

# Doha Development Round:

## Impacts on Egypt from the GTAP CGE Model and Data Base

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## What did Peter do?



- Estimates the impact of Doha liberalization on Egypt trade and production
- GTAP model
  - with fixed trade balance (swapped with saving rate)
  - fixed unemployment for unskilled labor in Developing Economies (swap with real wage)
- CEPII Doha Database (Different scenarios)
  - S4 Agricultural cuts in accordance with Harbinson four tier formula
  - S9 Non-Agricultural
  - S5 with sensitive Agg.

# Group-1



Aim: To see the effect of base model assumptions on the results

- Armington Elasticity of Substitution
- Unemployment Closure
- Industry promotion

## Group-2



Aim: To see bilateral trade liberalization effect between Egypt and the EU

- Total Liberalization
- Excluding 2 Tariff Lines on Both Sides

## Group-3

Aim: To see trade liberalisation impact on factor endowment productivity?

- a unilateral removal of import levies
- productivity gains by 2%

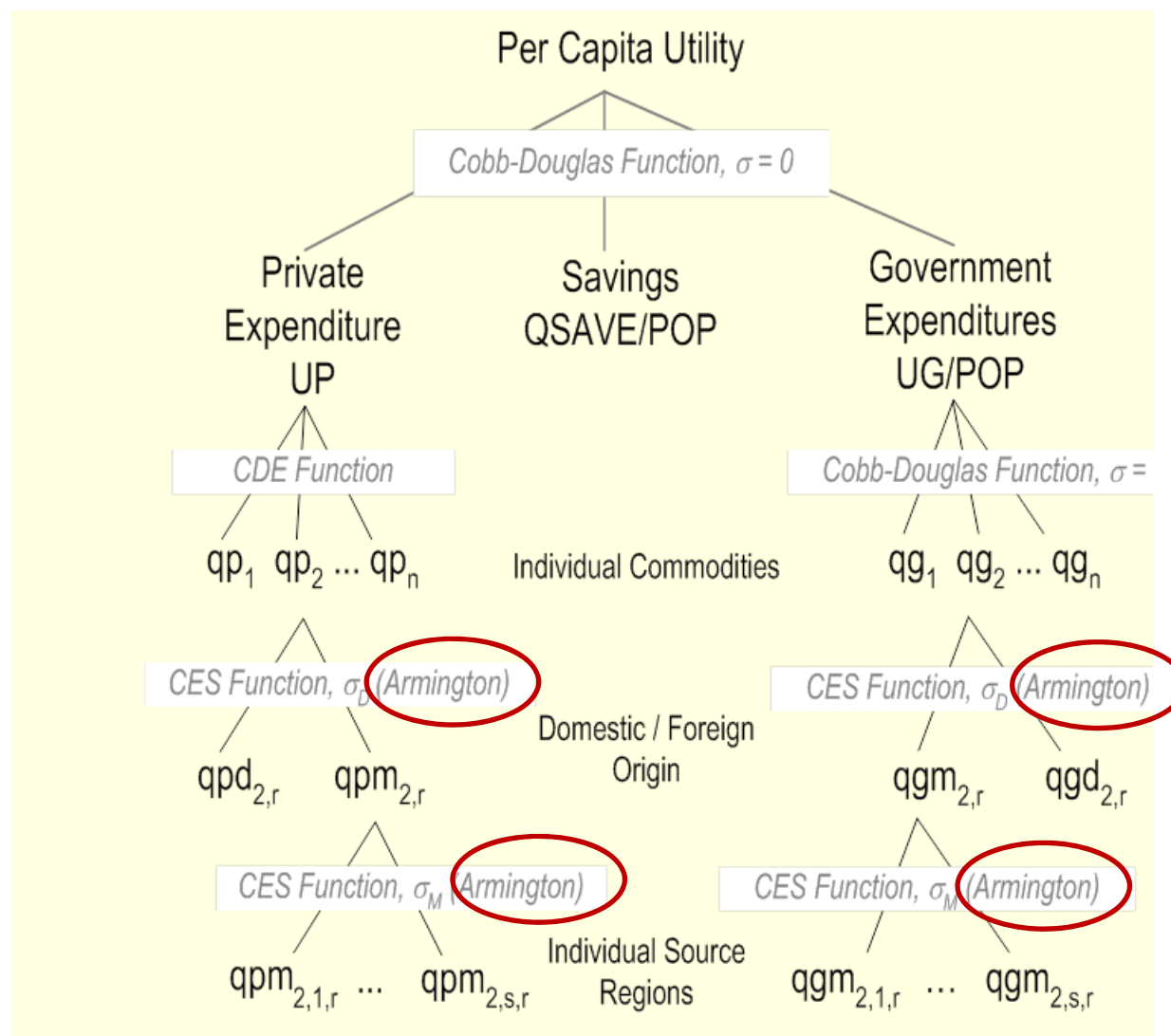
*Group-1*  
*Taking Doha Seriously-Egypt Case*

