The accession of China to WTO : The Consequences for the Regional Gap

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Outline of the presentation

- The model
  - The behavioral equations
  - The trade flows and regional issues
- The problem : WTO accession
  - Present issues : the agreement decisions
  - Future issues : the economic framework
- The results (decisions)

The model : summary

- Two regions : the coast and the interior.
- Three products : primary, secondary and tertiary.
- Identified internal and external trade flows.
- A decomposition of trade according to competitiveness elements.
- Calibrated behavioural equations, using an error correction framework


RUSSIE
RUSSIE
KAZAKHSTAN
KIRGHIZIE
TADJ.
AFGH.
PAKISTAN
MONGOLIE
XINJIANG
HEILONGJIANG
JILIN
LIAONING
CORÉE DU NORD
MONGOLIE INTÉRIEURE
PÉKIN
TIANJIN
HEBEI
Mer Jaune
GANSU
NINGXIA
SHANXI
SHANDONG
QINGHAI
SHAANXI
HENAN
TIBET
JANGSU
SHANGAI
ANHUI
HUBEI
SICHUAN
ZHEJIANG
Mer de Chine Orientale
NEPAL
BHOUTAN
INDE
HUNAN
JIANGXI
GUIZHOU
FUJIAN
TAÏWAN
BIRMANIE
YUNNAN
GUANGXI
GUANGDONG
LAOS
VIETNAM
Mer de Chine Méridionale
HAINAN
0
800 km

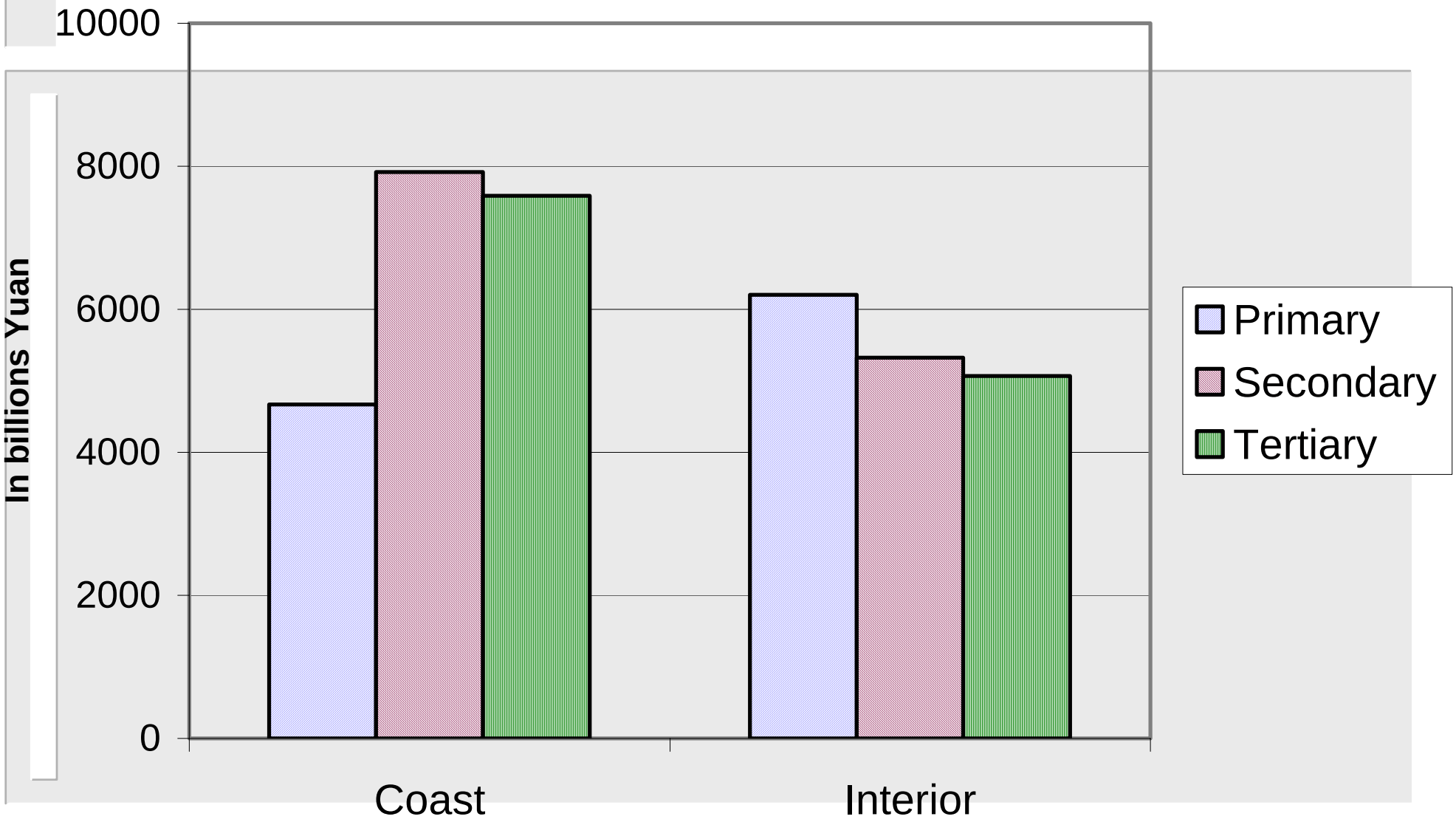
The regional decomposition

- The two regions could be three
  - If we include the western ones (+Mongolia?)
  - This would make the system more complex
  - These regions have a rather minor weight (except maybe XinJiang)
  - But they are essential to the gap issue
  - As their development level is much lower

The products

- Three products : primary, secondary, tertiary.
  - Primary : Agriculture, Fisheries, Mines
  - Secondary : Manufacturing, Construction.
  - Tertiary : Market Services.
- Reasons : economic (formulations), statistic (data).
- Trade : applies to 1 and 2 only
- Production : specific formulations for 1, 2, 3
  - Mines = problem

Value added by zone and product in 1999



The trade flows

- Three zones : 2 regions + rest of the world
- 6 trade flows (for 2 products)
- We start from a priori shares
- We correct them by relative changes in
  - price competitiveness
  - available capacities
  - transport capability

