Extending GE to the Tariff Line

U.S. Dairy in the Doha Development Agenda

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10th Annual Global Economic Conference

Purdue University, 2007

OUTLINE

Background and Motivation

US Dairy Policy

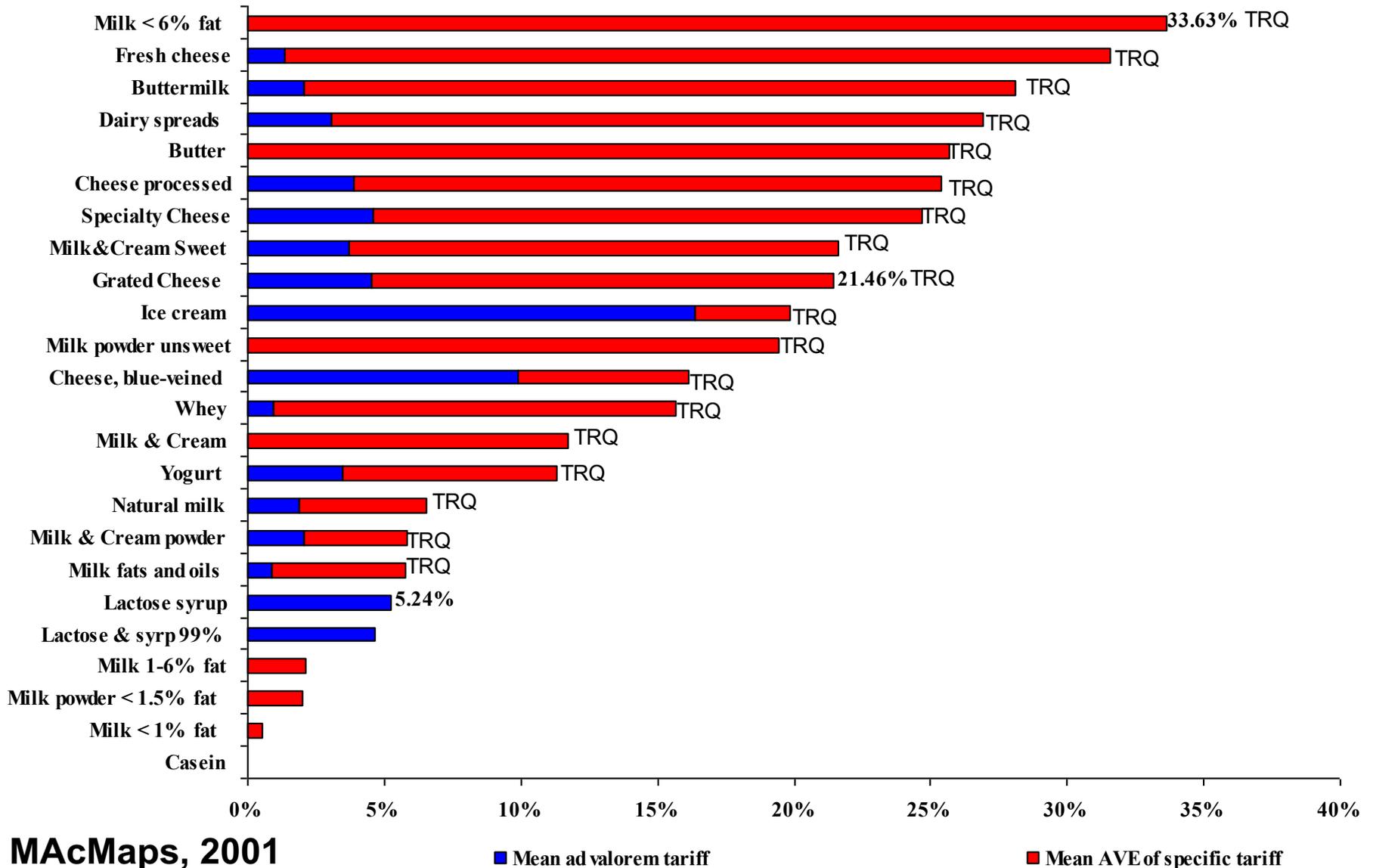**PE/GE Model (focus on "tariff line" sub-sector)**

Results

Take Away Messages

On Modeling Agr. Trade Policy

- ## Bureau and Salvatici (2003)
  - "…CGE/PE modeling efforts run into major difficulties (aggregation) that limit accuracy of their results"

- ## Beghin and Sumner (1999) on int'l dairy policy
  - "….aggregating (dairy) tariff lines remains challenging because of the multitude of TRQ schedules and nomenclatures"

- ## Stillman (1999) on US Dairy
  - "Economic models for US cheese imports limited in practice… US allocates cheese quota by country and variety. It would be interesting quantitative application of dairy products limited by TRQs in US to identify level of quotas and tariffs necessary to increase global trade"

U.S. Dairy Policy

MAcMaps, 2001

■ Mean ad valorem tariff   ■ Mean AVE of specific tariff

PE/GE Approach

- ## Sub-sector (PE) model

  - ### Given interest in particular sector – define sub-sector model as needed

  - ### Sub-sector (PE) model nested within broader GE framework (GTAP)
    - PE/GE Model

