

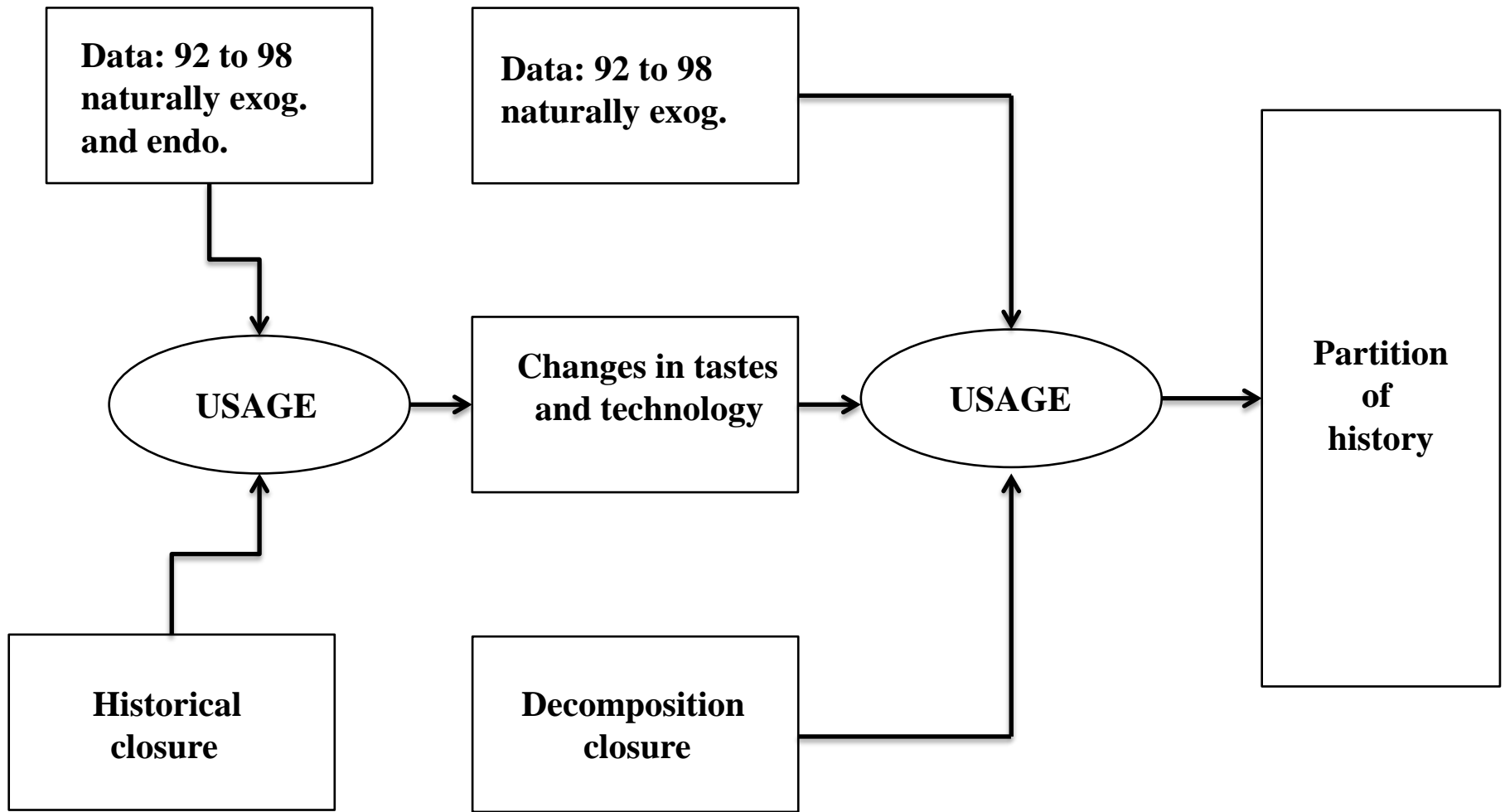
Identifying the effects of NAFTA on the U.S. economy between 1992 and 1998: a decomposition analysis