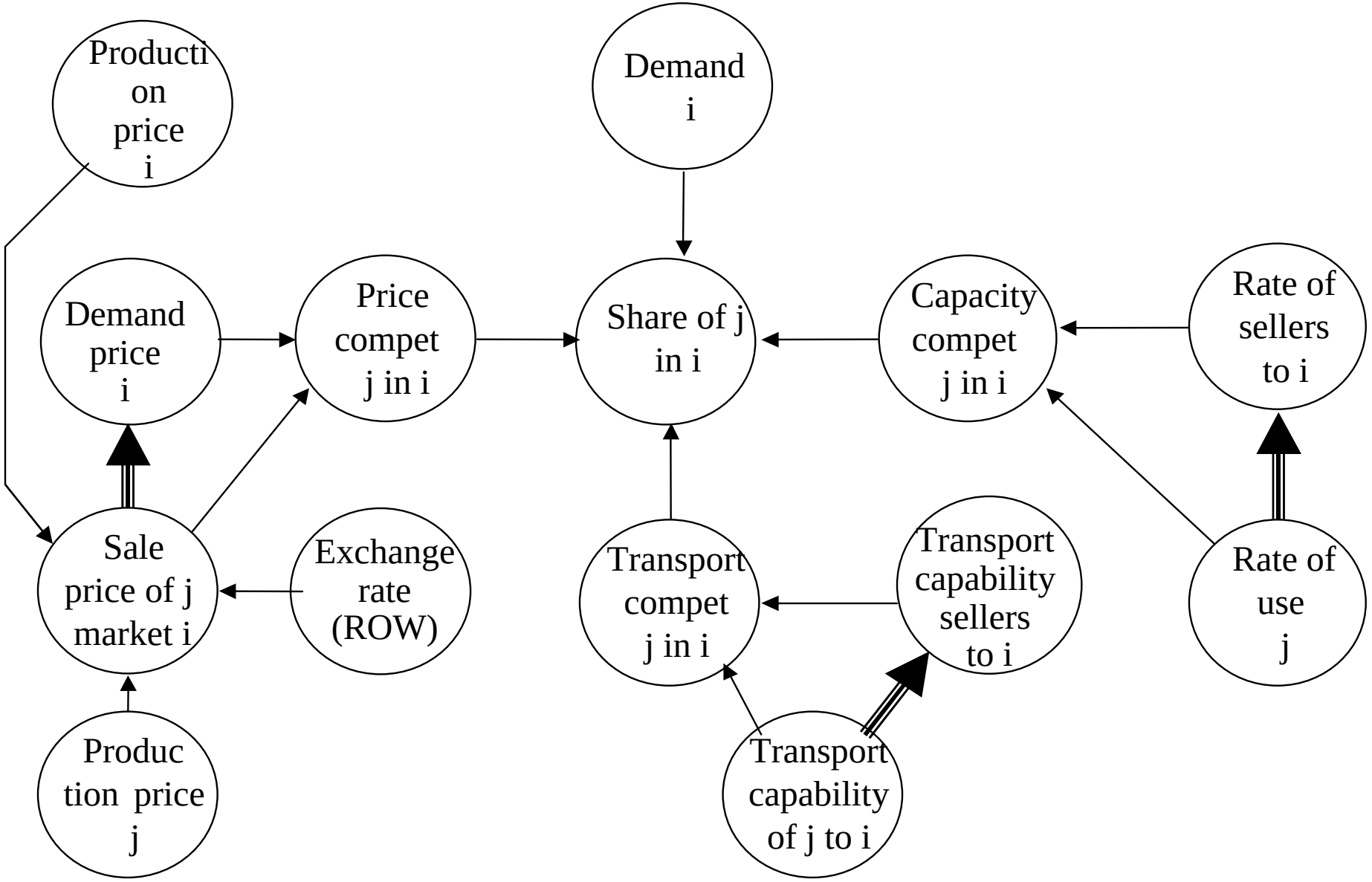
The trade flows

- Price competitiveness
  - local price for the region
  - “export” price for the “exporter”
  - uses its cost (major role) and the price on the targetted market, with a unitary elasticity
  - corrected by the exchange rate if needed
- Available capacity
  - same logic as prices
  - Rest of the world: infinite capacity, exogenous cost

The trade flows depend on :

- Transportation capacity
  - index, base value = 1
  - increases with the potential (infrastructures, frequency, reliability, speed)
  - capability and not cost (separate assumption)
  - one for each direction (but the assumptions should be linked, of course)

The trade block



The economic behaviors

- Calibrated behavioural equations
  - against estimation at an aggregated level
  - (which works more or less)
- Values are based on :
  - Another single product –single region model
  - Other models
  - Economic theory
  - Local issues
- We use an error correction framework (it works)
- Long run steady state solution

The economic behaviors

- Same formulations across regions
- Similar formulations across products
  - Except for the production function
  - 1 = Exogenous, 2= Cobb-Douglas, 3 = no capacity
- We define both intermediate and final demands (simplified I/O matrix)
  - No intermediate consumption of services

The economic behaviors

- Error correction in all cases
- Production factors : investment and labour
  - Complementary factors or Cobb-Douglas
- Unemployment : labour and working age population
- Value added deflator : cost and output gap
- Wages : WS-PS
- Exports deflators : margins (+), competitors price
- Demand, production and imports deflators : identities

The economic behaviors

- Household consumption: revenue, Δrevenue, unemployment, inflation
- Trade at constant prices : see above

$$va_{i,j} + \sum_k ic_{i,j,k} = \sum_k fdm_{i,k,j} + \sum_k ic_{i,k,j}$$

The problem : WTO accession

- The direct effects of the agreement
- A reduction of tariffs
  - applied in China to imports from the rest of the world.
  - applied in the rest of the world to Chinese imports.
- A reduction of quotas
  - applied in China to imports from the rest of the world.
  - applied in the rest of the world to Chinese imports.
- A reduction of price subsidies (later)

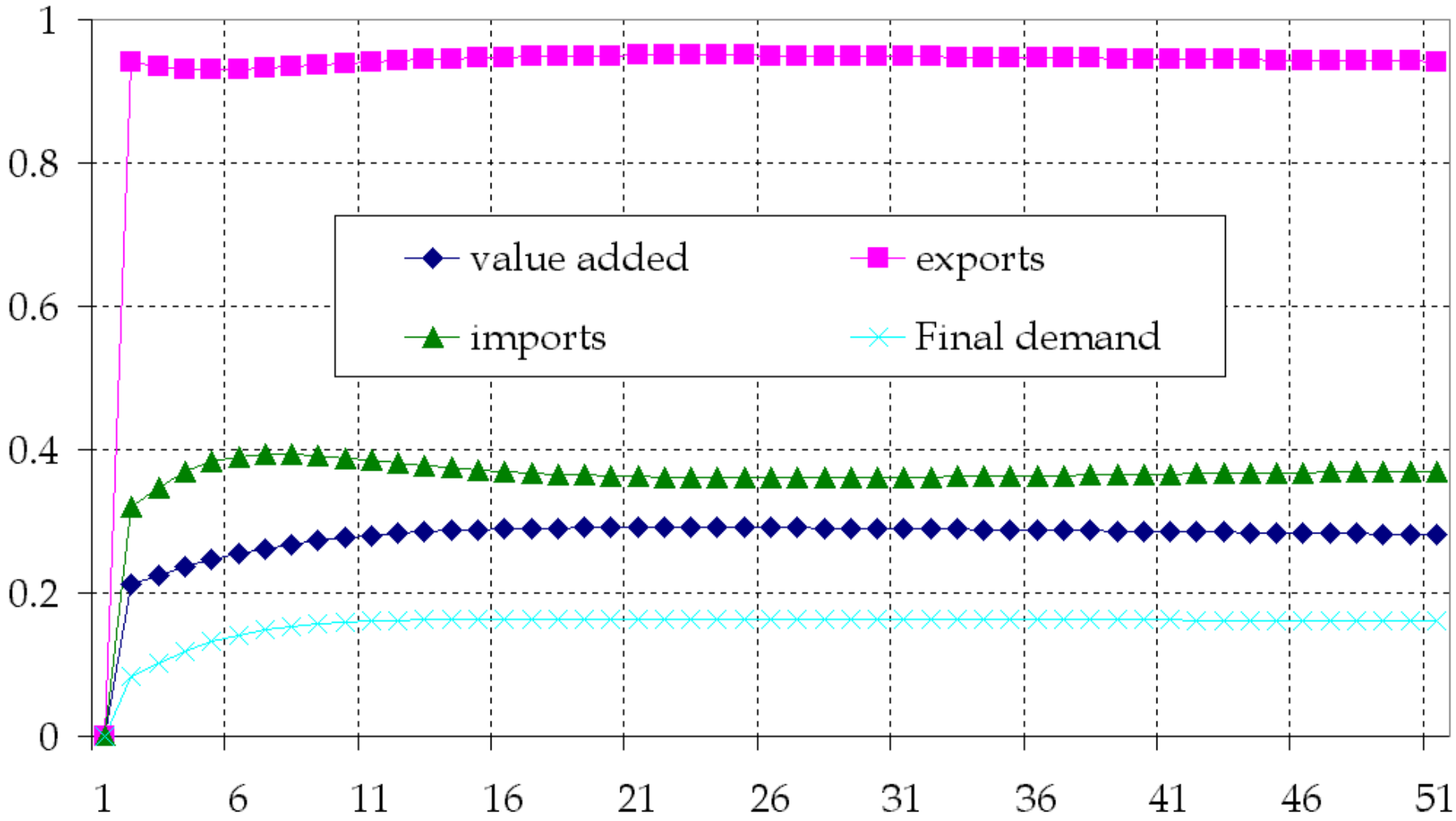
Other possible issues

- Policy : a decrease in the firms' social contributions rate or in taxes on profits.
- A devaluation or revaluation of the Yuan.
- External : An increase in capital or / and labour productivity.
- An ex ante increase in productive investment.
- An increase in the scrapping rate.

