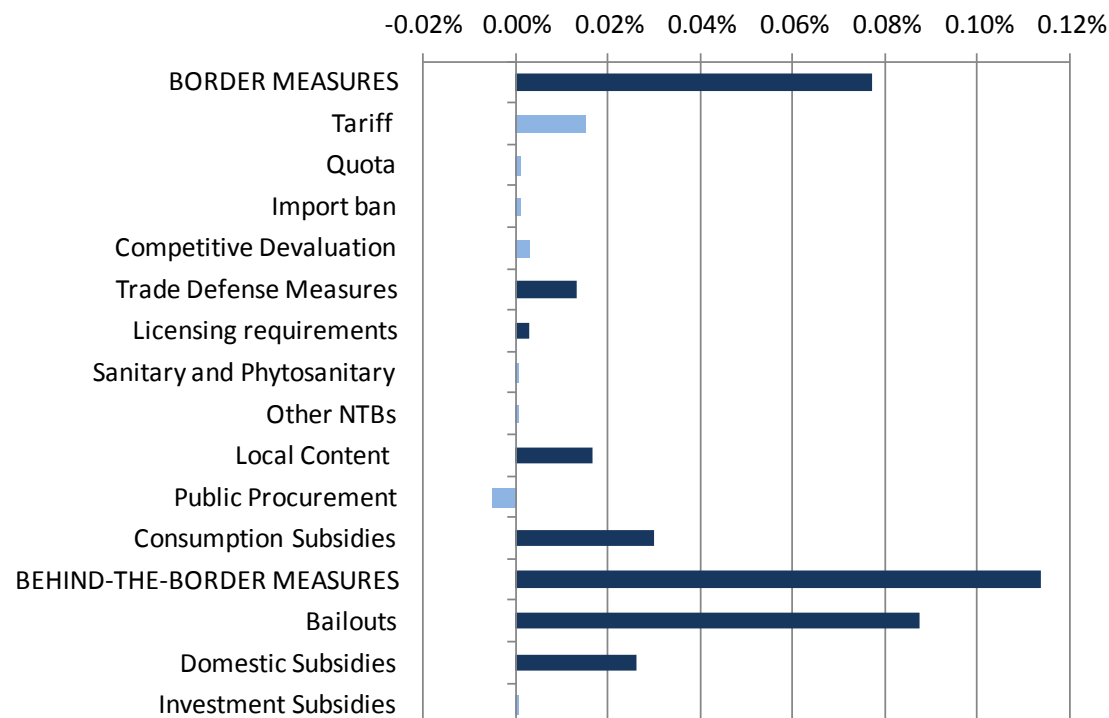
Note: Dark-colored bars = Product-Level estimate is significant at 5% level

Results by implementing country group

Product-Level Reductions (Percent)

