Big Mad Cow Scare

xSet DEADMEAT (Jared_Luffman, Veronica_Nigh)

xSubset DEADMEAT is subset of TEAMDOHA

Story Time

Human deaths
Confirmed cases of mad cow
Restrictions levied on animal product imports
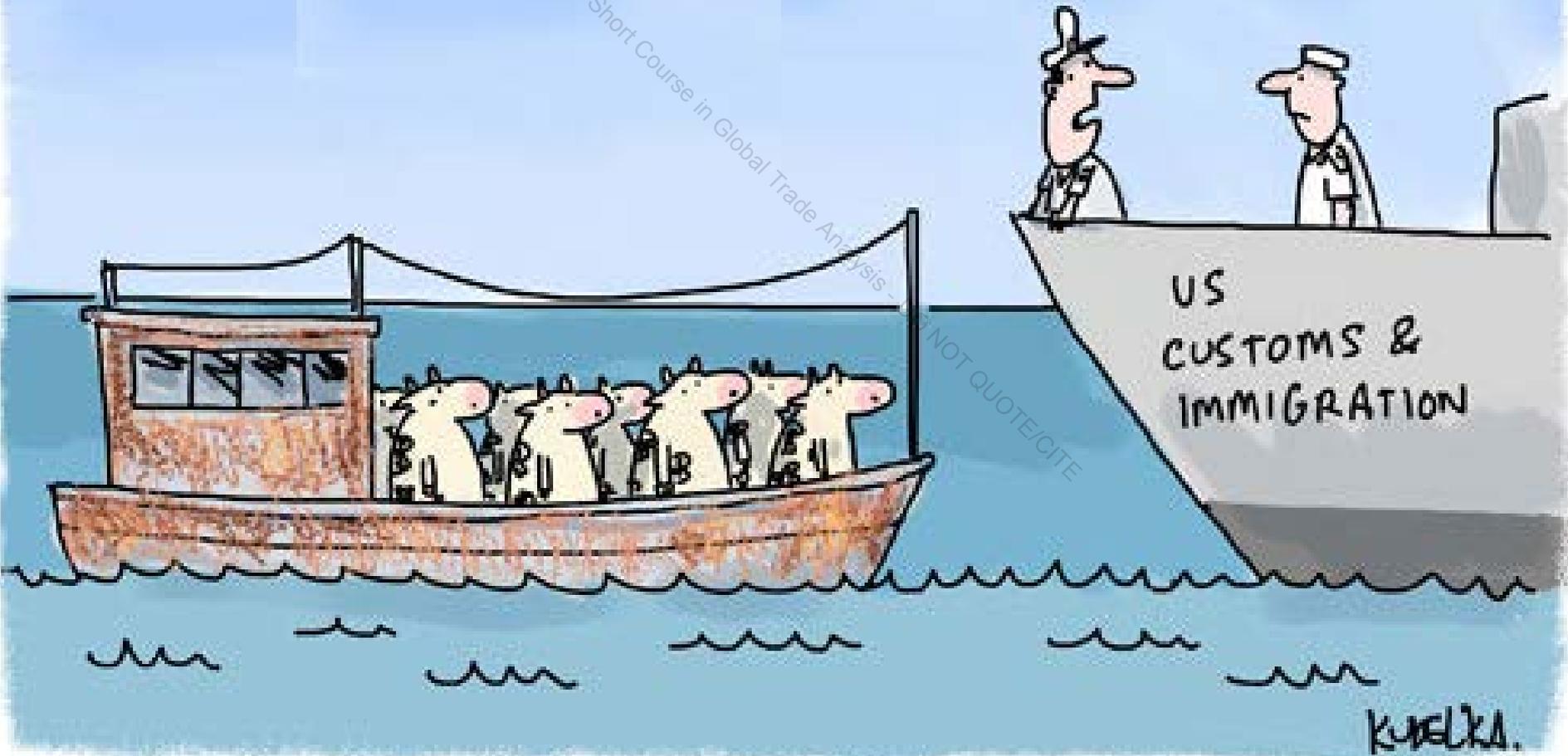
Now this is a story all about how