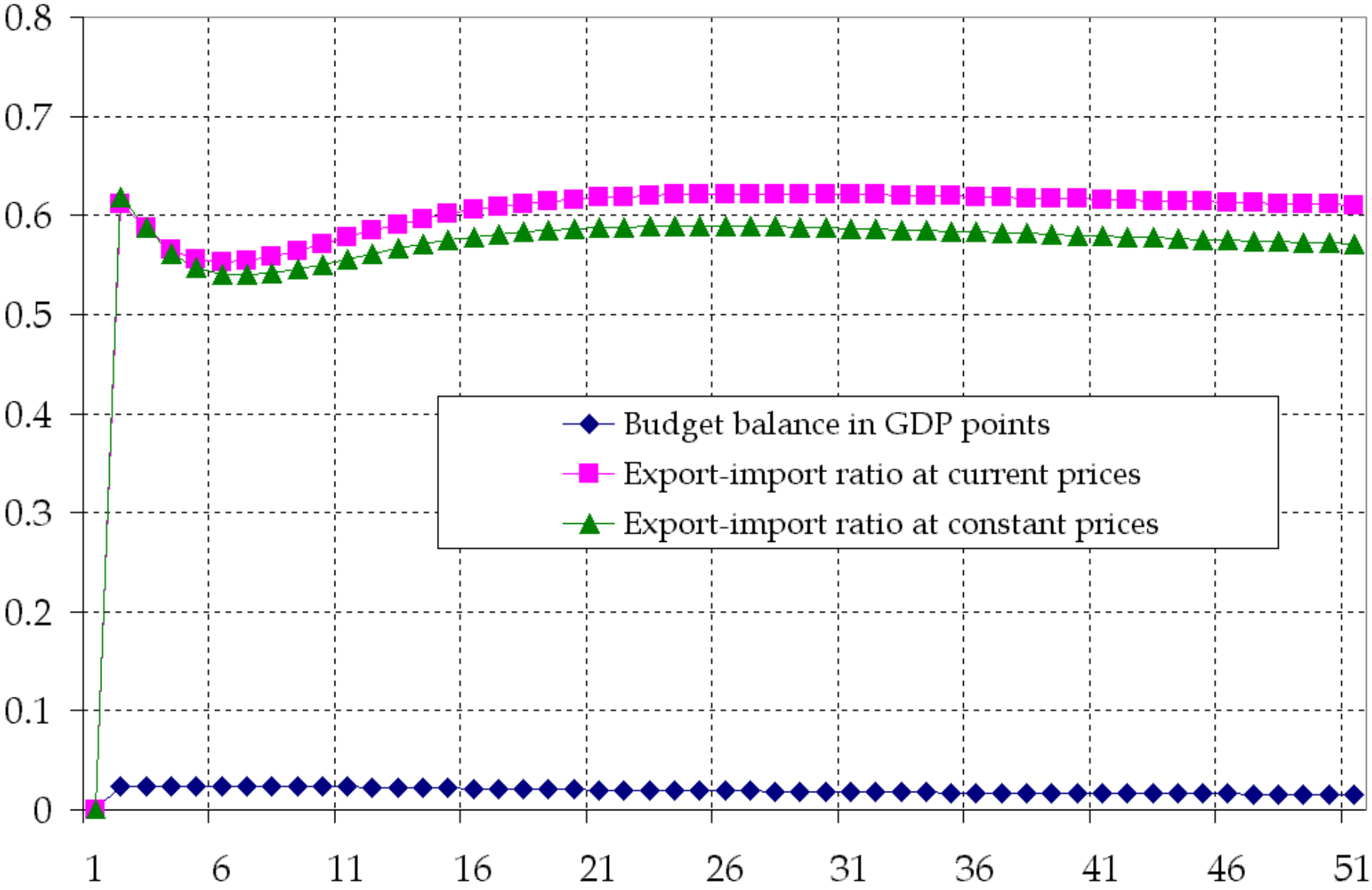
A reduction of foreign tariffs : global results

- We suppose Chinese exporters leave their own price unchanged
- Exports increase by less than 1%
- followed by GDP, final demand and imports.
- Demand : investment, intermediary goods for both local and foreign demand
- Short term supply bottleneck
- Long term price increase -> competitiveness
- Real trade : +0.6%

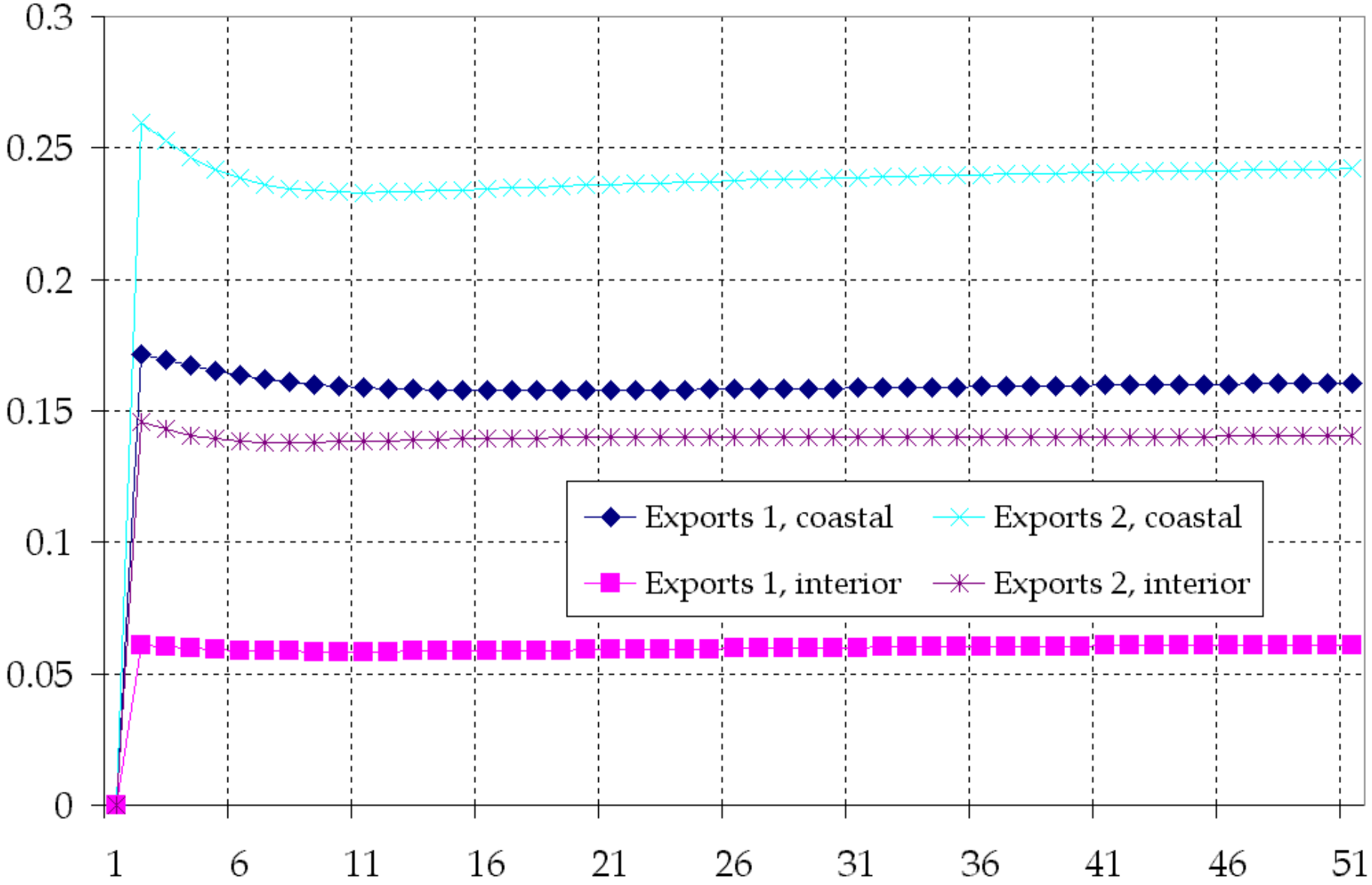
Shock A : Decrease in foreign tariffs
Graph 1 : Global variation of supply and demand