Aggregate-Level Reductions (Percent of Global Trade)
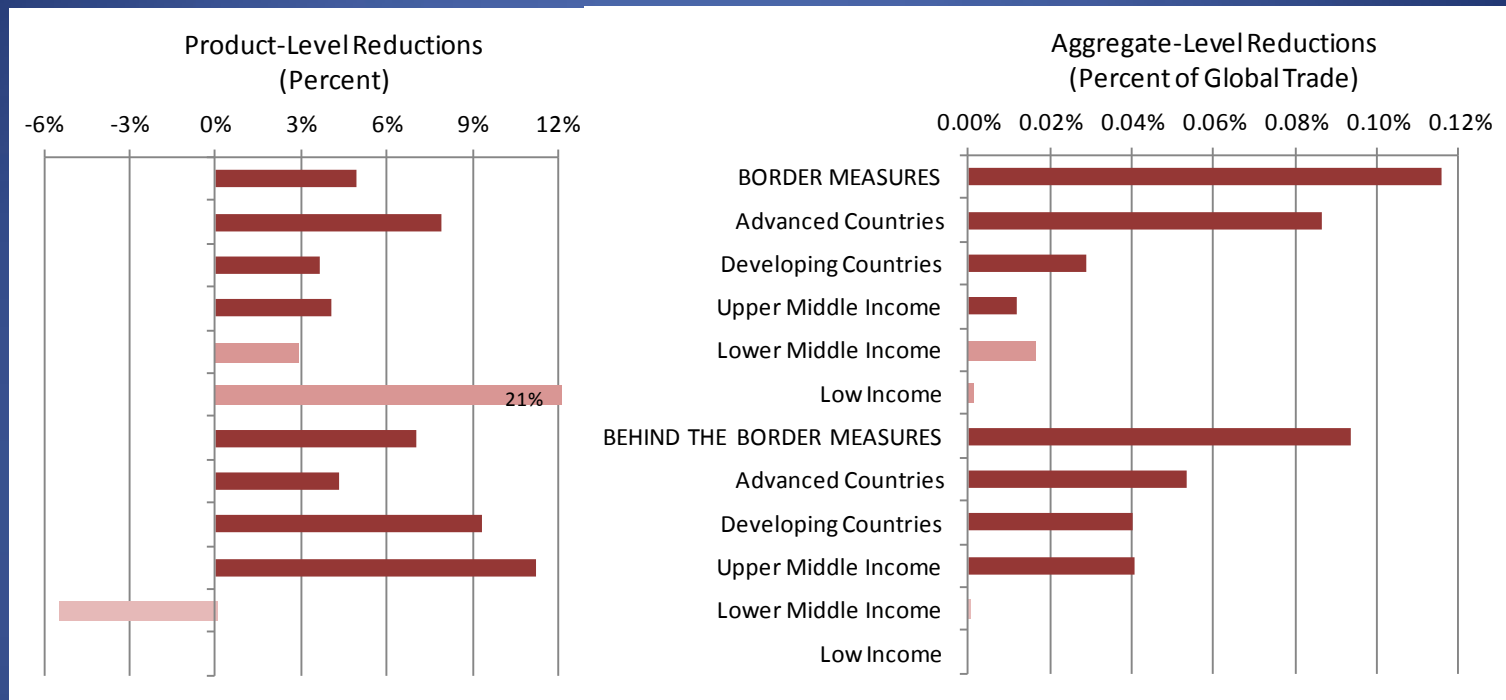
- Developing countries' BTB measures are—perhaps surprisingly—strongly damaging, driven by upper-middle income countries
  - Regional results suggest that those implemented by Central Asia (incl. Russia) are very harmful
- Among border measures, those implemented by advanced countries are very harmful
  - North America is the main driver here

Results by affeсted country group

Product-Level Reductions (Percent) / Aggregate-Level Reductions (Percent of Global Trade)

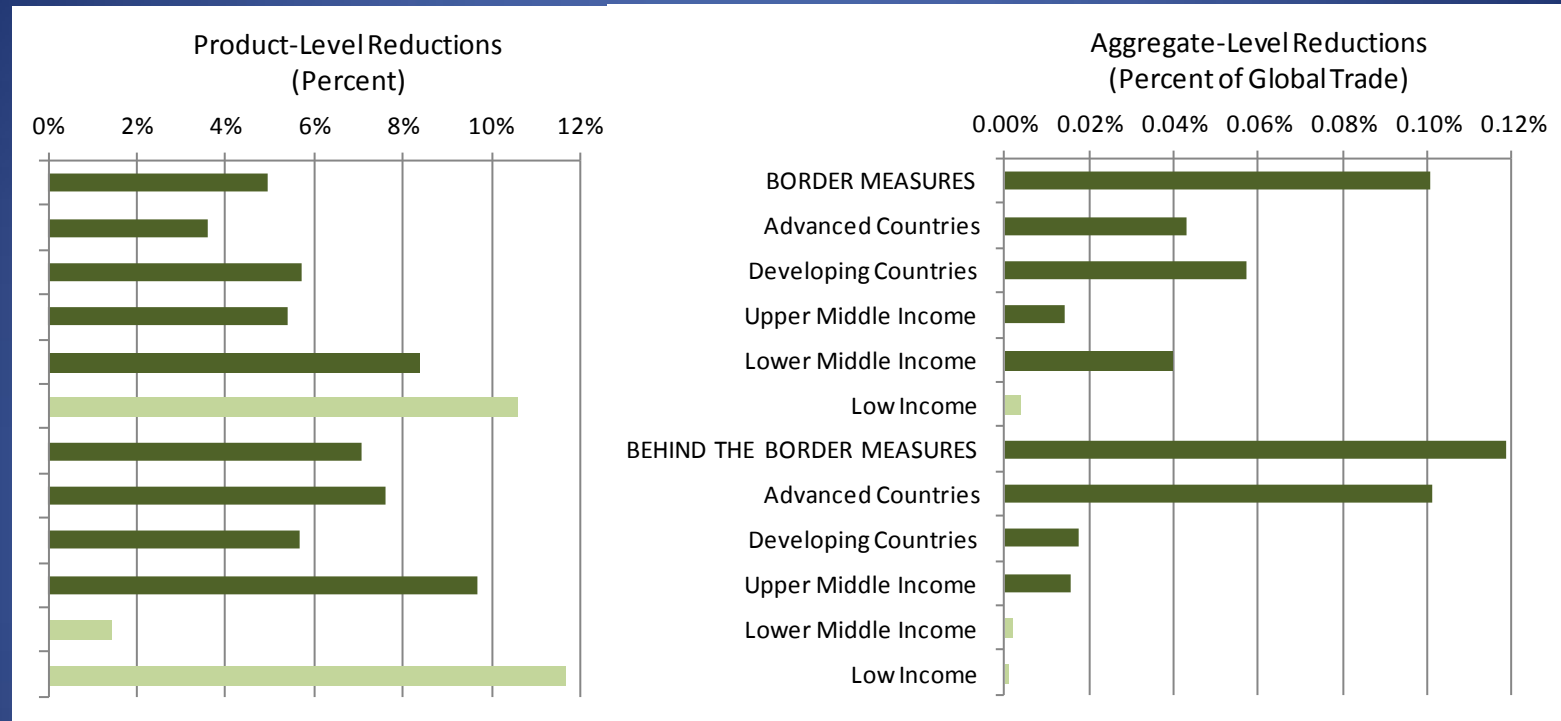- Advanced countries most hurt by BTB measures (implemented by their peers as well as developing countries)
  - Regional results show that Europe most affected
- Developing countries, particularly poorer ones, mainly affected through border measures (implemented largely by advanced countries)
  - Regional results show that East Asia most affected