  - ### Today,
    - Highlight what we gain when "working at the tariff line" (i.e. results from the sub-sector model)
    - Detailed look at US specialty cheese TRQs

Sub-Sector Model

U.S. Dairy Expenditure

$\sigma^c=1$

Milk   Cheese   Other dairy

$\sigma^{dm}=3.65$

Aggregate Cheese Imports   Domestic Cheese

$\sigma^{mm}=7.3$

Border Policies

Competition For Cheese Imports

Domestic   Exports   **Exports   Domestic**
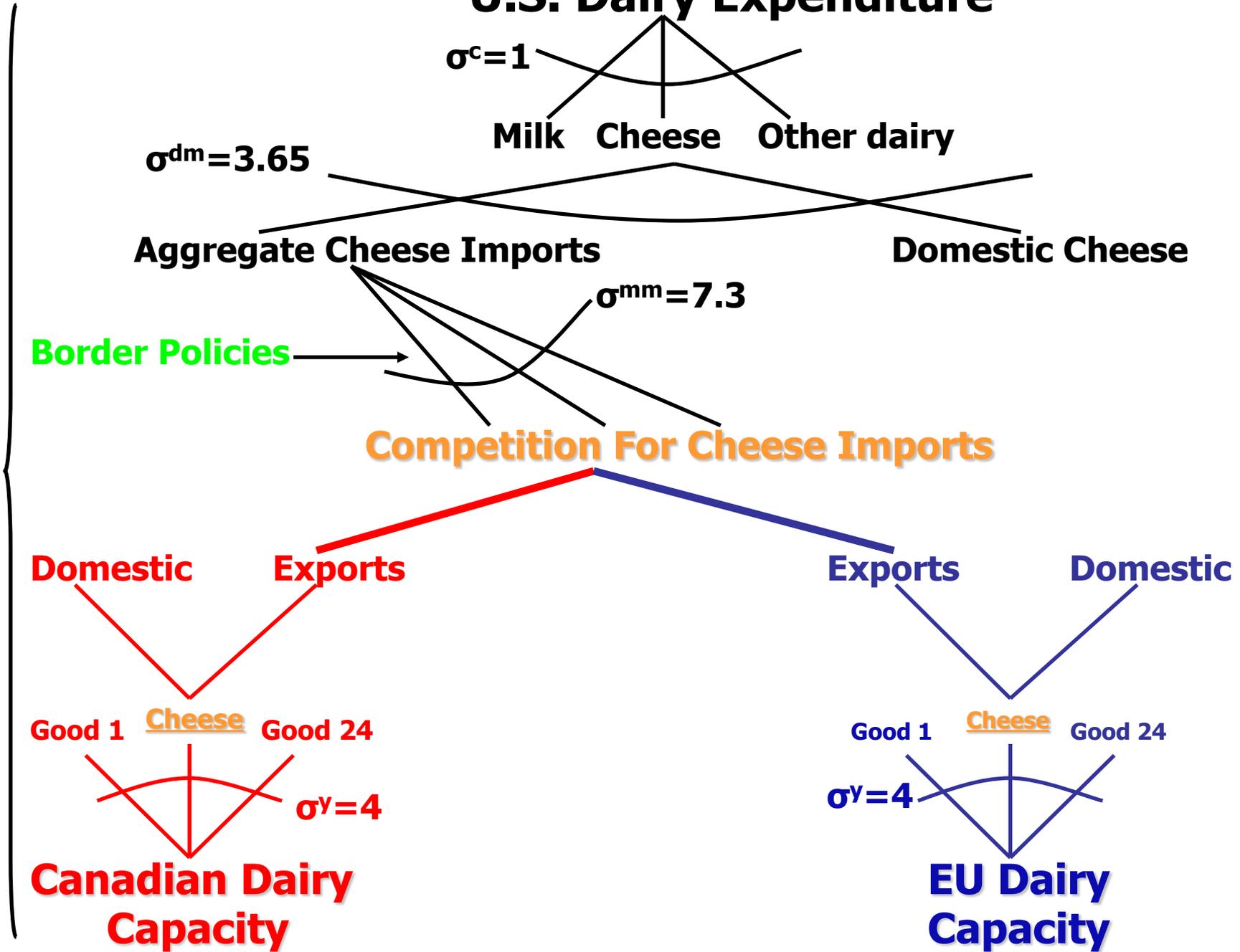
Good 1   Cheese   Good 24   Good 1   Cheese   Good 24

$\sigma^y=4$ $\sigma^y=4$

**Canadian Dairy Capacity**   **EU Dairy Capacity**

Sub-Sector Dairy Data

- ## GE Data:
  - GTAPinGAMS (Rutherford 2005), aggregated to 14 regions/15 non-dairy sectors

- ## PE Data:
  - CEPII/ITC-Geneva (BACI/MAcMap) except for TRQ analysis
  - AMAD, USITC data underpin TRQ analysis for US