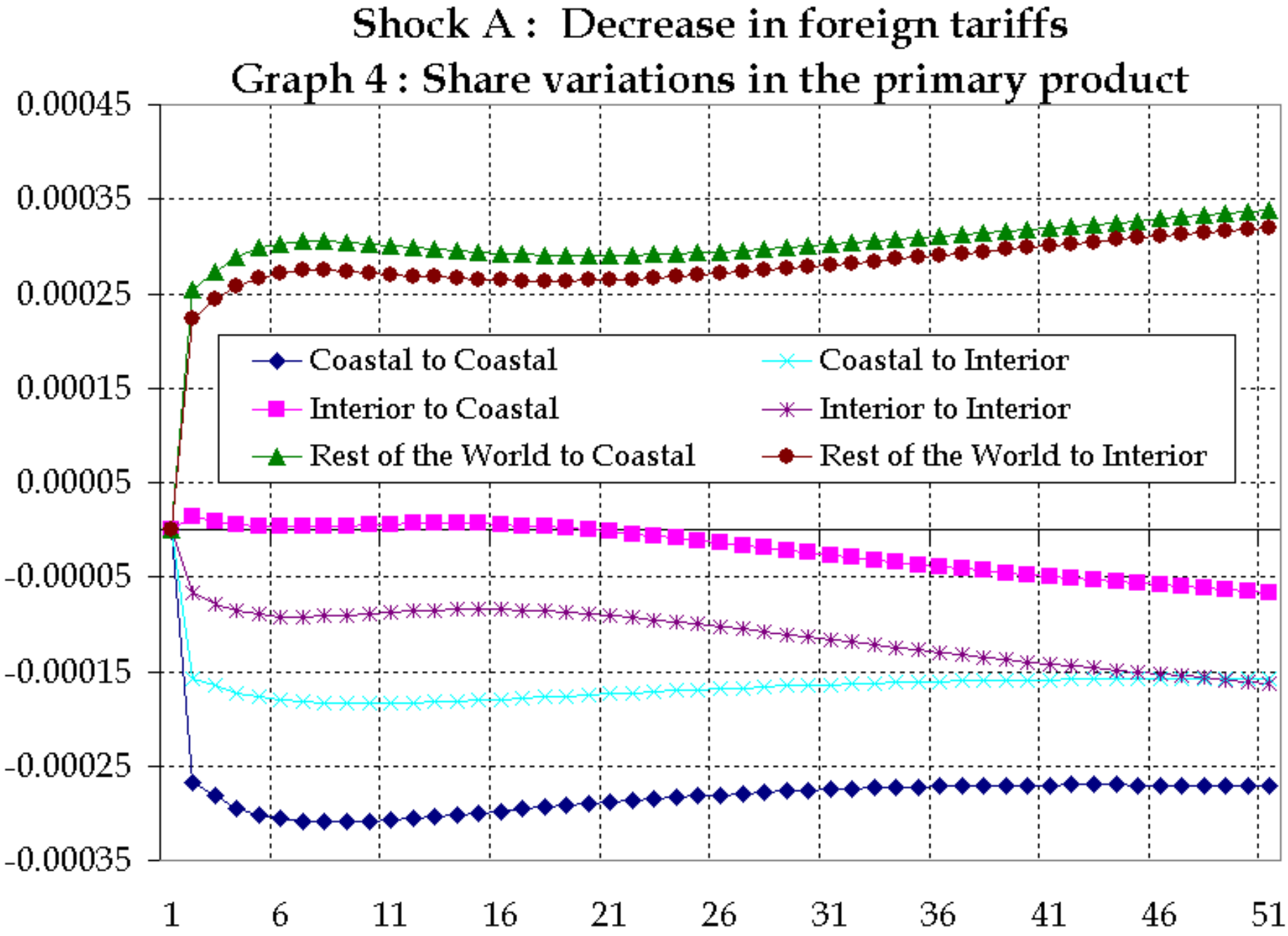


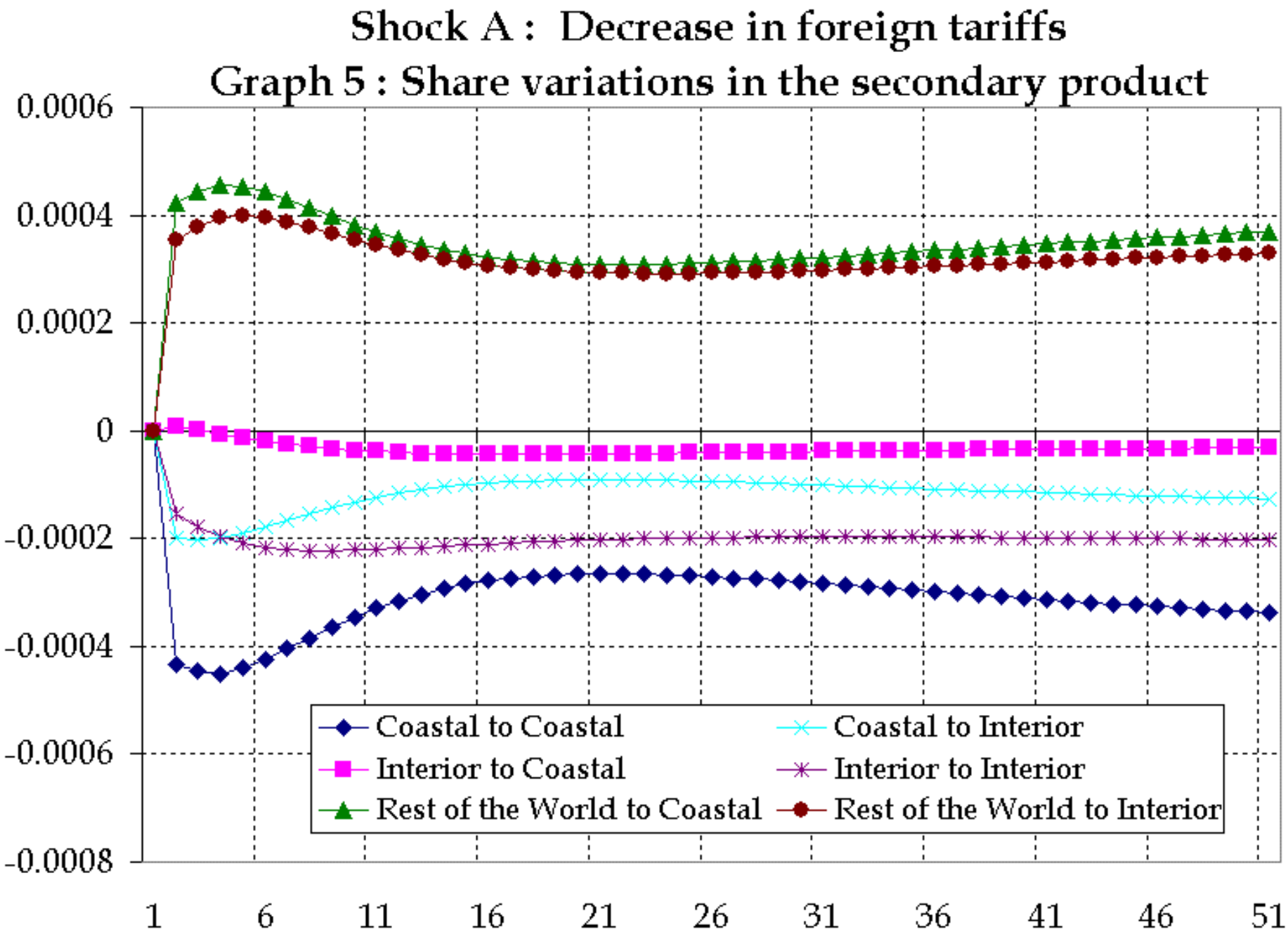
Shock A : Decrease in foreign tariffs
Graph 2 : Trade and State balances