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# Armington Elasticity of Substitution

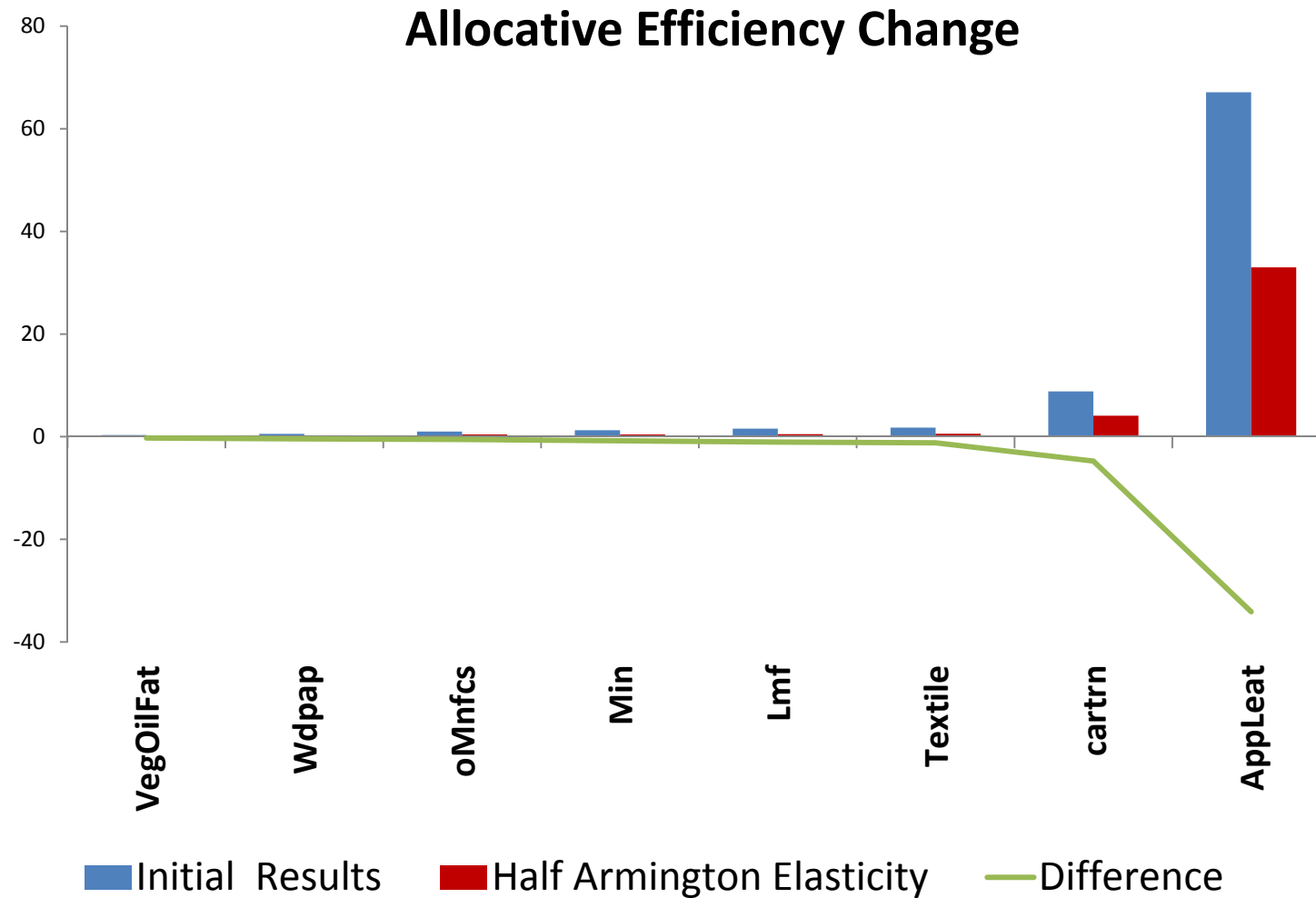


# Case 1: Half the Armington Elasticities for Each Sector

<b>Total Welfare (millions \$)</b>		
<b>EV</b>		
Initial Results	Half Armington Elasticity	Difference
11	-109	-120
<b>Allocative Efficiency</b>		
Initial Results	Half Armington Elasticity	Difference
70,3	30,8	-39,5
<b>Endowment Efficiency</b>		
Initial Results	Half Armington Elasticity	Difference
74,5	30,7	-43,8
<b>TOT Efficiency</b>		
Initial Results	Half Armington Elasticity	Difference
-101	-125	-24
<b>Saving Efficiency</b>		
Initial Results	Half Armington Elasticity	Difference
-32,7	-45,2	-12,5



# Allocative Efficiency



# Endowment Efficiency

<b>Unskilled Labor</b>			
<b>Initial Results</b>	<b>Pre Liberalization</b>	<b>Post Liberalization</b>	<b>Change in US \$ (millions)</b>
0,28	26890,98	26966,47	75,48
<b>Half Armington Elasticity</b>	<b>Pre Liberalization</b>	<b>Post Liberalization</b>	<b>Ch/%Ch</b>
0,12	26890,98	26922,13	31,15