The livestock trade got turned upside down

And we'd like to take 8 minutes, just sit right there,

We'll tell you how we CGE modeled a big mad cow scare

- Assume an outbreak of mad cow disease in the EU
  - EU holds 50% of livestock market share
- USA places controls on global imports of livestock
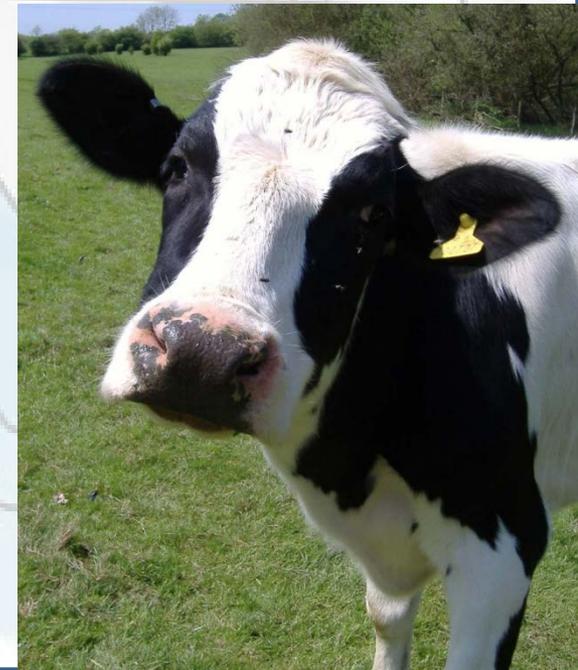
Determining AMS

- **Back Solve:**
  - Closure Change:
  - swap qxs("lvs", reg, "usa") = ams("lvs", reg, "usa");
  - Shock qxs("LVS", REG, "USA") = uniform -50;
- **Really Solve:**
  - Determine ams = -31.36
  - Shock ams("LVS",REG,"USA") = uniform -31.36;

ams[LVS**]	USA
CENTAM	-32.27
China	-32.12
Egypt	-32.13
EU	-32.13
India	-32.12
Japan	-32.08
LDC	-32.15
MERCOSUR	-32.16
MEXICO	-32.13
ROW	-32.26
USA	-31.36
XME	-32.11

Determining TMS

- **Back Solve:**
  - Closure Change:
  - swap qxs("LVS", REG, "USA") = tms("LVS", REG, "USA");
  - Shock qxs("LVS", REG, "USA") = uniform -50;

- **Really Solve:**
  - Determine tms = 28.78
  - Shock tms("LVS", REG, "USA") = uniform 28.78;

| tms[LVS**]	USA
CENTAM	28.78
China	28.52
Egypt	28.53
EU	28.52
India	28.51
Japan	28.46
LDC	28.56
MERCOSUR	28.58
MEXICO	28.56
ROW	28.74
USA	27.6
XME	28.5

Tariff Impacts to Imports

- 50% Reduction in LVS imports requires increase in domestic production

- Imports of Cereal and Processed Rice increase as demand for intermediate goods (LVS) increase and land is transitioned to LVS production

- USA exports all decrease
  - Most significant drop is in LVS sector
  - Large reductions in Cereal, Fibers, and Wheat
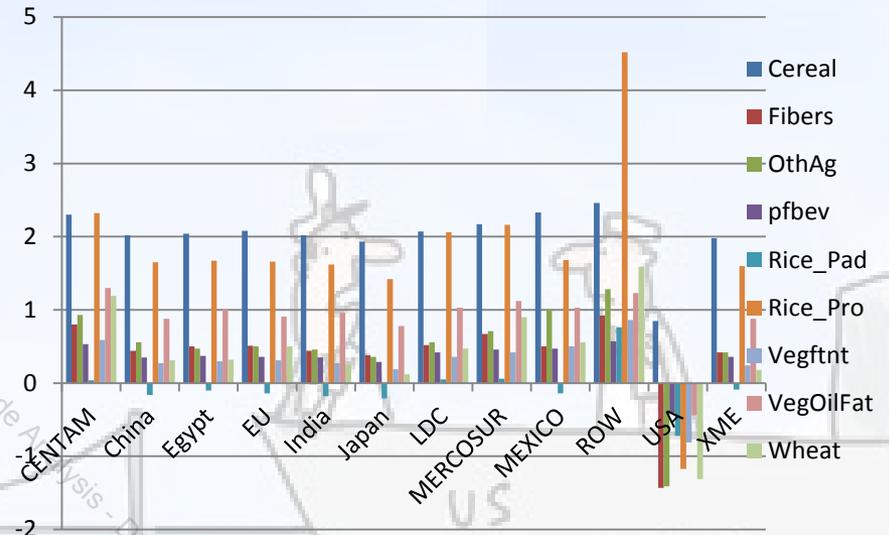
	CENTAM	China	Egypt	EU	India	Japan	LDC	MERCOSUR	MEXICO	ROW	USA	XME
Cereal	2.3	2.02	2.04	2.08	2.02	1.93	2.07	2.17	2.33	2.46	0.85	1.98
Rice_Pro	2.32	1.65	1.67	1.66	1.62	1.42	2.06	2.16	1.68	4.52	-1.17	1.6
LVS	-49.86	-50.51	-50.5	-50.51	-50.54	-50.67	-50.4	-50.36	-50.43	-49.95	-52.84	-50.57