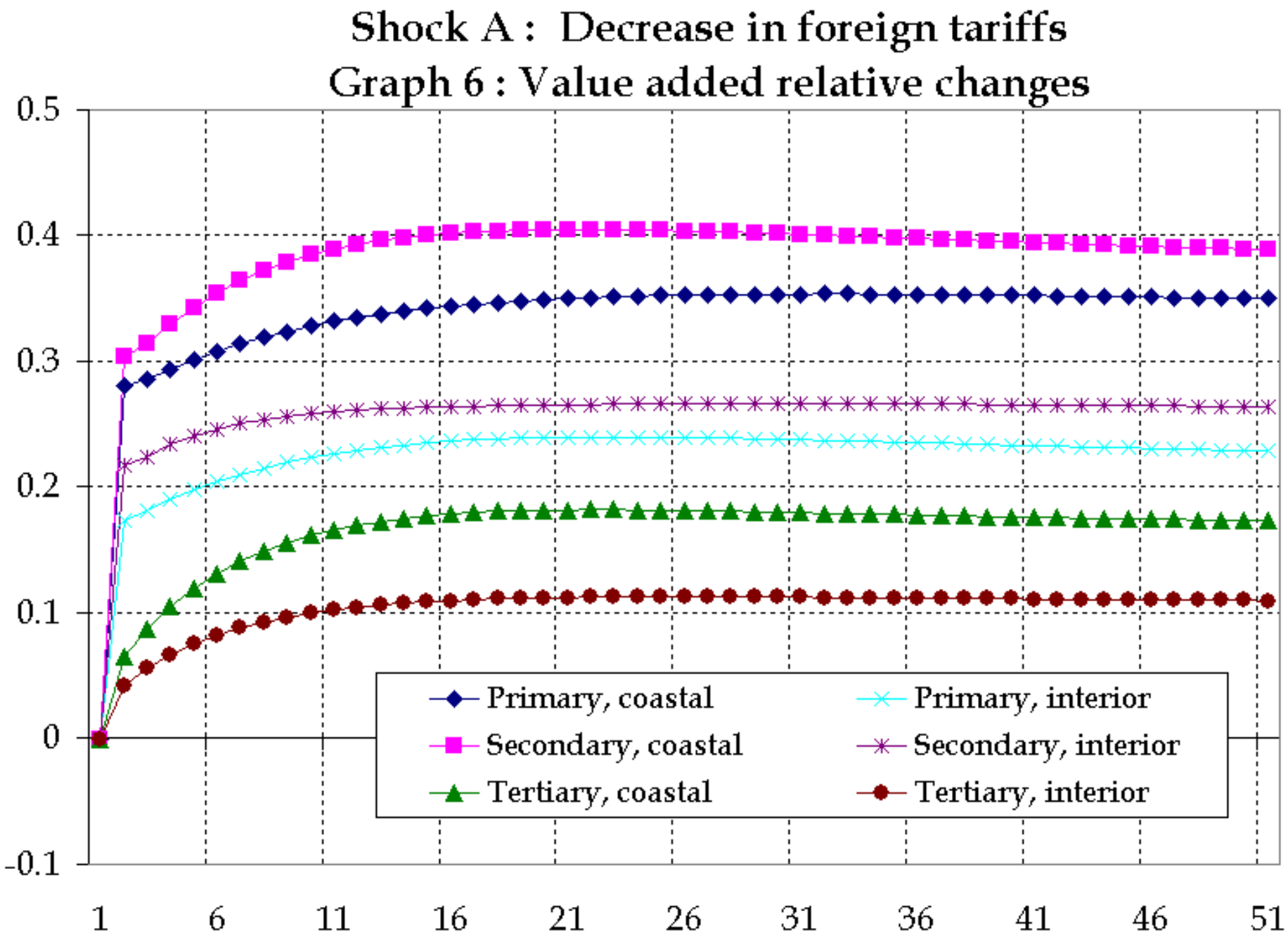


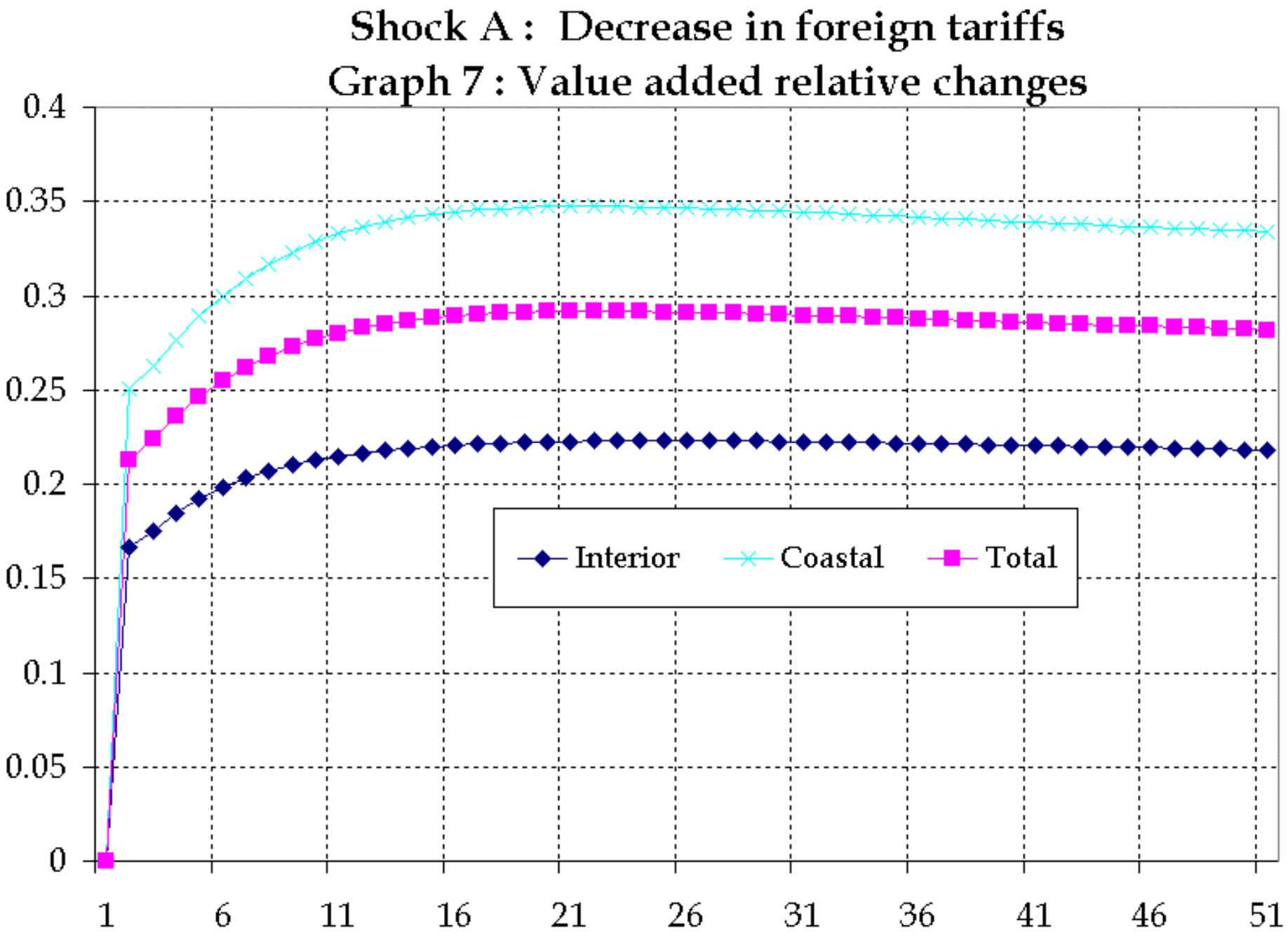
Shock A : Decrease in foreign tariffs
Graph 3 : Export to value added ratio