Overview

Conclusion

Results by sector

Product-Level Reductions (Percent) and Aggregate-Level Reductions (Percent of Global Trade), by sector: BORDER MEASURES and BEHIND-THE-BORDER MEASURES for Agriculture, Processed food, Minerals, Metals, Wood, Chemicals, Textiles, Machinery, Transport Equipment.
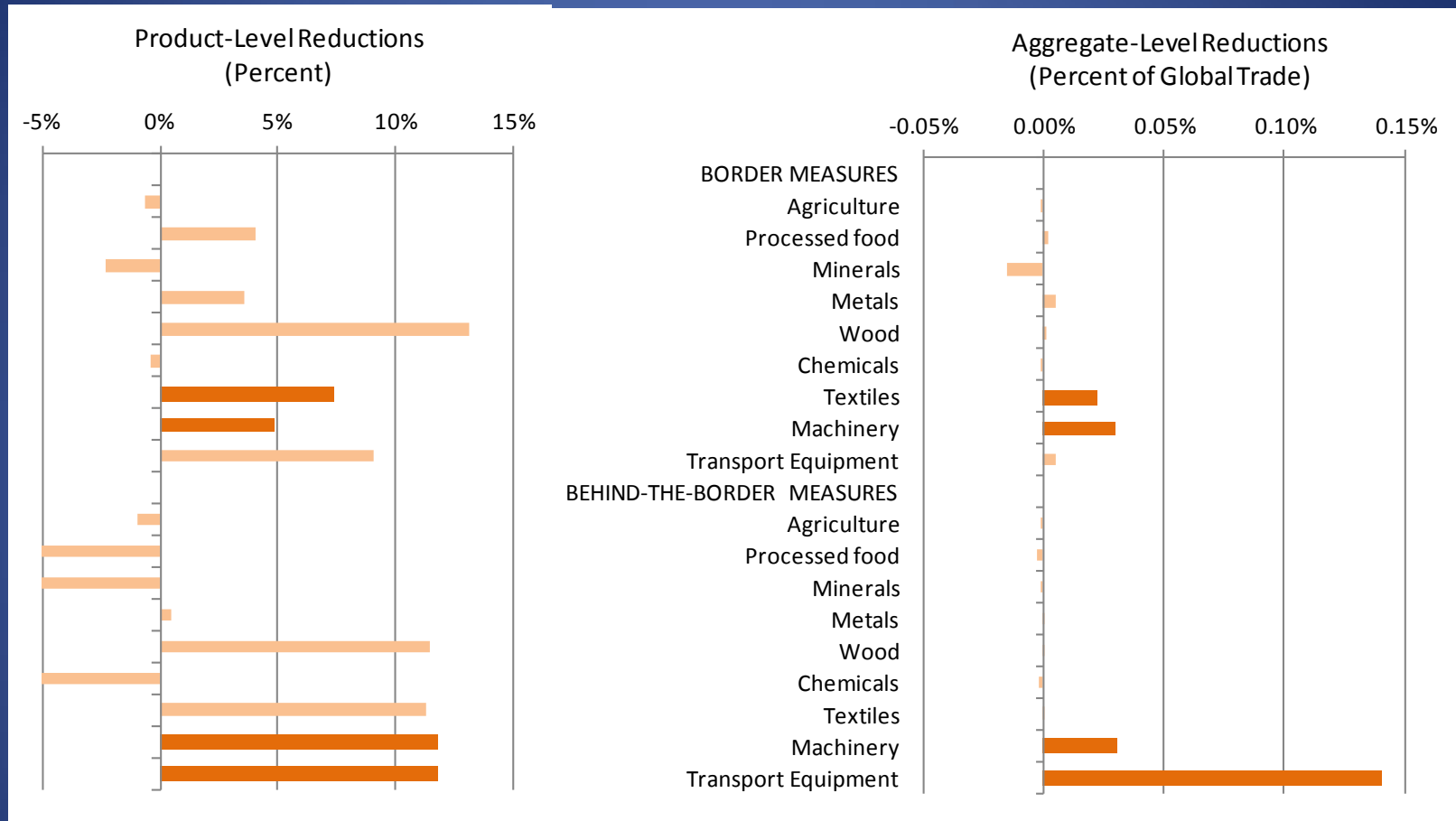
- Higher-tech sectors secured 'effective' BTB protection
  - Given that many developing countries' exports are still low tech, they were less affected by BTB measures.
- Impact on developing countries came through border measures affecting textiles and possibly low-tech machinery exports