- ## Sub-sector (PE) model for Dairy Products:
  - 24 HS-6 products (can't quite make it to the tariff line)
  - Focus on specialty cheeses (more than half of US dairy imports; lots of TRQs)
  - Competition at tariff line

US Specialty Cheese TRQs

TRQID	Description	Mapping to HS6
11	Cheese and Substitutes	040610, 040620, 040630, 040690
12	Blue veined or processed from blue cheeses	040610, 040620, 040630, 040640, 040690
13	Cheddar cheese or processed from cheddar	040610, 040620, 040630, 040690
14	American type cheese including Colby and Jack	040610, 040620, 040630, 040690
15	Edam/Gouda - or processed from Edam/Gouda	040610, 040620, 040630, 040690
16	Italian – Rom., Regg, Parm, Provol, Provoletti, Sbrinz	040610, 040620, 040630, 040690
17	Swiss or Emmentaler cheese - no eye formation	040610, 040620, 040630, 040690
18	Cheese and Substitutes < 0.5% butterfat	040610, 040620, 040630, 040690
19	Swiss or Emmentaler cheese - with eye formation	040690

Total Specialty Cheese Quotas Allocated = 136,200 mt

HS6 Value Share in TRQIDs

HS6 Share in TRQIDs
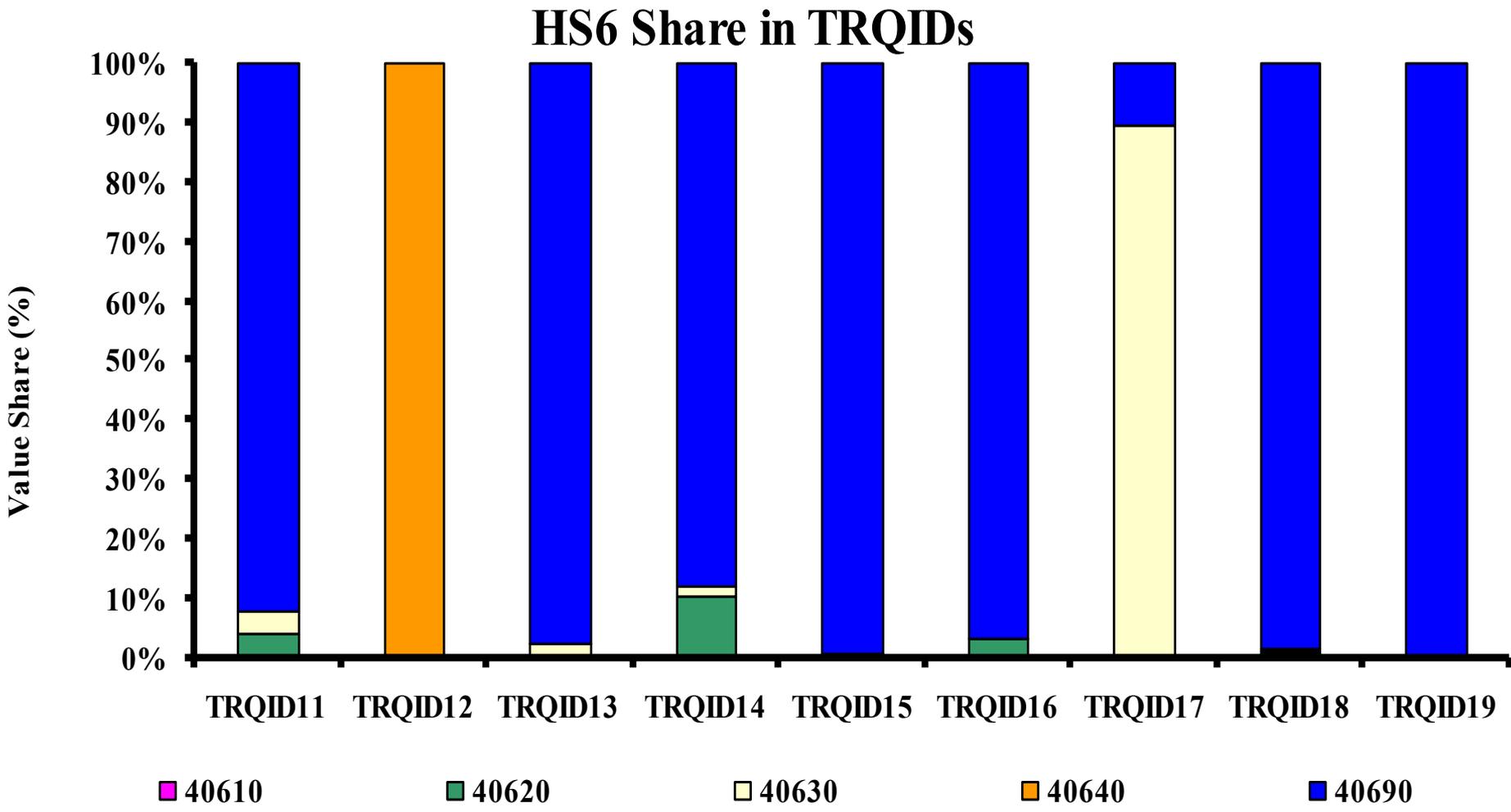
US has Bilateral and MFN Quotas!