Shock A : Decrease in foreign tariffs
Graph 4 : Share variations in the primary product
0.00045
0.00035
0.00025
0.00015
0.00005
-0.00005
-0.00015
-0.00025
-0.00035
1
6
11
16
21
26
31
36
41
46
51
Coastal to Coastal
Coastal to Interior
Interior to Coastal
Interior to Interior
Rest of the World to Coastal
Rest of the World to Interior

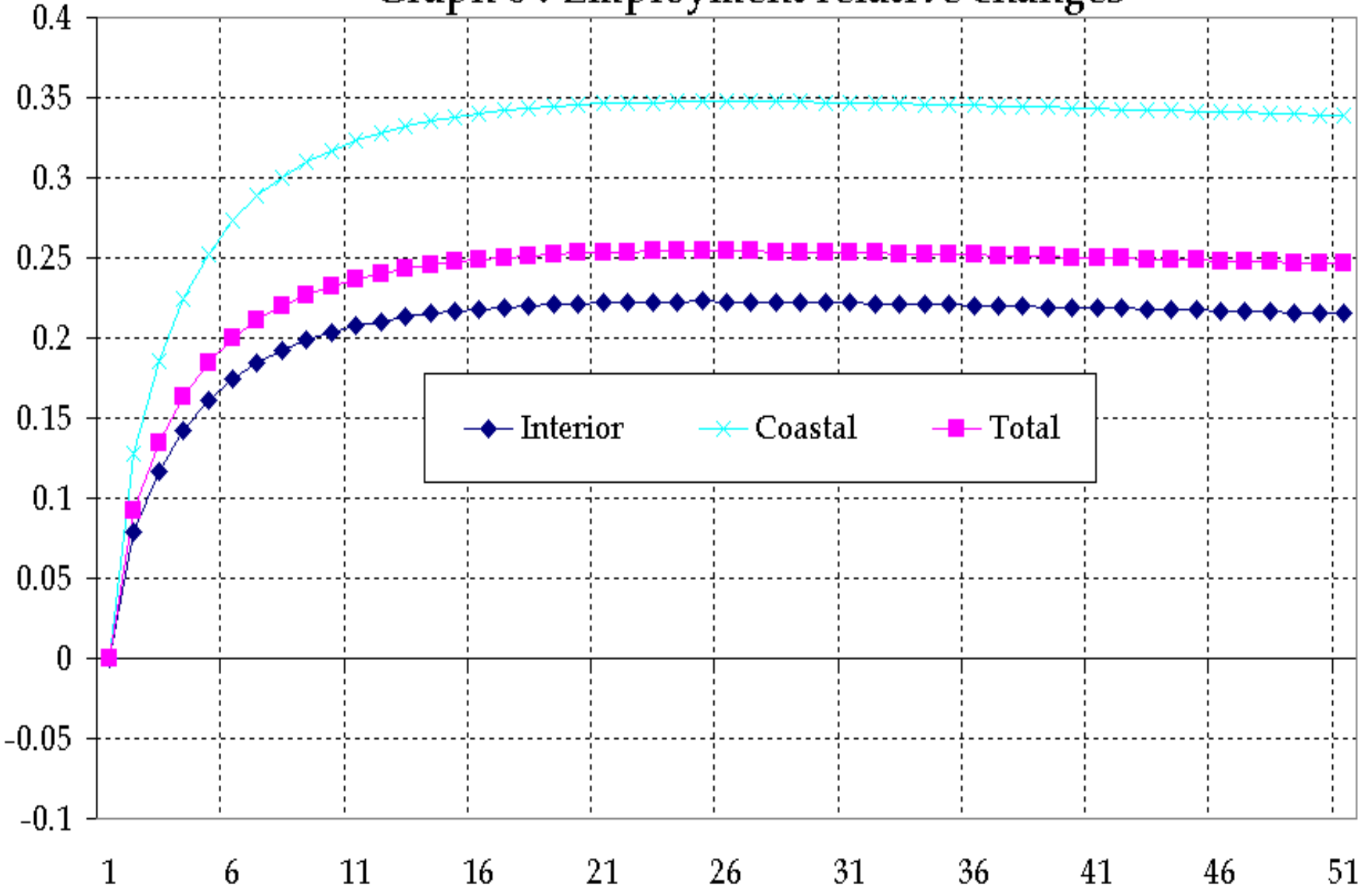

Shock A : Decrease in foreign tariffs
Graph 5 : Share variations in the secondary product
0.0006
0.0004
0.0002
0
-0.0002
-0.0004
-0.0006
-0.0008
1
6
11
16
21
26
31
36
41
46
51
Coastal to Coastal
Coastal to Interior
Interior to Coastal
Interior to Interior
Rest of the World to Coastal
Rest of the World to Interior