Decomposition of Welfare Impacts

	Allocation Efficiency	Terms of Trade Effects	Total
1 CENTAM	-6	-27.3	-33.3
2 China	18.3	-52.7	-34.4
3 Egypt	0.3	-4.8	-4.6
4 EU	180.6	-195.1	-14.5
5 India	5.9	-6	-0.1
6 Japan	-22.1	-65.8	-87.9
7 LDC	0.7	-12.2	-11.6
8 MERCOSUR	-9.4	-64	-73.4
9 MEXICO	29.3	-105.8	-76.6
10 ROW	-22.2	-736.1	-758.3
11 USA	-1010.5	1285.9	275.4
12 XME	-3.9	-16.9	-20.8

Positive Net Welfare Effect

- Reduced allocation efficiency
  - Higher reliance on domestic production of LVS

- Increased terms of trade effects
  - Revenue generated by import tariff on LVS
  - Reduced exports by the USA
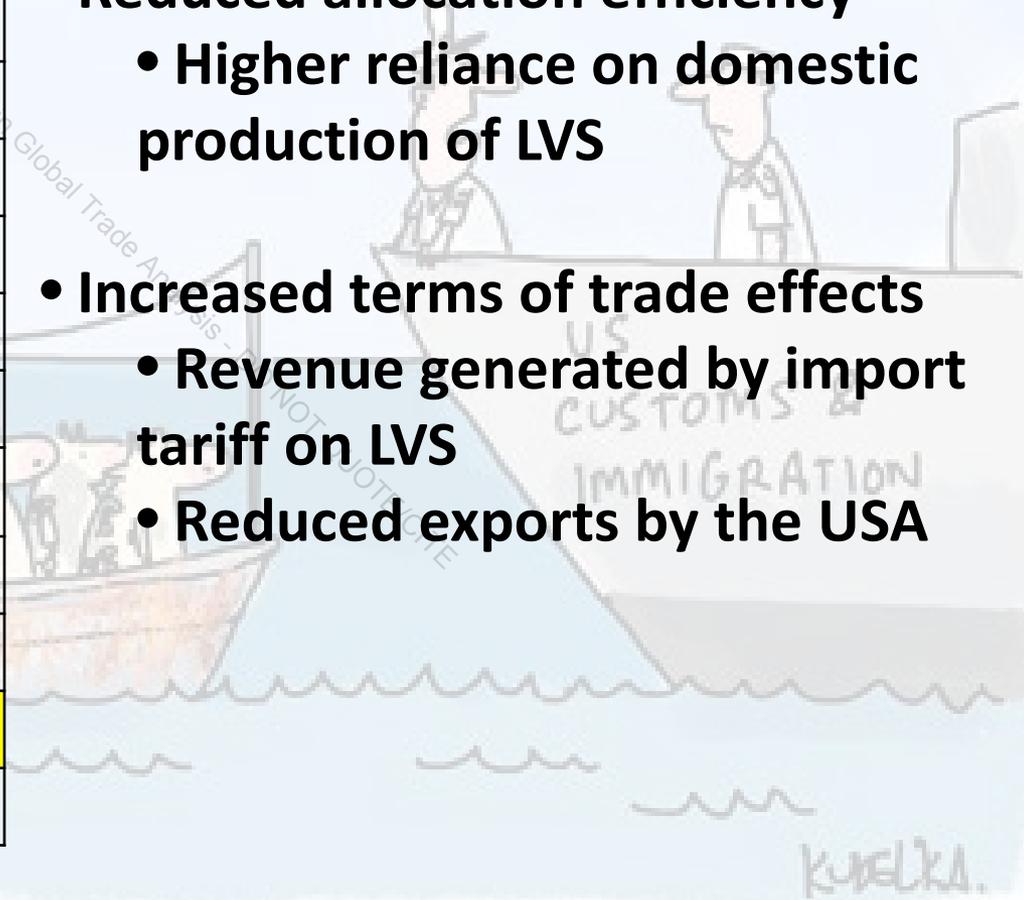
Impact on U.S. Market