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By

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Historical and Decomposition simulations



Historical closure

	Selected naturally endogenous variables that are exogenized	Corresponding naturally exogenous variables that are endogenized
1	Real private consumption by commodity	Shifts in household preferences
2	Employment and capital inputs by industry	Primary-factor-saving technical change and capital/labour bias in technical change
3	Output by commodity	Commodity-using technical change
4	Export values by commodity and destination (Canada, Mexico, ROW)	Shifts in foreign demand curves
5	Imports values by commodity and source (Canada, Mexico, ROW)	Cif import prices by commodity and source (relative)
6	Cif import prices by commodity (not source)	Import domestic twist by commodity

Decomposition closure: exogenous variables

- (a) aggregate employment**
- (b) rates of return on capital in each industry**
- (c) technology**
- (d) household preferences**
- (e) tariff rates**
- (f) position of Canadian, Mexican & ROW demand curves for each U.S. product;**
- (g) foreign-currency cif prices of U.S. imports of each commodity from Canada, Mexico & ROW**
- (h) preferences for imported varieties versus domestic varieties**

Modifying standard USAGE: introducing multiple sources for imports & multiple destinations for exports

Canada, Mexico, ROW

Imports: two-level Armington

- upper level substitution between domestic & composite import
- lower level substitution between different sources of imports