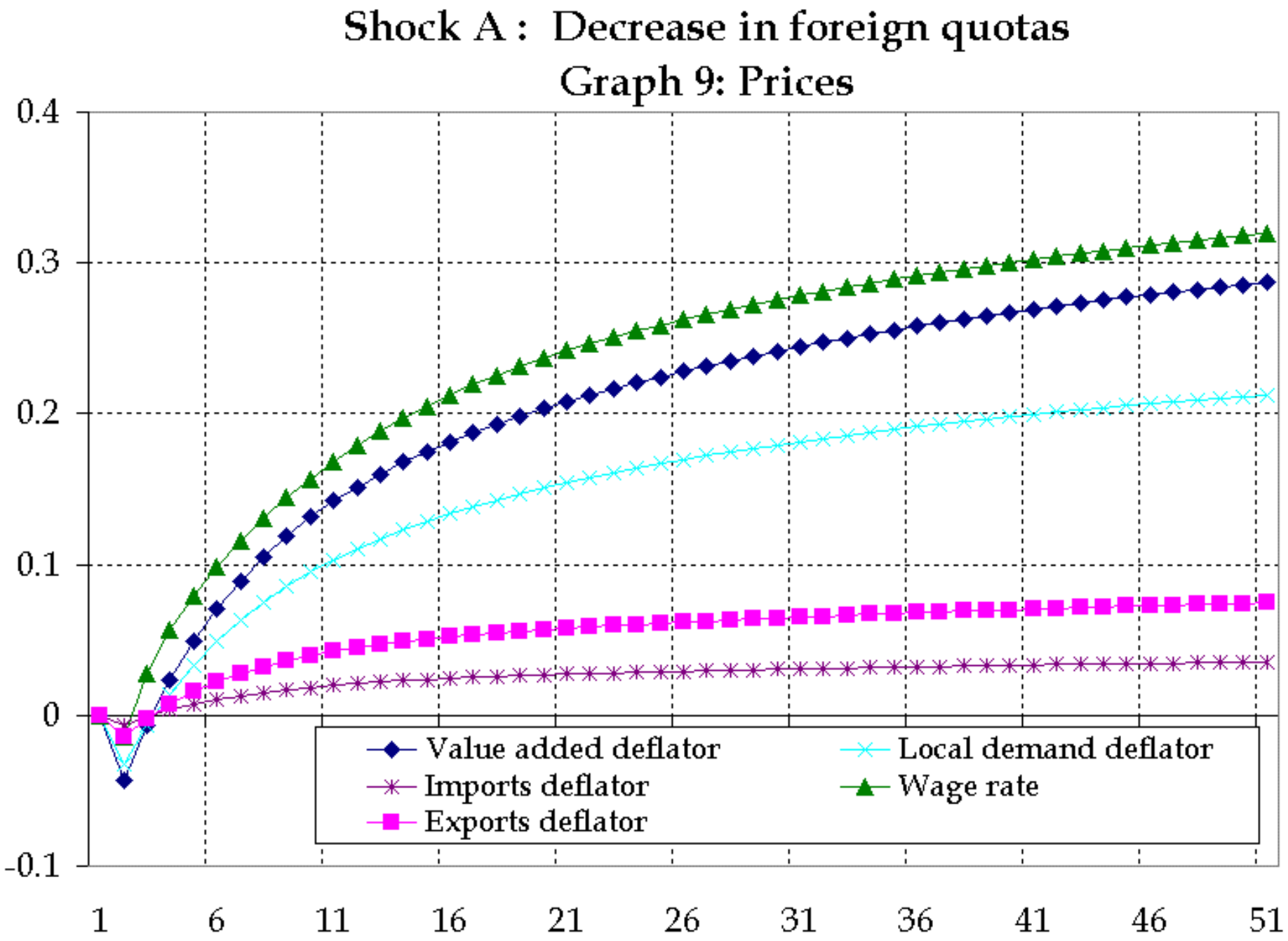

Shock A : Decrease in foreign tariffs
Graph 6 : Value added relative changes
0.5
0.4
0.3
0.2
0.1
0
-0.1
1
6
11
16
21
26
31
36
41
46
51
Primary, coastal
Primary, interior
Secondary, coastal
Secondary, interior
Tertiary, coastal
Tertiary, interior


Shock A : Decrease in foreign tariffs
Graph 7 : Value added relative changes
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1
6
11
16
21
26
31
36
41
46
51
Interior
Coastal
Total

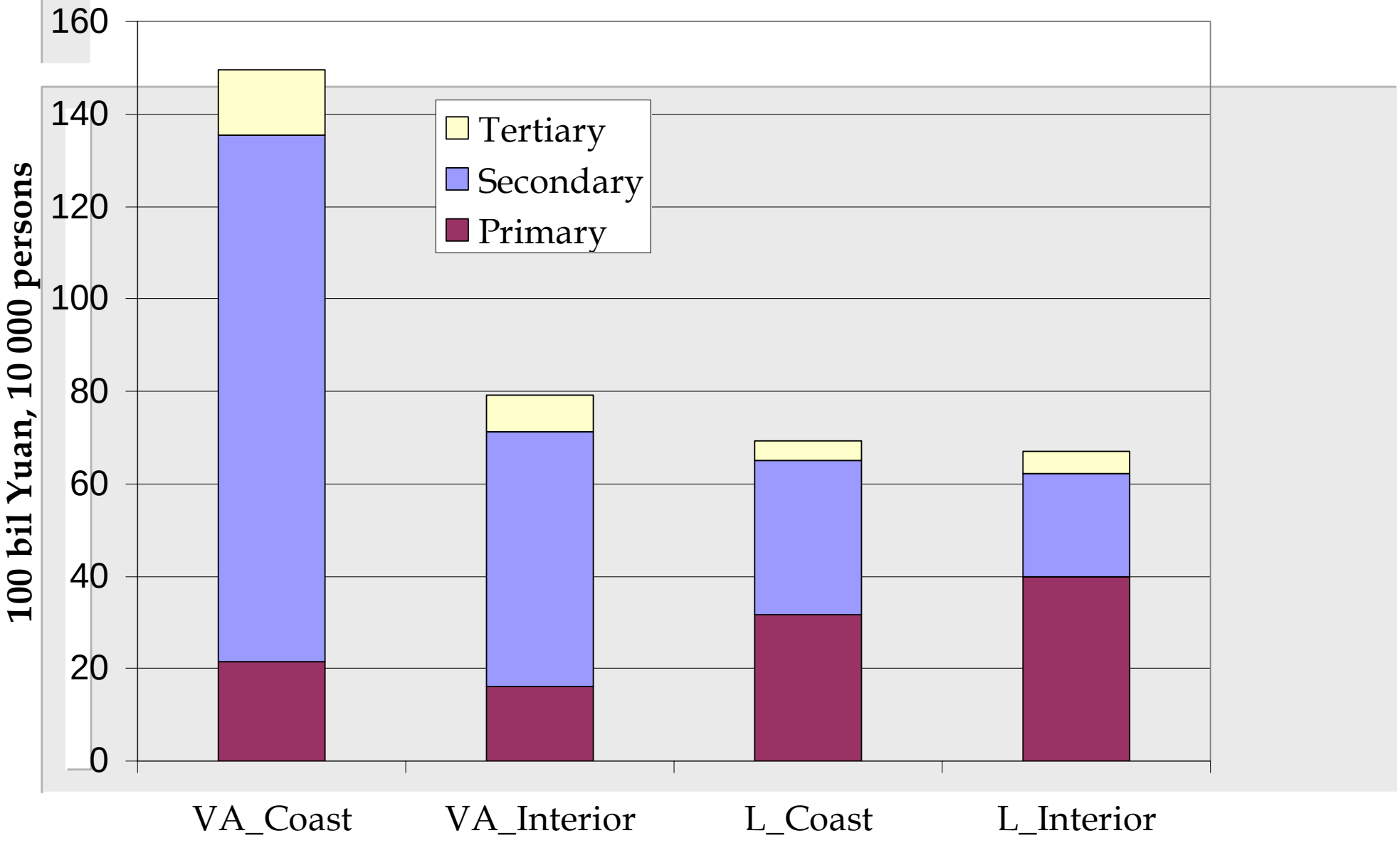
Shock A : Decrease in foreign tariffs

Graph 8 : Employment relative changes




Shock A : Decrease in foreign quotas
Graph 9: Prices
0.4
0.3
0.2
0.1
0
-0.1
1
6
11
16
21
26
31
36
41
46
51
Value added deflator
Local demand deflator
Imports deflator
Wage rate
Exports deflator

Graph A_10 : Value added and employment after 5 periods



A reduction of foreign tariffs : regional results

- Exports : Assumptions on the region of origin
- The coast profits the most (twice?)
- The secondary product profits the most
- At any horizon

A reduction of foreign tariffs : regional results

- Imports : The coast is the most affected
- It loses the most on both markets
- To both the interior and the Rest of the World
- At any horizon, for both products

A reduction of foreign tariffs : regional results

- On the whole
- Value added grow more on the coast
- Order : Secondary, Primary, Tertiary
- Employment : higher relative growth on the coast (relative weight of the secondary sector)
- But the lower labour productivity in the interior profits to employment, in absolute variation.
- But not to household revenue and consumption

A reduction of Chinese tariffs : global results

- The mechanisms are more complex
- Now prices and rate of use are directly affected
- Imports increase immediately
- But capacity effects and competitiveness limit the loss
- More and more as inflation decreases