Results by time of implementation

- Most harmful were the early measures (first 9 months after Lehman collapse)
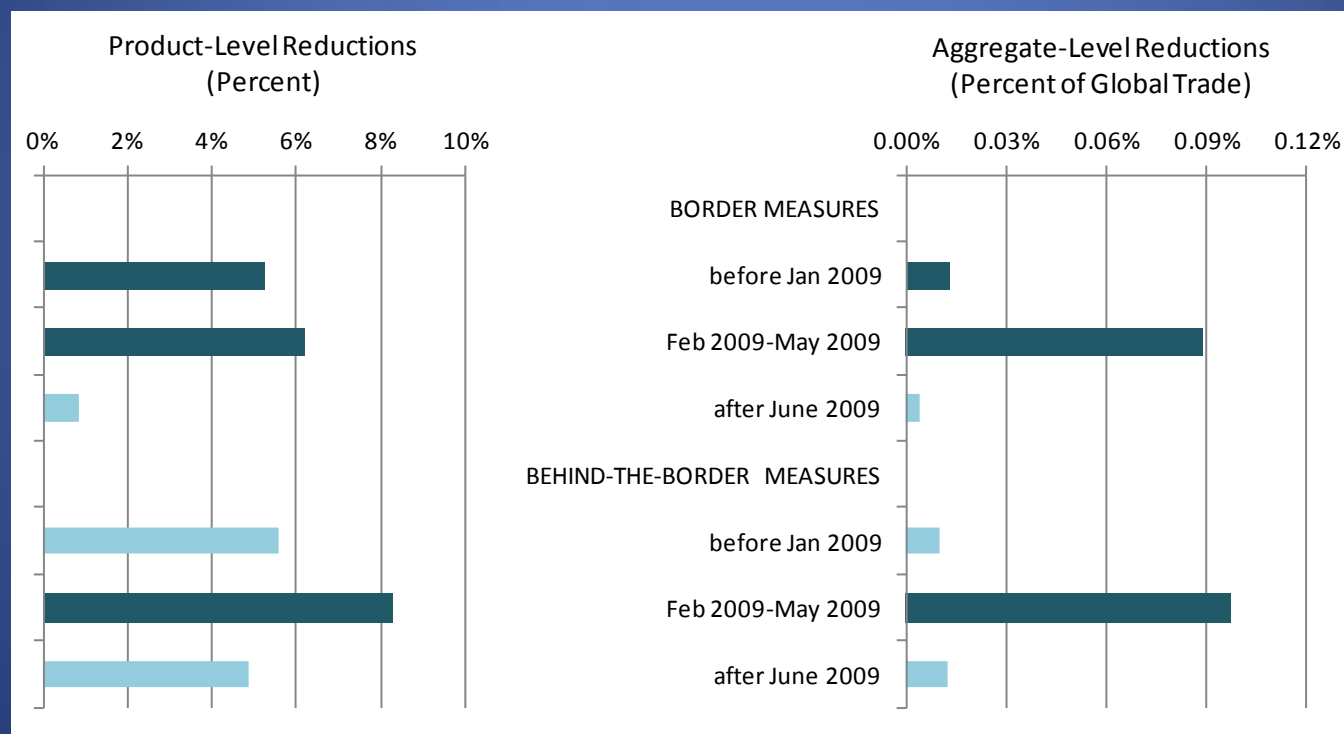
- Other results show that these measures remained a drag on trade, even during recovery