Country	TRQ Variable					TRQID					Model Aggregation	MFN Unit Values
		11	12	13	14	15	16	17	18	19		
ARG	Quota	100				143	4,808				4,782	
	Trade	24				48	5,633				5,578	0.6
	Fill	0.24				0.33	1.17				1.16	
AUS	Quota	1,133		1,617	1,000						1,249	
	Trade	3,153		2,470	1,136						2,585	0.7
	Fill	2.78		1.53	1.14						2.07	
CAN	Quota	1,141		833						70	828	
	Trade	1,222		1,083						206	1085	0.9
	Fill	1.07		1.3						2.95	1.32	
EU15[b]	Quota	20,756	2,529	430	271	5,348	3,499	3,675	4,000	6,117	10,000	
	Trade	22,800	2,692	724	159	6,326	4,625	5,625	1,977	11,000	12,100	1
	Fill	1.1	1.06	1.68	0.59	1.18	1.32	1.53	0.49	1.8	1.21	
NZL	Quota	11,322		3,950	2,000						4,040	
	Trade	13,600		8,226	1,985						10,700	0.8
	Fill	1.2		2.08	0.99						1.49	
ROE[a]	Quota	1,579				167	1,323	1,850	175	5,487	4,783	
	Trade	1,728				45	1,302	857	20	4,780	3,555	0.9
	Fill	1.09				0.27	0.98	0.46	0.11	0.87	0.88	
MFN Quota[c]		502	N/A	240	170	26	14	80	N/A	86		
% of Bilateral Quota		1.4	N/A	3.5	5.2	0.5	0.2	1.5	N/A	0.7		

Tariff-Quota Model

Market Clearing

$$X_{SC,i,r,s}^{IQ} + X_{SC,i,r,s}^{OQ} + X_{SC,i,r,s}^{MFN} = X_{SC,i,r,s}^{EX}\left(\frac{P_{SC,i,r}^{M}}{P_{SC,i,r,s}^{X}}\right)^{\sigma_M}$$

Zero profit constraints

$$(3.1) \quad X_{SC,i,r,s}^{IQ} \geq 0 \quad \perp \quad P_{SC,i,r,s}^{X} - P_{SC,i,r}^{Y}T_{g,i,r,s}^{in} - q_{g,i,r}^{rent} \leq 0$$

$$(3.2) \quad X_{SC,i,r,s}^{OQ} \geq 0 \quad \perp \quad P_{SC,i,r,s}^{X} - P_{SC,i,r}^{Y}T_{g,i,r,s}^{out} \leq 0$$
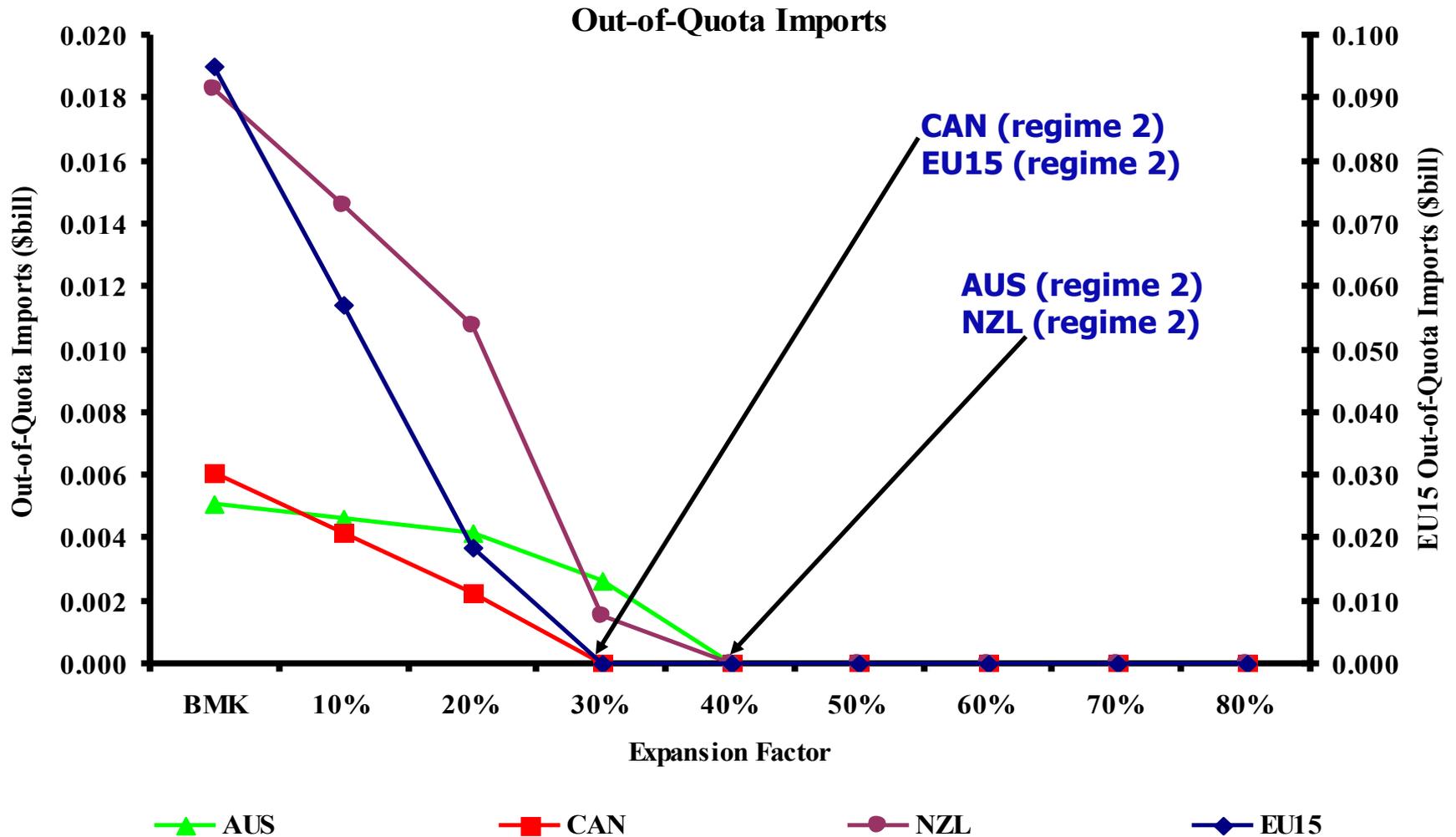
$$(3.3) \quad X_{SC,i,r,s}^{MFN} \geq 0 \quad \perp \quad UV_{g,i,r}\left(P_{SC,i,r,s}^{X} - P_{SC,i,r}^{Y}T_{g,i,r,s}^{in}\right) \leq q_{g,i,s}^{MFNrent}$$

