Viner Model
[Standard Trade Model for t (B) = 0]

Operating Mode

Scenario: *Viner Model*

Unilateral tariff policy (case #4)

Δ Welfare

Gross:
CS: +
PS: −
Tariff: −

Net:
TC, ps.: +
TC, cs.: +
TD: −
Net:
>=< 0
possible!

FTA: A and B (case #6)

Scenario: *Import tariff*

Free trade (case #2)

Δ Welfare

Gross:
CS: −
PS: +
Tariff: +

Net:
TC, ps.: −
TC, cs.: −
Net < 0

Unilateral tariff policy (case #4)

Scenario: *Export tariff*

Free trade (case #3)

Δ Welfare

Gross:
CS: +
PS: −
Tariff: +

Net:
TC, ps.: −
TC, cs.: −
Net < 0

Unilateral tariff policy (case #5)

N. B.: When the arrow direction (sequence) is reversed, all signs turn around.

Core Functions

Demand function (D):	$p = -nx + c$
Supply function (S):	$p = mx + b$
World price	$p\,(W) = const.$
Price in B	$p\,(B) = p\,(W) + t\,(B)$
Price in A	$p\,(A) = s.\ Table$

Case	#	A faces	Set Inputs to...			Result: p (A) =
			p (W)	t (A)	t (B)	
Autarky	1a	Autarky	p (W) = p*	0	0	p*
	1b		p (W) ≠ p*	t (A) = p* - p (W)	0	
Free trade	2	Imports from W	p (W) < p*	0	0	p (W)
	3	Exports to W	p (W) > p*	0	0	p (W)
Unilateral tariff policy	4	Imports from W	p (W) < p*	t (A) > 0 p (W) + t (A) < p*	0	p (W) + t (A)
	5	Exports to W	p (W) > p*	t (A) < 0 p (W) + t (A) > p*	0	p (W) + t (A)
Viner Model: Free trade area (FTA) of A and B	6	Imports from B	p (W) < p*	t (A) > 0 p (W) + t (A) < p*	t (B) > 0 t (B) < t (A)	p (W) + t (B)

Variables and Symbols

A / p (A)	Country A / Price in A	CS	Consumer surplus
B / p (B)	Country B / Price in B	PS	Producer surplus
W / p (W)	Welt market / Price in W	TC	Trade creation
t (A)	Tariff in A	TD	Trade diversion
t (B)	Tariff in B	ps.	Production sided
p*	Autarky price	cs.	Consumption sided
x*	Autarky quantity	S	Supply
FTA	Free trade area	D	Demand

Relevance

With this extended microeconomic foreign trade model, it can be quickly shown why trade policy is potentially conflict-laden: Every change generates winners and losers, so that distributional conflicts always arise in a society. The hypothetical possibility of compensating the losers by means of a net welfare gain is of negligible relevance to reality.

In the case of the Viner model, it can be shown that the creation of a FTA can be detrimental to a country even in a net perspective (if trade diversion > trade creation). This is one reason why many FTA in the world are not fully lived at their respective borders.

The FTA analysis is significant because there are hundreds of them and they are an important part of the debate on whether regional integration agreements are "building blocks or stumbling blocks" for multilateral trade agreements (GATT).

Limitations

The model is comparative-static, there are with respect to free trade, tariffs and free trade areas also dynamic trade effects to consider.

Country A under consideration is a "small country", i.e. it cannot influence the world price (i.e. p (W) = const.), what "large countries" could do, e.g. by imposing tariffs.

A tariff reduction to zero (for all industries) is welfare-attractive in the model, but in reality this may lead to balance of payments problems (due to a strongly negative trade balance) and budget deficits (due to lost tariff revenues) in some countries.

Finally, in the context of an infant-industry tariff protection, short-term welfare losses due to tariff collection may be worthwhile if it leads to long-term efficiency / productivity improvements that flatten the supply curve (see Tip 5 below).

Application Tips

Analyze the situation in country A as you change p (W), t (A), and t (B).

Tips:

1) Vary tariff B: t (B) using the arrow keys on your computer: When is the FTA advantageous to A?
2) Set t (B) = 0 and vary t (A) with the arrow keys: e.g. how does customs revenue change?
3) Set p (W) = 8 and t (A) = -2 . Now you have an export tariff. Change t (A).
4) Set t (B) = 0 and t (A) = 0. Vary only p (W) with the arrow keys. What do you observe?
5) Suppose you introduce an infant-industry tariff protection, accept welfare losses in the short run but succeed in the long run: what happens graphically? You become more efficient, the supply curve flattens. Set the S-slope to 0.025. What happens? Assuming you become even more efficient, S-slope = 0.02. Describe what you observe.

Calculation Paths of the Model

Viner Model [FTA with country B, 0 < t (B) < t (A)]
or
Standard Trade Model [for t (B) = 0]

Viner Model [FTA with country B, 0 < t (B) < t (A)]

m   b   p (W)   t (A)   n   c   m   b   p (W)   t (B)   n   c

Supply   p (A)   Demand   Supply   p (B)   Demand

S-quantity   D-quantity   S-quantity   D-quantity

Import quantity from W: $x_D > x_S$
Export quantity to W: $x_D < x_S$

Import quantity from B: $x_D > x_S$

If FTA:
Trade creation = additional quantity traded
Trade diversion = previous import quantity from W