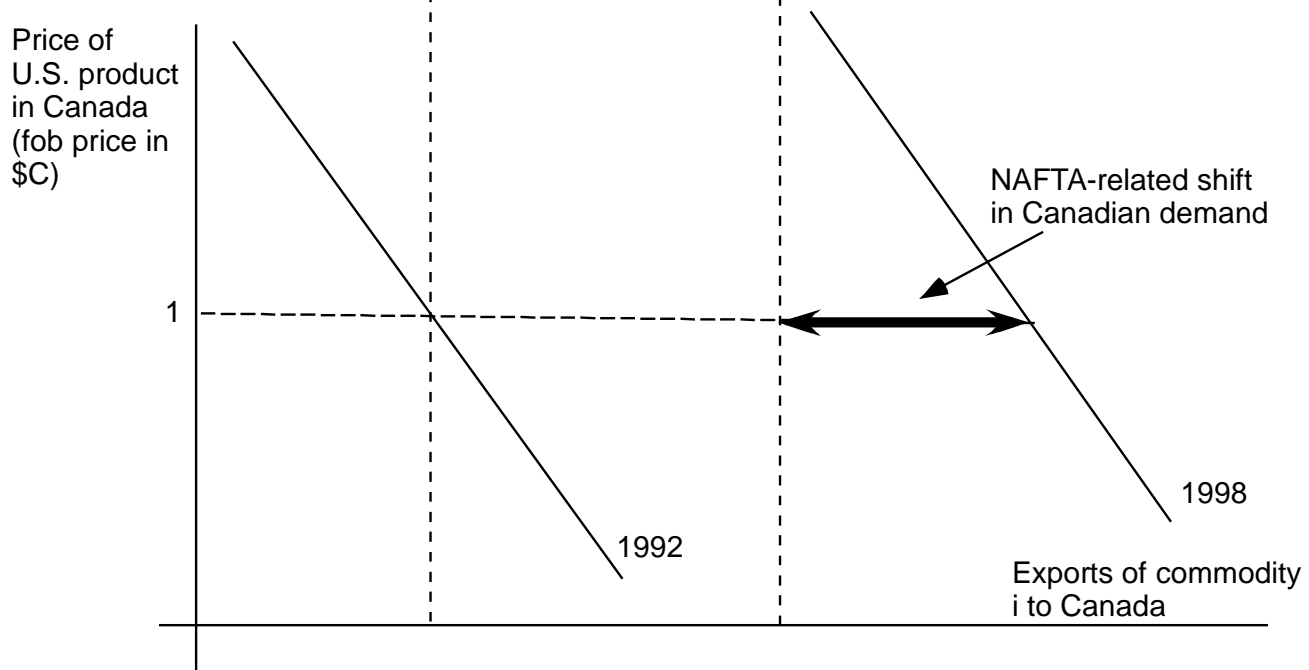
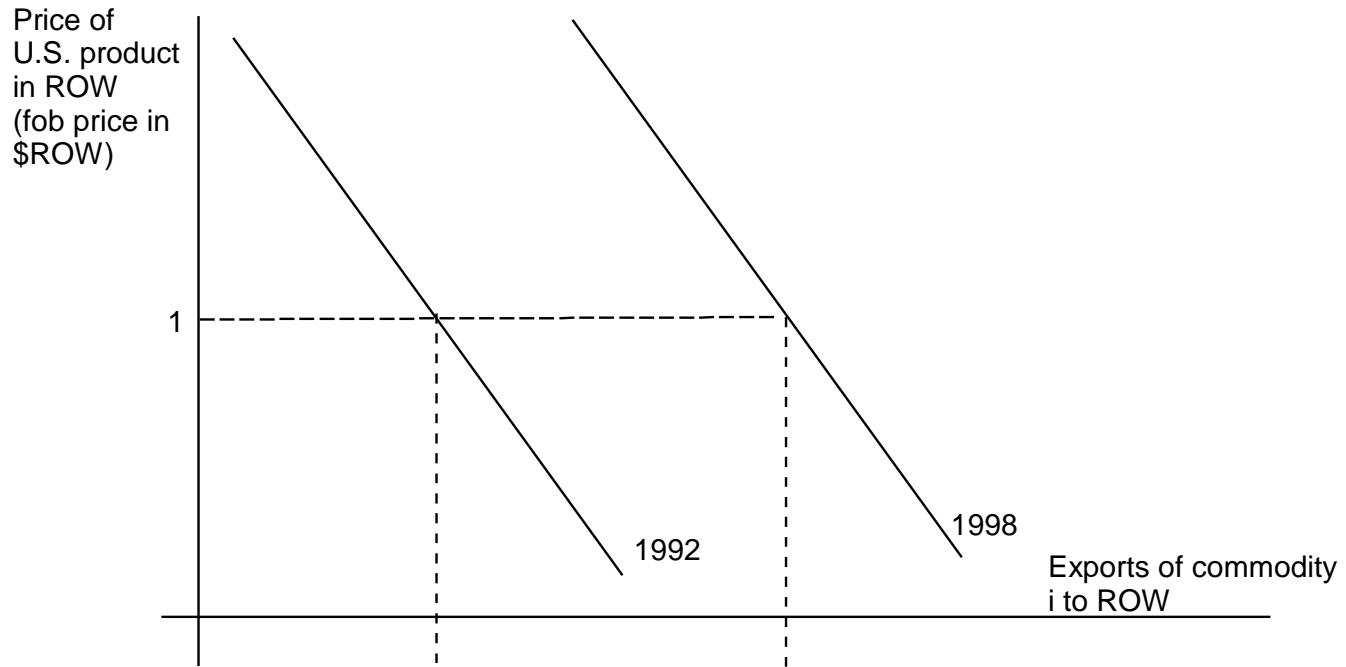
Exports: Downward sloping demand curves for U.S. products in each destination

- Imperfect transformation between export destinations

Defining NAFTA factors

These factors have three components:

- a) movements in U.S. tariffs on imports from Canada and Mexico beyond those applying to imports from ROW**
- b) changes in cif prices of U.S. imports from Mexico and Canada beyond those applying to ROW**
- c) shifts in the positions of Canadian and Mexican demand curves for U.S. products beyond those for ROW**