$$(3.4) \quad q_{g,i,r}^{rent} \geq 0 \quad \perp \quad X_{SC,i,r,s}^{IQ} \leq \overline{X}_{SC,i,r,s}^{Q}$$
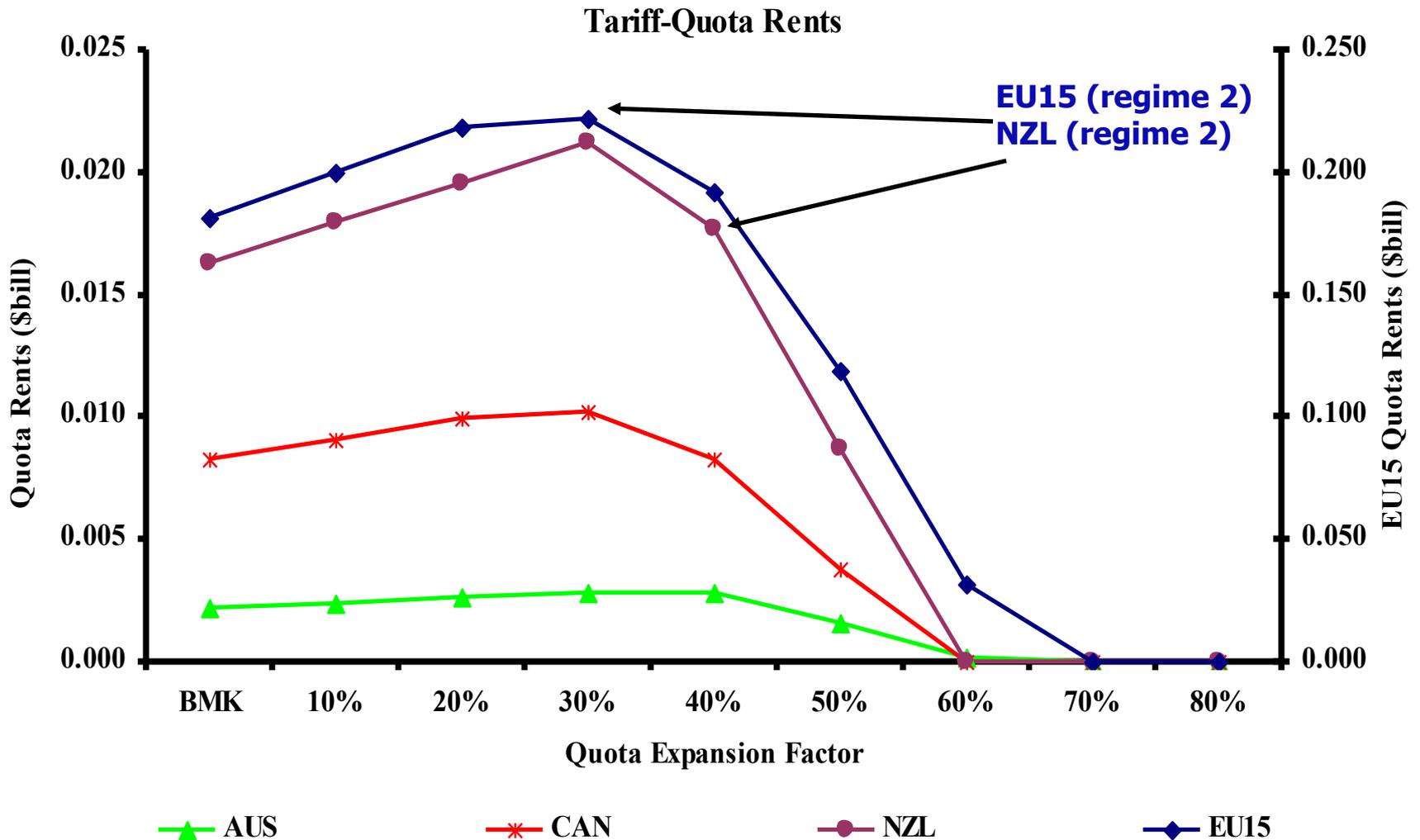
Where, $X_{SC,i,r,s}^{MFN} = \sum_{r}\dfrac{X_{SC,i,r,s}^{Q}}{UV_{SC,i,r}}$ and $X_{SC,i,r,s}^{MFN} = 