Conclusions

- Where taken, new measures significantly distort trade

- But their coverage so far seems to have been relatively narrow, and the impact on global trade modest—maybe 0.2%.

- Our estimates are likely lower bounds, given that 1/3 of measures had to be excluded due to data constraints

- Policymakers need to remain vigilant in current environment of high unemployment, withdrawal of stimulus, and—in some countries—exchange rate appreciation

- Removing crisis protectionist measures and conclusion of Doha round could usefully underpin global recovery

Policy messages

- Policy makers must remain vigilant. Continued monitoring and maintaining the awareness of the macro economic risks of protectionism will help to resist pressures.

- Policy makers should underpin the recovery by removing crisis protectionist measures, which constitute an ongoing drag on trade.

- The surest way to avoid the damaging macroeconomic consequences of a widespread resort to protectionism is to bring enhanced predictability and security to trade by concluding the Doha Round.

Thank you

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Reserve slides

Calculation of the market share of protected trade

- Suppose that measures implemented in November 2009 affected only two products, *a* and *b*, in only in some country-pairs
- Then we calculate the market share of protectionist observations as

$$\frac{a^P + b^P}{a + b}$$

  where:
  - a^P and b^P is trade in protected country-pairs in products *a* and *b* and
  - *a* and *b* is global trade in products *a* and *b*

- We then index this quotient at 100 for the month before implementation
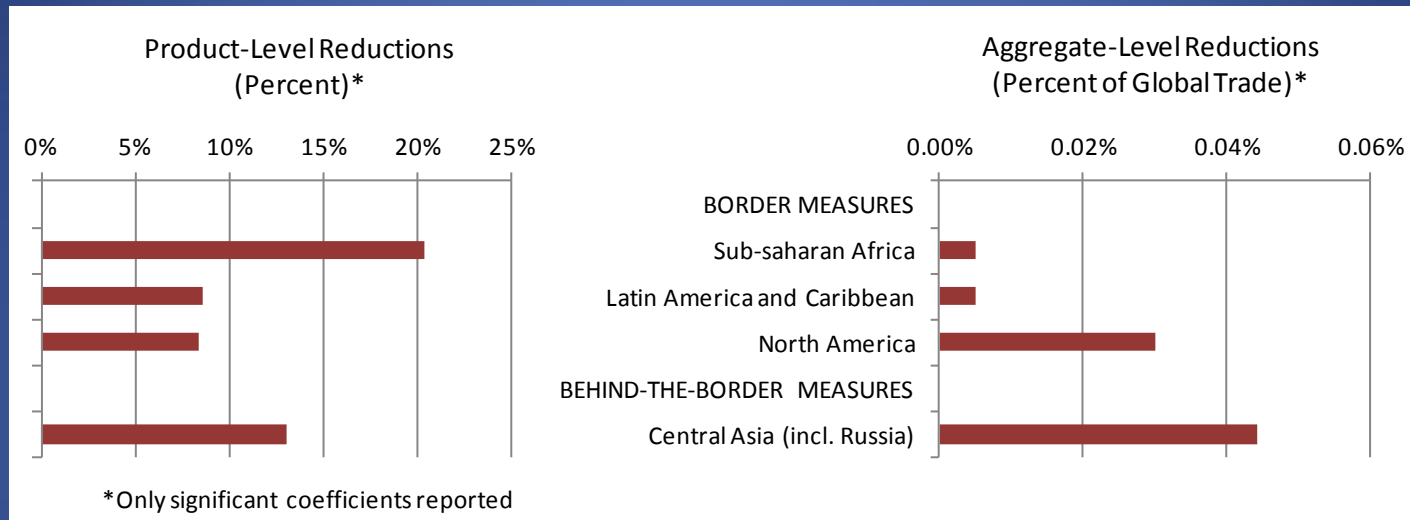
Robustness