Decomposition of movements in macro variables: 1992-1998

	(1)	(2)	(7)
	Total observed movement	Total effects of NAFTA factors	Total other effects
<i>Percentage changes</i>			
Real GDP (Y)	24.40	0.19	24.20
Real private consumption (C)	24.23	0.42	23.81
Real investment (I)	60.93	0.76	60.16
Real public consumption (G)	4.07	0.38	3.69
Real exports (X)	48.32	3.25	45.06
<i>to Canada</i>	63.39	16.86	46.53
<i>to Mexico</i>	77.64	27.88	49.76
<i>to ROW</i>	39.67	-4.30	43.97
Real imports (M)	73.59	5.77	67.83
<i>from Canada</i>	67.81	4.77	63.04
<i>from Mexico</i>	240.90	143.91	97.00
<i>from ROW</i>	61.68	-4.86	66.54
Aggregate employment (L)	11.92	0.00	11.92
Aggregate capital (K)	17.47	0.56	16.91
Real wage (W/P _c)	10.43	0.77	9.66
Terms of trade	6.49	2.75	3.75

Decomposition of effects of NAFTA factors: 1992-1998

	(2)	(3)	(4)	(5)	(6)
	Total effects of NAFTA factors	Decomposition of NAFTA factors			
		Tariff on imports from Canada	Tariff on imports from Mexico	Other Canada trade effects	Other Mexico trade effects
<i>Percentage changes</i>					
Real GDP (Y)	0.19	-0.01	0.00	0.07	0.13
Real private consumption (C)	0.42	-0.01	-0.01	0.19	0.24
Real investment (I)	0.76	-0.02	0.00	0.26	0.52
Real public consumption (G)	0.38	-0.01	-0.01	0.18	0.21
Real exports (X)	3.25	0.14	0.11	1.49	1.51
<i>to Canada</i>	16.86	<i>0.14</i>	<i>0.12</i>	<i>18.63</i>	<i>-2.03</i>
<i>to Mexico</i>	27.88	<i>0.17</i>	<i>0.13</i>	<i>-3.39</i>	<i>30.97</i>
<i>to ROW</i>	-4.30	<i>0.13</i>	<i>0.10</i>	<i>-2.83</i>	<i>-1.70</i>
Real imports (M)	5.77	0.10	0.08	2.69	2.90
<i>from Canada</i>	4.77	<i>2.74</i>	<i>-0.94</i>	<i>10.01</i>	<i>-7.03</i>
<i>from Mexico</i>	143.91	<i>-1.10</i>	<i>11.81</i>	<i>-0.84</i>	<i>134.04</i>
<i>from ROW</i>	-4.86	<i>-0.37</i>	<i>-0.63</i>	<i>1.39</i>	<i>-5.25</i>
Aggregate employment (L)	0.00	0.00	0.00	0.00	0.00
Aggregate capital (K)	0.56	-0.01	0.00	0.19	0.39
Real wage (W/P _c)	0.77	0.00	0.01	0.32	0.44
Terms of trade	2.75	-0.04	-0.03	1.25	1.57

Decomposition of effects of non-NAFTA factors: 1992-1998

	(7)	(8)	(9)	(10)
	Total other effects (excludes NAFTA factors)	Decomposition of other effects		
		Technology and tastes	Aggregate employment & other macro factors	Trade effects (excludes NAFTA factors)
<i>Percentage changes</i>				
1 Real GDP (Y)	24.20	14.69	8.90	0.61
2 Real private consumption (C)	23.81	11.17	11.13	1.51
3 Real investment (I)	60.16	20.50	38.01	1.65
4 Real public consumption (G)	3.69	10.02	-7.70	1.38
5 Real exports (X)	45.06	36.68	-11.61	19.99
6 <i>to Canada</i>	46.53	<i>34.87</i>	<i>-13.96</i>	<i>25.62</i>
7 <i>to Mexico</i>	49.76	<i>39.61</i>	<i>-13.34</i>	<i>23.49</i>
8 <i>to ROW</i>	43.97	<i>36.80</i>	<i>-10.67</i>	<i>17.84</i>
9 Real imports (M)	67.83	12.88	26.75	28.20
10 <i>from Canada</i>	63.04	<i>5.15</i>	<i>29.64</i>	<i>28.25</i>
11 <i>from Mexico</i>	97.00	<i>19.03</i>	<i>36.59</i>	<i>41.37</i>
12 <i>from ROW</i>	66.54	<i>14.05</i>	<i>25.36</i>	<i>27.13</i>
13 Aggregate employment (L)	11.92	0.00	11.92	0.00
14 Aggregate capital (K)	16.91	14.44	1.35	1.12
15 Real wage (W/P _c)	9.66	14.89	-8.23	2.99
16 Real exchange rate	12.57	-6.52	6.25	12.84
17 Price deflator for C (P _c)	11.83	0.00	11.83	0.00
18 Price deflator for I (P _I)	3.35	-4.23	8.87	-1.28
19 Price deflator for G (P _G)	14.80	8.27	5.15	1.39
20 Terms of trade	3.75	-10.09	4.26	9.58