Base U.S. Consumption of Livestock:
- 96% Domestically Produced + 4% Imported

Evaluate U.S. Production:
- Share Domestic: 95%; Share Exported: 5%

Impact on Output:
- Increases by 3.97% all due to expansion effect

Why:
- 3.97% = 4.21% (domestic demand) - 0.24% (exports)
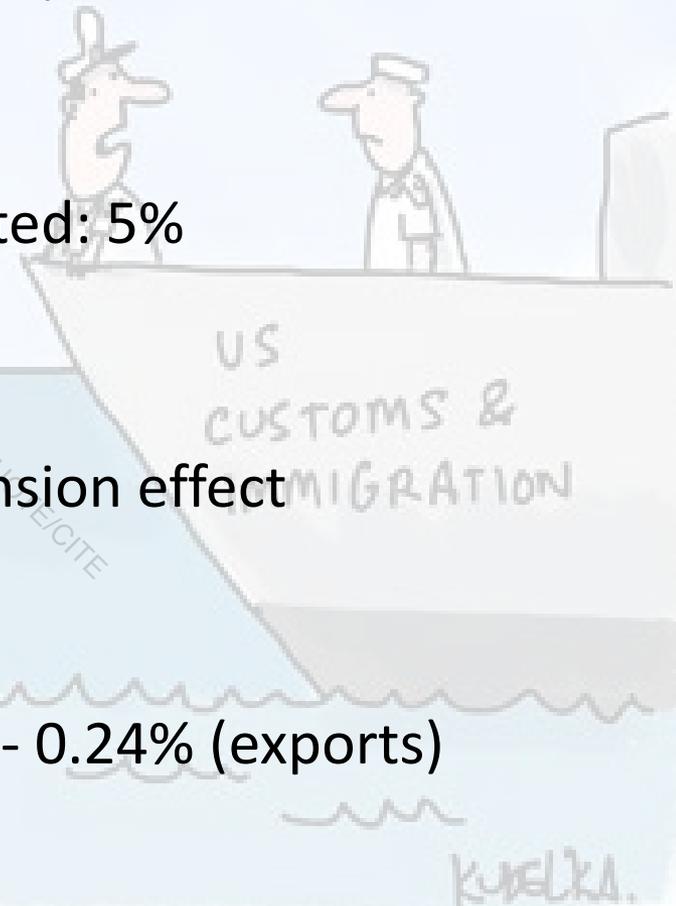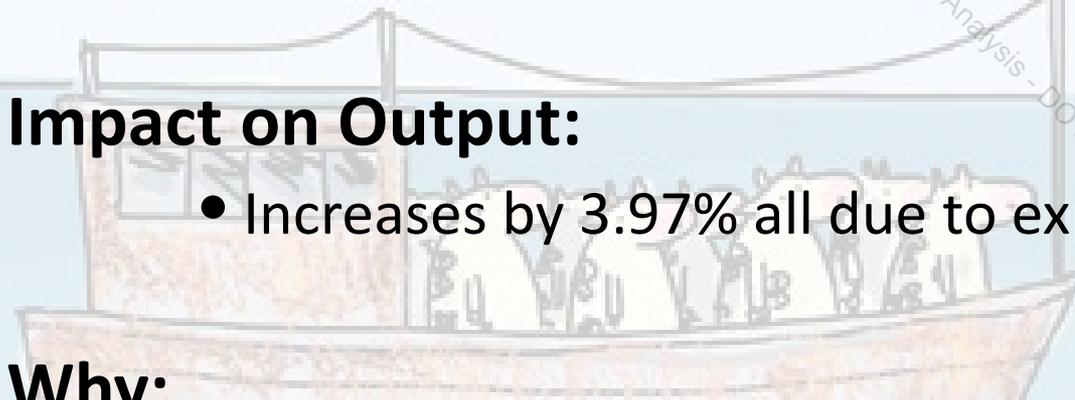
U.S. Output Effects
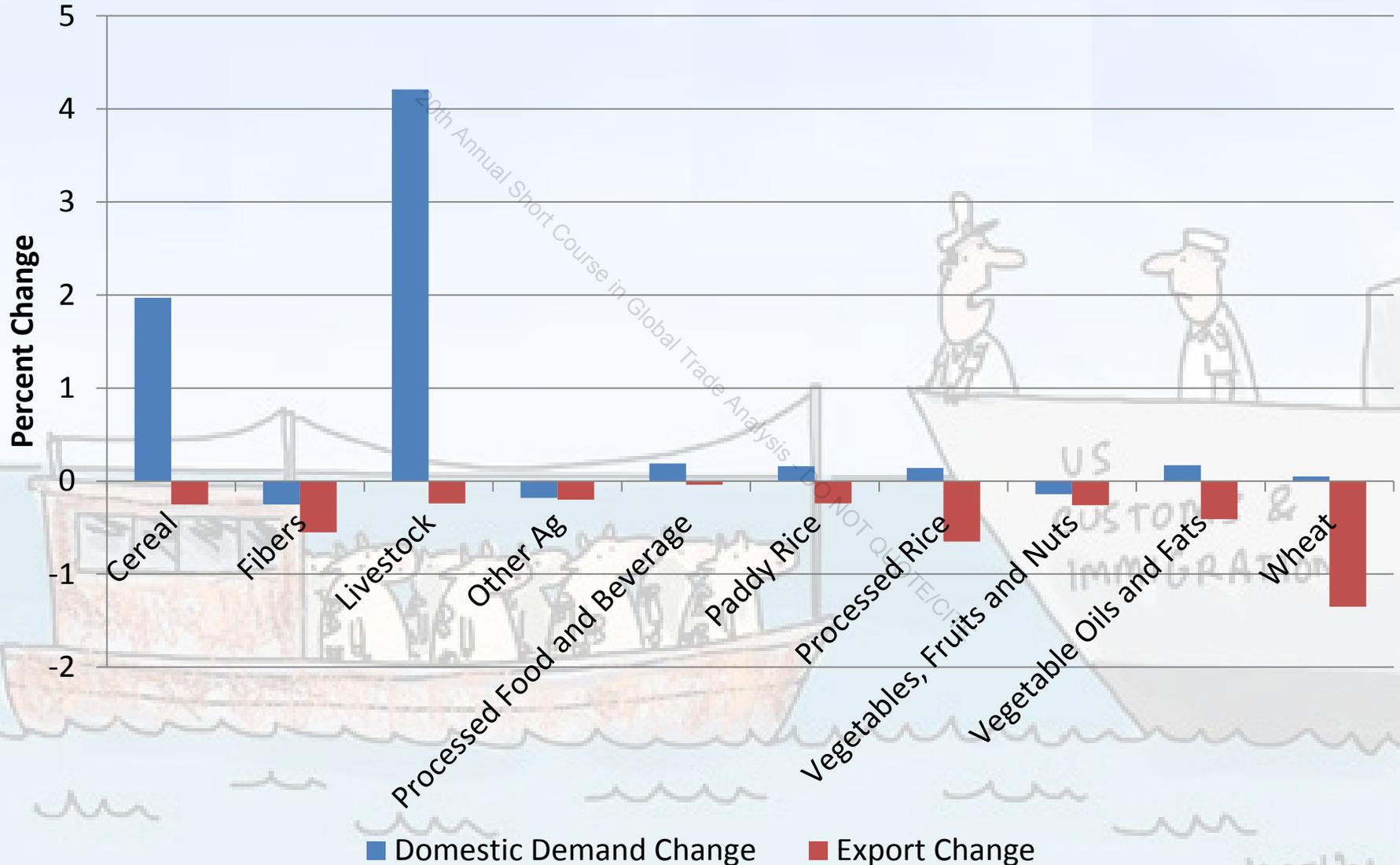
Tariff vs AMS Measure

	Change in Trade Balance		GDP		Welfare	
	AMS	**Tariff**	**AMS**	**Tariff**	**AMS**	**Tariff**
Central America	(70)	(73)	69,393	69,468	(33)	(33)
China	(138)	(155)	1,567,125	1,567,408	(40)	(34)
Egypt	(6)	(6)	81,488	81,520	(5)	(5)
EU	(799)	(858)	8,279,369	8,281,490	(31)	(15)
India	(10)	(11)	477,467	477,580	0	(0)
Japan	(9)	(14)	4,196,094	4,196,708	(119)	(88)
LDC	(40)	(42)	239,693	239,793	(9)	(12)
MERCOSUR	(185)	(195)	856,692	857,169	(65)	(73)
Mexico	(230)	(242)	616,125	616,439	(90)	(77)
ROW	(3,033)	(3,164)	4,231,452	4,234,555	(755)	(758)
USA	4,937	5,187	10,105,211	10,097,758	(2,396)	275
Rest of Middle East	(18)	(20)	528,452	528,566	(23)	(21)

Conclusion

	Allocation Efficiency	Technical	Terms of Trade	Total
US Welfare				
AMS	(487)	(3,188)	1,278	(2,396)
TMS	(1,011)	0	1,286	275