Table 3. Robustness

	Estimation of product-level trade impact 1/					
	Includes regressors for export measures		YoY Volume change as dependent variable		Protectionist dummies take only values of 0 or 1	
Time-varying fixed effects	Product & Countrypair	Imp.-Prod. & Exp.-Prod.	Product & Countrypair	Imp.-Prod. & Exp.-Prod.	Product & Countrypair	Imp.-Prod. & Exp.-Prod.
Regression #	A1	A2	A3	A4	A5	A6
Import Restrictions	-0.051 ***	-0.083 ***	-0.028 **	-0.035	-0.053 ***	-0.071 **
	(-4.77)	(-2.70)	(-2.08)	(-1.04)	(-4.57)	(-2.06)
Behind-the-border measures (impact on imports)	-0.074 ***	-0.008	-0.036	-0.050	-0.070 ***	0.000
	(-4.56)	(-0.07)	(-1.62)	(-0.35)	(-4.28)	(0.00)
Export Restrictions	0.017	-0.007				
	(0.46)	(-0.06)				
Export Support	-0.016	-0.032				
	(-1.30)	(-0.87)				
Behind-the-border measures (impact on exports)	-0.026	0.066				
	(-1.56)	(1.43)				
F-Statistic vs. regression #	3	6				
F-Statistic	2.77	2.04				
Prob>F:	0.040	0.107				
Number of Time-varying fixed effects	128,833	3,819,552	128,833	3,819,552	128,833	3,819,552
Number of Observations	9,878,481	9,878,481	9,878,481	9,878,481	9,878,481	9,878,481
Adj. R-Squared (percent)	3.12	8.97	1.96	5.42	3.12	8.97

	Calculation of aggregate trade impact 3/ 6/								
	No. of meas. 4/	Affec-ted obs. 5/	Affected quarterly trade 6/	A1	A2	A3	A4	A5	A6
Import Restrictions	239		$ 42,722	-$2,105	-$3,416	-$1,162	-$1,481	-$2,224	-$2,933
		1.11%	1.97%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Behind-the-border measures (impact on imports)	40		$ 34,946	-$2,480	-$290	-$1,224	-$1,712	-$2,365	$12
		0.54%	1.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Export Restrictions	19		$ 34,438	$582	-$226				
		0.03%	1.59%	0.00%	0.00%				
Export Support	16		$ 4,860	-$76	-$153				
		0.31%	0.22%	0.00%	0.00%				
Behind-the-border measures (impact on exports)	40		$ 15,766	-$398	$1,081				
		0.48%	0.73%	0.00%	0.00%				

1/ 3/ 4/ 5/ 6/ Please see notes in Table 2.