Decomposition of outputs: 1992-1998 (industries worst affected by NAFTA factors)

CoPS

	(1)	(2)	(7)
	Total observed movement	Total effects of NAFTA factors	Total other effects (excludes NAFTA factors)
<i>Percentage changes</i>			
277 Steel springs	34.39	-52.66	87.05
255 Metal barrels	11.59	-15.34	26.93
23 Nonferrous ores	-2.94	-15.07	12.13
350 Elect equip for internal combustion engines	25.34	-13.88	39.22
206 Boot cut stock	8.34	-10.31	17.34
223 Earthenware	-10.42	-9.22	-1.19
124 Fabric textile prods	21.75	-9.19	30.94
304 Print machinery	49.25	-9.07	58.32
356 Motor vehicle parts	39.54	-9.05	48.59
329 Relays & industrial controls	39.19	-8.82	48.01
374 Watches	80.35	-8.48	88.83

Decomposition of outputs: 1992-1998

(declining industries where NAFTA factors made a significant negative contribution)

	(1)	(2)	(7)
	Total observed movement	Total effects of NAFTA factors	Total other effects (excludes NAFTA factors)
<i>Percentage changes</i>			
23 Nonferrous ores	-2.94	-15.07	12.13
223 Earthenware	-10.42	-9.22	-1.19
52 Ordnance	-3.39	-3.12	-0.27
51 Small arms ammunition	-2.90	-2.45	-0.45
245 Primary smelting	-2.25	-2.06	-0.19
210 Luggage	-1.73	-2.03	0.30
88 Flavor syrups	-2.58	-2.02	-0.56

Decomposition of outputs: 1992-1998

(industries where NAFTA factors made the largest positive contributions)

CoPS

	(1)	(2)	(7)
	Total observed movement	Total effects of NAFTA factors	Total other effects (excludes NAFTA factors)
<i>Percentage changes</i>			
355 Motor vehicles	38.93	6.99	31.94
354 Truck trailer	64.37	7.51	56.86
362 Railroad equipment	72.91	7.66	65.25
106 Thread mills	28.63	7.68	20.95
56 Butter	-0.25	7.91	-8.16
293 Machinery tools, metal forming	27.80	8.47	19.33
5 Cotton	23.78	8.49	15.29
196 Petroleum & coal products	11.28	8.75	2.53
298 Industrial patterns	34.96	9.75	25.22
353 Truck & bus body	60.46	11.25	49.21
22 Copper ores	-9.27	12.06	-21.33
246 Primary aluminum	-2.88	13.71	-16.60
318 Computers	344.86	15.35	329.50
108 Coated fabric	32.12	16.64	15.49
345 Electronic tubes	159.44	27.52	131.92
148 Public building furniture	45.12	38.45	6.66

Concluding remarks

Trade policies often get a bad rap

CGE models sometimes get a bad rap

- **Decomposition analysis is a defence**

What did we find out about NAFTA factors from 1992 to 1998?

- (a) They boosted U.S. consumption by 0.4 per cent, \$50 billion a year in today's terms.**
- (b) They should not be held responsible for structural adjustment problems**
- (c) They strongly stimulated trade with Mexico, not Canada**