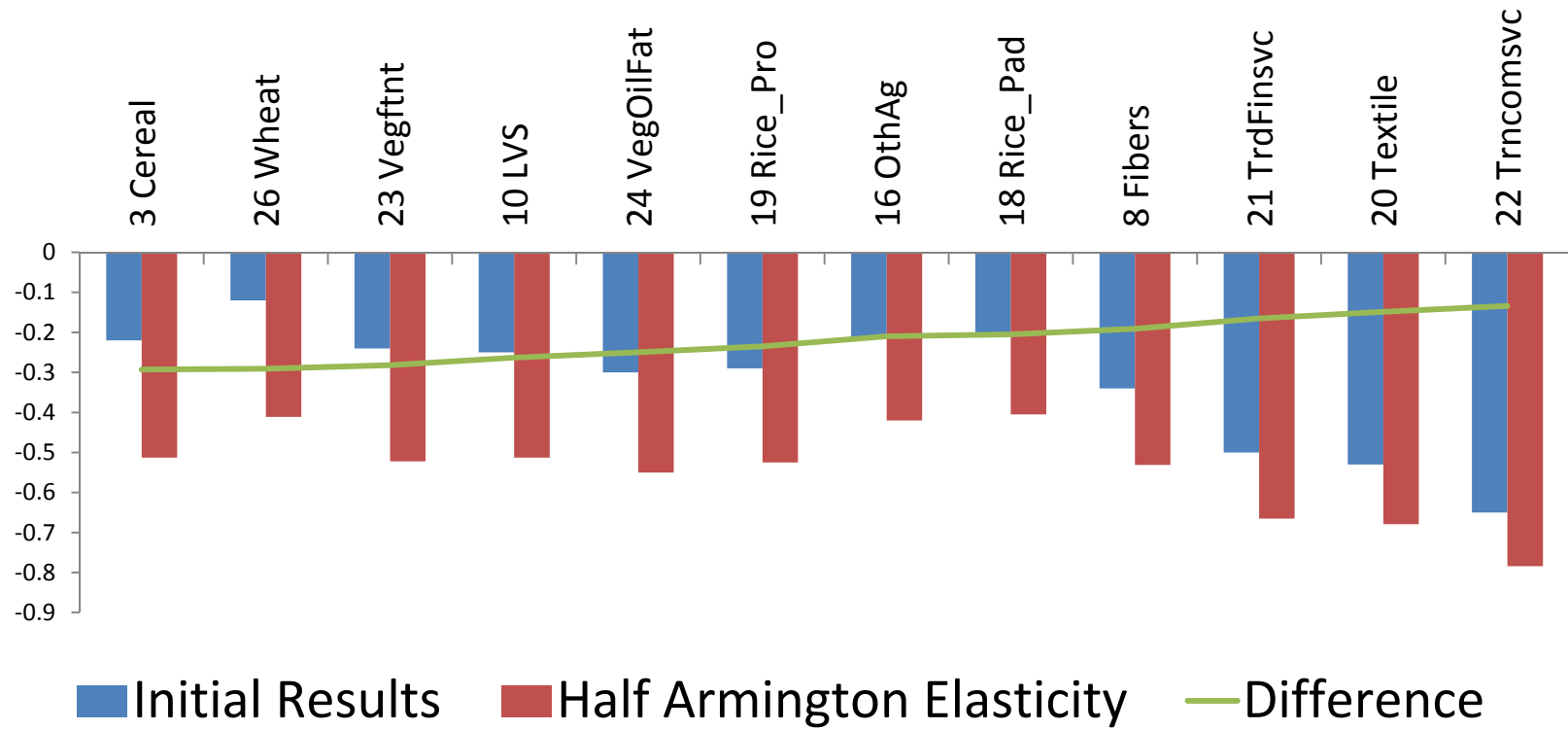
# TOT Efficiency

<b>Initial Results</b>			
TOT	Percent	Value	Total
<b>World Price</b>	-0,024	-3,87	-3,9
<b>Export Price</b>	-0,531	-87,4	-88
<b>Import Price</b>	-0,059	-9,67	-9,73
<b>Total</b>	-0,613	-101	-102
<b>Half Armington Elasticity</b>			
TOT	Percent	Value	Total
<b>World Price</b>	-0,012	-1,88	-1,89
<b>Export Price</b>	-0,711	-114	-115
<b>Import Price</b>	-0,059	-9,45	-9,51
<b>Total</b>	-0,781	-125	-126

# TOT Efficiency- Export Prices for Sectors



## Export Price



# Sensitivity Analysis



<b>Total Welfare (millions \$)</b>		
<b>EV</b>		
Initial Results	Mean	Std. Dev.
11.03	7.06	48.05
<b>Output</b>		
Initial Results	Mean	Std. Dev.
0.17	0.08	0.02

# Case2- Closure Change- Employment & Unemployment



	Allocative Efficiency	Endowment	Terms of Trade	Total
<b>Base Case</b>	70,3	74,5	-101	11
<b>Full Employment</b>	66,3	0	-105,7	-72,1
<b>Unemp. in all</b>	70,1	75,8	-102,9	9,6

Endow.	Base Case	Full Emp.	All Unemp.
<b>1 Land</b>	0	0	0
<b>2 UnSkLab</b>	74,5	0	75,8
<b>3 SkLab</b>	0	0	0
<b>4 Capital</b>	0	0	0
<b>5 NatRes</b>	0	0	0
<b>Total</b>	74,5	0	75,8