Results by implementing region

Product-Level Reductions (Percent)*

Aggregate-Level Reductions (Percent of Global Trade)*

*Only significant coefficients reported
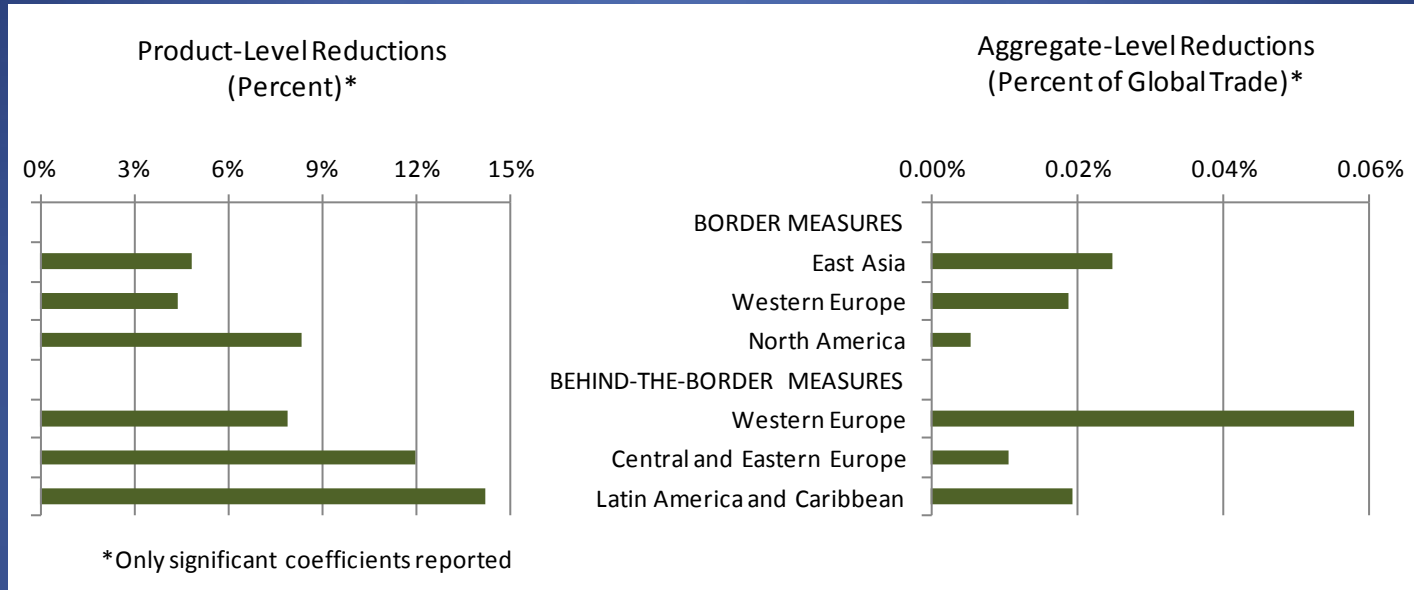
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  - Regional results suggest that those implemented by Central Asia (incl. Russia) were very harmful
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Results by affected region

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Aggregate-Level Reductions (Percent of Global Trade)*

*Only significant coefficients reported

- Advanced countries most hurt by BTB measures (implemented by their peers as well as developing countries)
  - Regional results show that Europe most affected
- Developing countries mainly affected through border measures (implemented largely by advanced countries)
  - Regional results show that East Asia most affected

By imple-menting country group

By affected country group

Product-Level Reductions (Percent)

Aggregate-Level Reductions (Percent of Global Trade)

BORDER MEASURES
Advanced Countries
Developing Countries
Upper Middle Income
Lower Middle Income
Low Income
BEHIND THE BORDER MEASURES
Advanced Countries
Developing Countries
Upper Middle Income
Lower Middle Income
Low Income

Results by time that measures are in effect

- Coefficients describe the average impact of measures in effect—*no matter when implemented*
- Measures implemented early remain harmful in recovery

Table 11. Detailed results, by time of impact

Estimation of product-level trade impact 1/		Calculation of aggregate trade impact 3/ 6/			
Time-varying fixed effects	Product & Countrypair	Agg. qtrly trade impact, reg. #:	No. of meas.	Affec- ted obs.	Affected quarterly
Regression #	19	19	4/	5/	trade 6/
Total		**-$3,922**	**279**	**1.65%**	**$77,668**
		-0.24%			**3.58%**
Import restrictions' impact during:		**-$1,855**	**239**	**1.11%**	**$42,722**
		-0.11%			**1.97%**
the trade collapse (before Jan 2009)	-0.170 ***	-$72	26	0.06%	$463
	(-3.10)	0.00%			0.02%
the trade stabilization (Feb 2009-May 2009)	-0.062 ***	-$480	93	0.27%	$7,943
	(-3.07)	-0.02%			0.37%
the trade recovery (after June 2009)	-0.044 ***	-$1,855	239	1.11%	$42,722
	(-3.93)	-0.09%			1.97%
Behind-the-border measures' impact during: 2/		**-$2,066**	**40**	**0.54%**	**$34,946**
		-0.13%			**1.61%**
the trade collapse (before Jan 2009)	0.033	$24	7	0.01%	$716
	(0.28)	0.00%			0.03%
the trade stabilization (Feb 2009-May 2009)	-0.149 ***	-$850	16	0.13%	$6,138
	(-4.28)	-0.04%			0.28%
the trade recovery (after June 2009)	-0.061 ***	-$2,066	40	0.54%	$34,946
	(-3.39)	-0.10%			1.61%