

Model: WDST Equation terms, first equation matrix row, and sample equation for the banked equation group - FTAEvar

FTA_{tx} TFA base export weighted average export tax

export tax	FTA avg. tx
tx	:(ROW _{bx})
FOODA	-

constant +SUMPRODUCT(USA_{ftm}:ROW_{ftm},USA_{bx}:ROW_{bx})/0.000001+SUMPRODUCT(USA_{ftm}:ROW_{ftm},USA_{bx}:ROW_{bx})

FTA_{tm} FTA base import weighted average import tax

import tax	FTA avg. tm
tm	ROW _{bm})
FOODA	-

constant +SUMPRODUCT(USA_{ftm}:ROW_{ftm},USA_{bm}:ROW_{bm})/0.000001+SUMPRODUCT(USA_{ftm}:ROW_{ftm},USA_{bm}:ROW_{bm})

FTA_{xs} FTA exports

export supply	FTA supply
xs	s):ROW _{xs})
FOODA	-

constant +SUMPRODUCT(USA_{ftm}:ROW_{ftm},USA_{xs}:ROW_{xs})

Again, most of these variables are free trade agreement (FTA) indicators.

FTA_{md} FTA imports

import demand	FTA demand
md	:ROW _{md})
FOODA	-

constant +SUMPRODUCT(USA_{ftm}:ROW_{ftm},USA_{md}:ROW_{md})

FTA_{nt} FTA net trade

FTA net trade	+ exports	-imports
nt	+!xs	-!md
FOODA	-	-

constant +!xs| -!md|

FTA_{cp} FTA base import weighted competitiveness index

FTA compet.	im. wtd. cp
cp	0001+!bm))
FOODA	-

constant +SUMPRODUCT(USAftm:ROWftm,USAbm|:ROWbm|,USAcpl:ROWcp|)/(0.000001+!bm|)

FTAft estimate/set FTA tariff

	low FTA	or set FTA
FTA tariff	premium	tariff
tf	+!tl	+#
FOODA	-	

constant +!tl| +#

Here the FTA tariff is either the default (tl) or a tariff you set.

In a free trade area, countries will export (or divert exports from the world market) to other members. Total member supply and demand will determine the price. If the FTA is self sufficient, that price could be above the world price and the difference between this price and the world price represents a premium for exporters to other FTA members and an FTA tariff to importers from other FTA members. In such circumstances FTA imports would buy only from other FTA members unless their regular tariff was less than the FTA premium (this is reflected in import equations). If the FTA is a net exporter, then the premium is zero. Following this reasoning, the FTA premium is expected to be between the lowest member tariff and zero; the tl calculations reflects this.

FTAth FTA simple average tariff

FTA high tariff	simple avg. tar.
th	0001+!ftm)
FOODA	-

constant +SUMPRODUCT(USAftm:ROWftm,USAtm|:ROWtm|)/(0.000001+!ftm)

FTAta FTA import weighted average tariff

FTA avg. tariff	imp. wt. average
ta	0001+!bm)
FOODA	-

constant +SUMPRODUCT(USAftm:ROWftm,USAbm|:ROWbm|,USAtm|:ROWtm|)/(0.000001+!bm|)

FTAtl FTA (import + export) weighted import tariff

FTA low tariff	exp.+imp. wt. avg.
tl	+!bx +!bm)
FOODA	-

constant +SUMPRODUCT(USAftm:ROWftm,USAbm|:ROWbm|,USAtm|:ROWtm|)/(0.000001+!bx|+!bm|)

The default tariff is the weighted average of minimum FTA member import tariff and an assumed export tariff of zero. The result will be a very low tariff or export premium.

FTAbx FTA base exports

FTA base ex.	sum base exports
bx	! :ROWbx)
FOODA	-

constant +SUMPRODUCT(USAftm:ROWftm,USAbx|:ROWbx|)

FTAbm FTA base imports

FTA base im.	sum base imports
bm	:ROWbm)
FOODA	-

constant +SUMPRODUCT(USAftm:ROWftm,USAbm|:ROWbm|)

FTAbi FTA base import weighted average import price

FTA im. price	FTA avg. bi
bi	0001+!bm)
FOODA	-

constant +SUMPRODUCT(USAftm:ROWftm,USAbm|:ROWbm|,USAbi|:ROWbi|)/(0.000001+!bm|)

FTAbt FTA base import weighted tariff

FTA base tariff	sum imp. wt. tar.
bt	ROWbm))
FOODA	-

constant +SUMPRODUCT(USAftm:ROWftm,USAbm|:ROWbm|,USAbt|:ROWbt|)/(0.000001+SUMPRODUCT(USAftm:ROWftm,USAbm|:ROWbm|))

FTAftm count FTA members

FTA count	sum ftm
ftm	n:ROWftm)
ftm	-

constant +SUM(USAftm:ROWftm)

FTAxrt FTA average exchange rate

av. exch. rate	average xrt
xrt	0001+!ftm)
xrt	-

constant +SUMPRODUCT(USAftm:ROWftm,USAxrt:ROWxrt)/(0.000001+!ftm)

FTAcfl FTA capital flow

FTA capital fl.	sum cap. Flow
cfl	cfl:ROWcfl)
cfl	-

constant +SUMPRODUCT(USAftm:ROWftm,USAcfl:ROWcfl)

FTAbop FTA balance of payments

FTA bal. of pay.	sum bop
bop	:ROWbop)
bop	-

constant +SUMPRODUCT(USAftm:ROWftm,USAbop:ROWbop)

FTAzz calculation of minimum FTA tariff

min. FTA tariff	min. tariff
zz	z]:ROWzz))
FOODA	-

constant +MIN(USAzz]:ROWzz))

FTAYy FTA total trade (exports + imports)

total base trade	sum yy in FTA
yy	y]:ROWyy))
FOODA	-

constant +SUMPRODUCT(USAftm:ROWftm,USAYy]:ROWyy))