- Full employment case : lower welfare gains. Welfare gains from employment increases are missing.
- Endowment effects are zero in full employment case. No possibility of welfare increases due to endowment increases. They were already fully employed.
- Allocative efficiency effects are greatest in the base case and very close to unemployment in all countries case. In both cases, main source is increases in employment of unskilled labor.
- Losses from terms of trade is greatest in the full employment case.
- Terms of trade losses are greatest in 22-Transportation and communication and 10-Livestock sectors. In all three cases, with very small differences.

## Case 3-Industry Promotion

	WELFARE Effects
1 alloc_A1	-31,1
2 endw_B1	-277
3 tech_C1	0
4 pop_D1	0
5 tot_E1	43,8
6 IS_F1	39,7
7 pref_G1	0,2
Total	-224,4

- Looking at the picture from the viewpoint of protectionists. How much average tariff increase is necessary to increase output in machinery and electronics sector of Egypt?
- `Swap qo("MacElct", "Egypt") =tm("MacElct", "Egypt" );`
- To reach 10% increase in quantity produced in 11- Machinery and electronics sector, government would need to increase average import taxes, `tm`, by 13.5%.
- GDP declines by %0.38. Terms of trade improves by 0.3.
- Total welfare effect is negative.

# Case 3-Industry Promotion



Global Trade Analysis Project

qim	Change in Aggr. Imports %	qxw	Change in Aggr. Exports %	qim	Change in Aggr. Imports %	qxw	Change in Aggr. Exports %
1 AppLeat	15,48	1 AppLeat	-36,44	14 oMnfcs	0,88	14 oMnfcs	-2,76
2 cartrn	19,18	2 cartrn	-10,34	15 OSR	-0,36	15 OSR	-10,71
3 Cereal	-0,22	3 Cereal	-0,06	16 OthAg	-0,41	16 OthAg	-0,81
4 Chemical	26,31	4 Chemical	-69,43	17 pfbev	3,84	17 pfbev	-2,38
5 Con	-0,02	5 Con	-1,62	18 Rice_Pad	0,01	18 Rice_Pad	-0,51
6 Elec	0	6 Elec	0	19 Rice_Pro	0	19 Rice_Pro	-0,31
7 Energy	-8,64	7 Energy	26,45	20 Textile	-1,84	20 Textile	-3,06
8 Fibers	0,06	8 Fibers	-2,25	21 TrdFinsvc	5,09	21 TrdFinsvc	-23,98
9 Lmf	2,52	9 Lmf	-3,42	22 Trncomsvc	-0,69	22 Trncomsvc	-1,6
10 LVS	1,9	10 LVS	-1,07	23 Vegftnt	-0,14	23 Vegftnt	-0,73
11 MacElct	-285	11 MacElct	-55,35	24 VegOilFat	0,15	24 VegOilFat	-0,1
12 Min	2,92	12 Min	-9,71	25 Wdpap	12,51	25 Wdpap	-17,01
13 Mtl	1,91	13 Mtl	-18,65	26 Wheat	1,21	26 Wheat	-0,35



## Case 3-Industry Promotion

<b>DTBAL</b>	<b>Change in trade balance million \$</b>
1 CENTAM	-0,26
2 China	2,15
3 Egypt	-8,23
4 EU	3,94
5 India	-0,93
6 Japan	-0,63
7 LDC	-0,32
8 MERCOSUR	0,06
9 MEXICO	0,13
10 ROW	1,03
11 USA	-0,41
12 XME	3,46

# Conclusion:

- Low Armington Elasticity decreases welfare.
- The welfare results are sensitive to the level of elasticity while total output is not.
- In full employment case welfare gains are lower. Welfare gains from employment increases are missing.
- If you want to protect a sector by increasing average tariffs, GDP declines and total welfare effect is negative.

Thank you....