0$ in the benchmark equilibrium
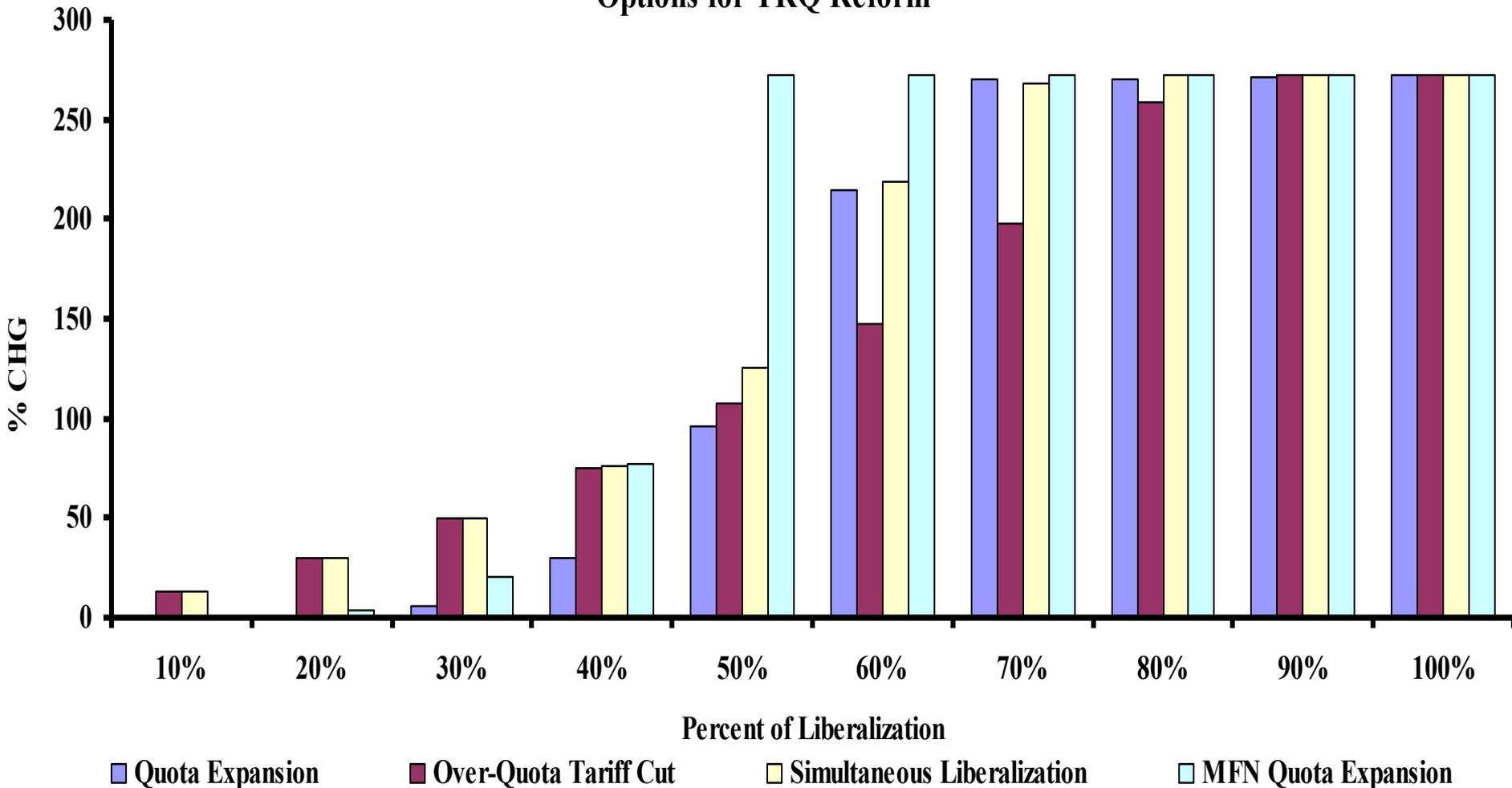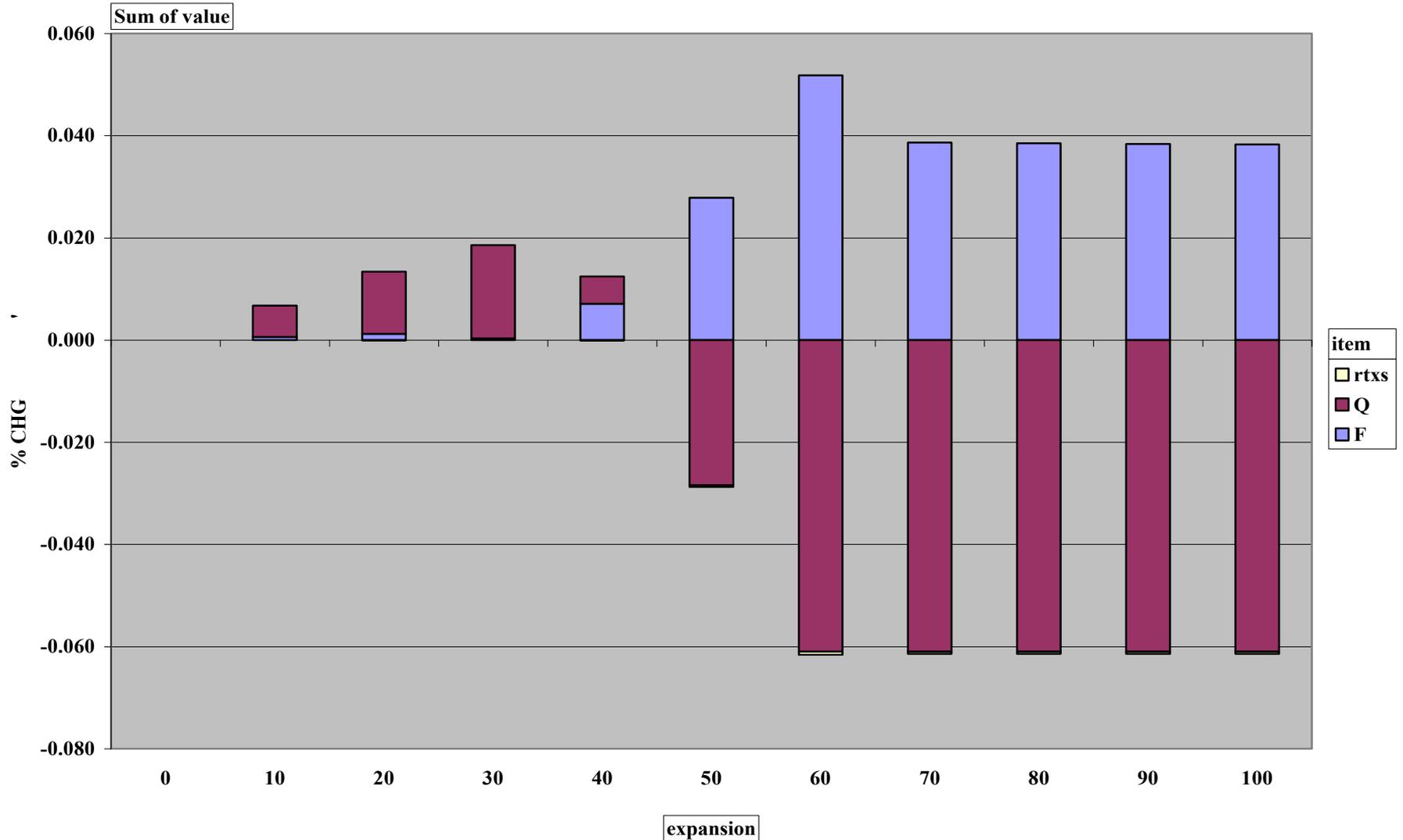
RESULTS

Out-of-Quota Imports

Out-of-Quota Imports

Quota Rents

Tariff-Quota Rents

EU15 (regime 2)
NZL (regime 2)

Quota Rents ($bill) — vertical axis: 0.000, 0.005, 0.010, 0.015, 0.020, 0.025

EU15 Quota Rents ($bill) — vertical axis: 0.000, 0.050, 0.100, 0.150, 0.200, 0.250

Quota Expansion Factor — horizontal axis: BMK, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%

Legend: AUS, CAN, NZL, EU15

Composite Imports and Options for TRQ Reform

Options for TRQ Reform

- ■ Quota Expansion
- ■ Over-Quota Tariff Cut
- □ Simultaneous Liberalization
- □ MFN Quota Expansion

Vertical axis: % CHG (0 to 300)

Horizontal axis: Percent of Liberalization (10% to 100%)

EU15 Welfare Along the Liberalization Path
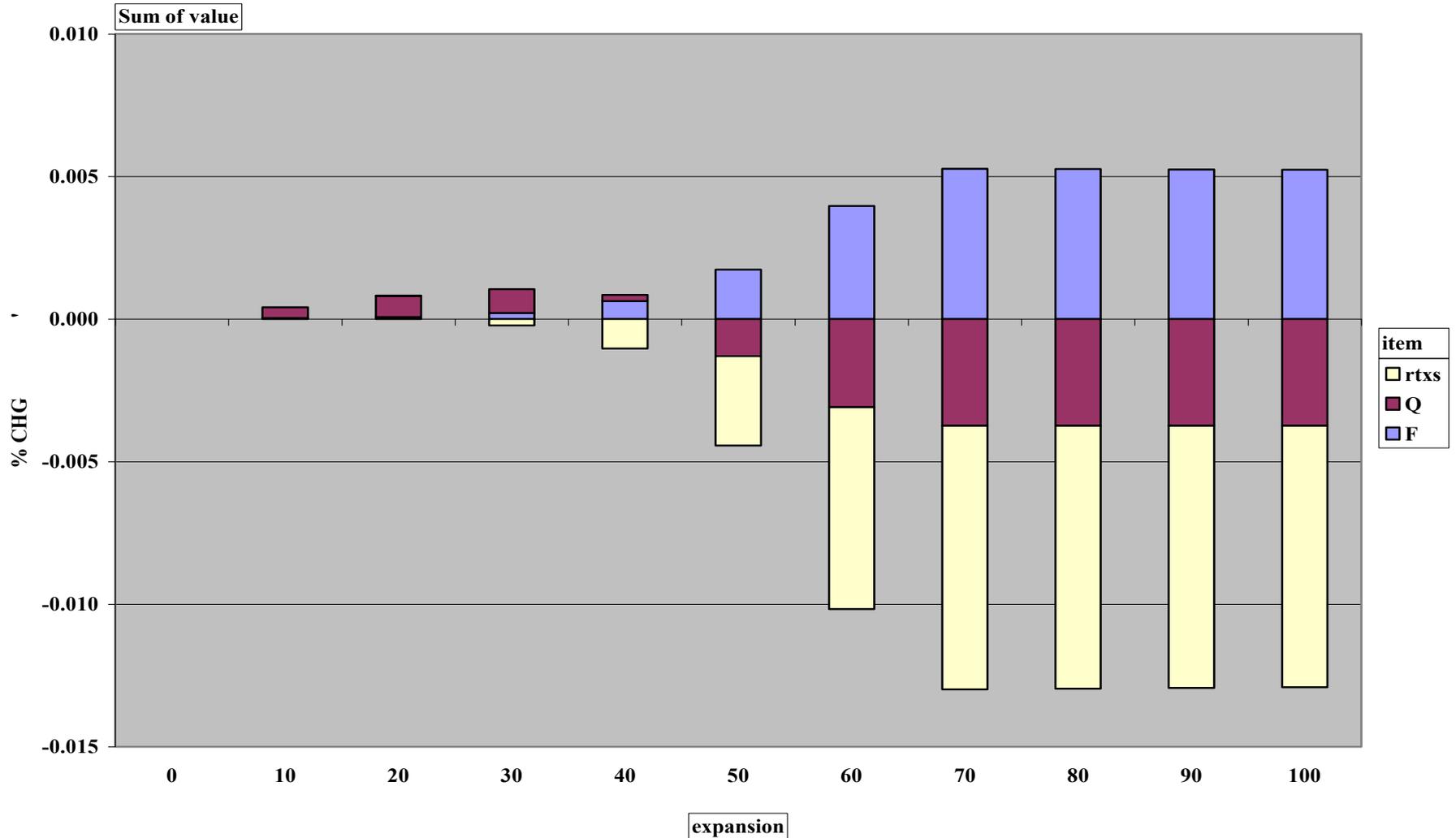
What the DOHA TRQ Modalities Say…

- **Harbinson (Feb. 2003 rev2)**
  - **Expansion of quota from 5% to 10% of dom. cons.**
  - **Expansion of tariff quotas on MFN basis**

- **Derbez (Sept 2003)**
  - **Terms and conditions of any TRQ expansion remain under negotiation.**

- **July Framework (2004)**
  - **Some MFN-based tariff quota expansion will be required for sensitive products. A base for such an expansion will be established.**

- **Chairman Falconer's communication (2007)**
  - **No distinction of MFN or bilateral quotas (presumably MFN)**
  - **Quota expansion based on tiered approach**
  - **If imports in base year are X% of domestic consumption then expand quota by Y% (3 bands)**

Take Away Message

- *"Working at the tariff line"*
  - *"The big numbers that sum up a model's story—$520 billion, 1.5% of world GDP, $4.4 trillion—are often the least interesting thing about it." (Economist, 2006)*

  - Working at the tariff line can take us a long way in understanding complex tariff schedules, TRQ interactions, and reform options (US dairy protection)

  - Doha TRQ reforms – expand global (MFN) quota
    - No mention of preference (bilateral) quotas
    - OK strategy but must recognize liberalization does not occur immediately
    - Bilateral out-of-quota exports simply transferred to the MFN (global) quota market

  - If an MFN (tiered) expansion is agreed, we recommend 40% at least as far as US dairy sector is concerned

THANK YOU