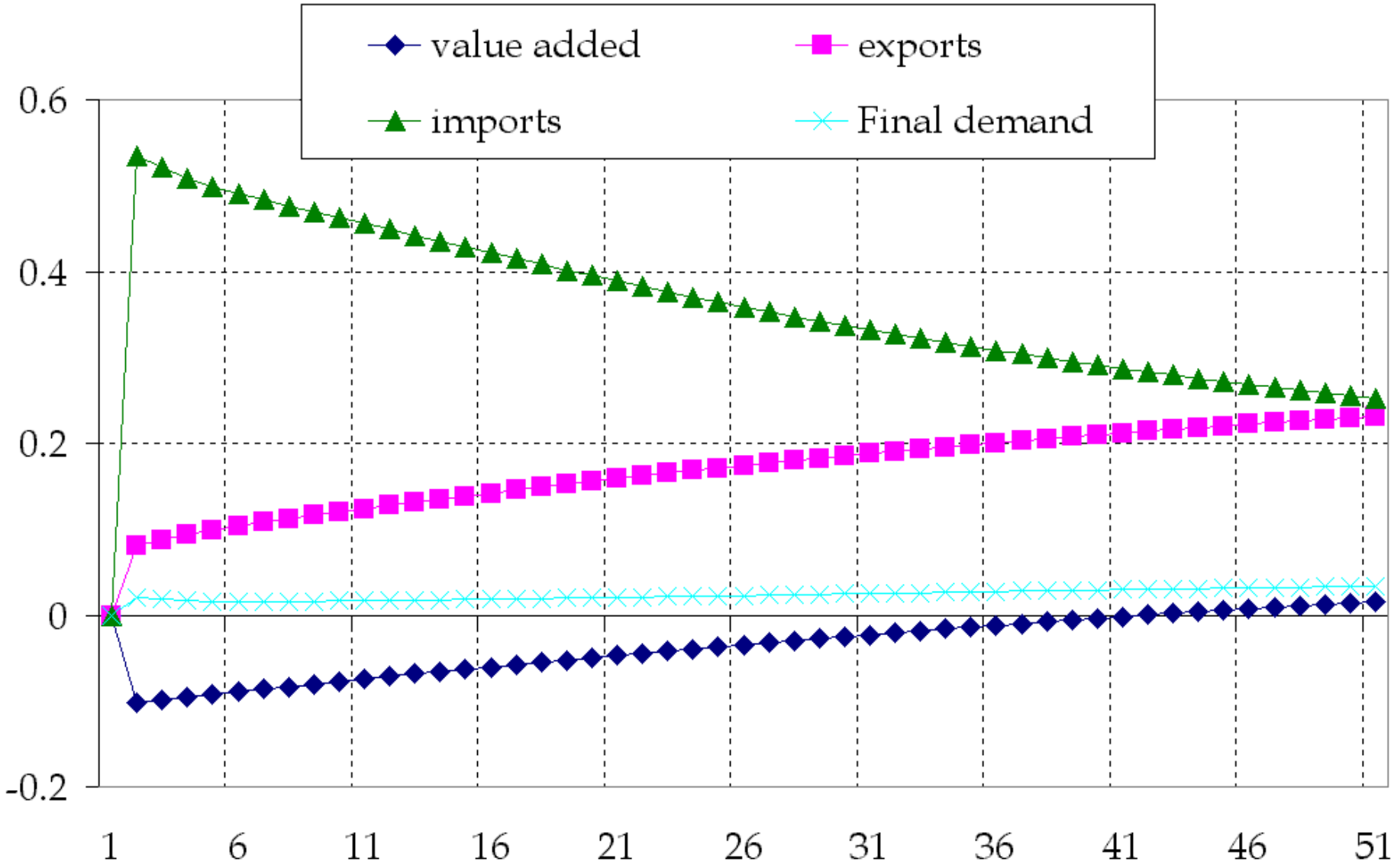
A reduction of Chinese tariffs : global results

- The decrease in inflation comes :
- Directly through cheaper imports
- And indirectly through CPI, wage rate, wage cost and value added deflator
- Export competitiveness increases
- But not the terms of trade
- Profitability reduces the long term rate of use

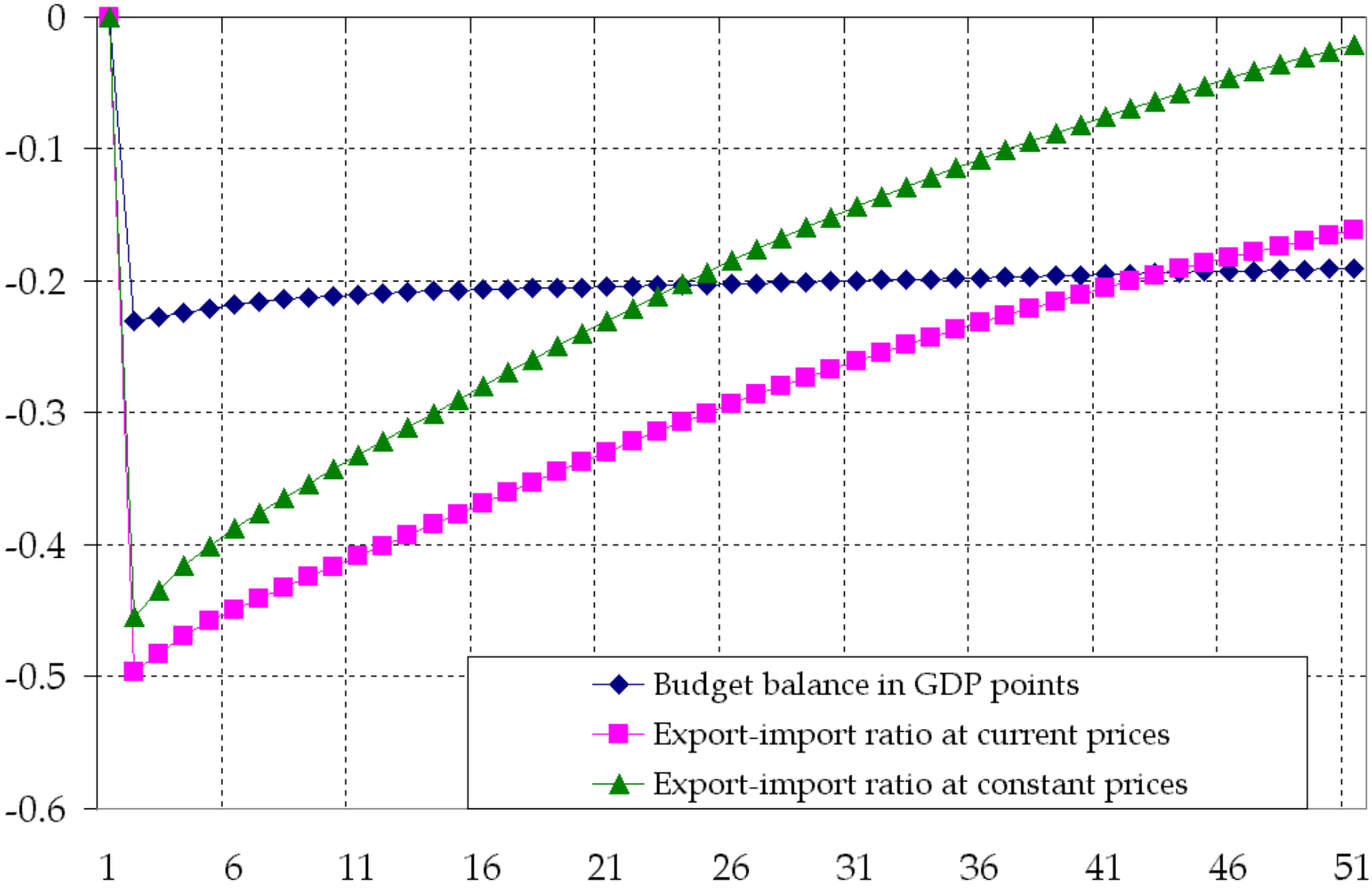
A reduction of Chinese tariffs : global results

- The budget revenue decreases (the only ex ante effect apart from price subsidies)
- The trade balance recovers in real terms
- But not in current terms (disinflation affects more the export price)

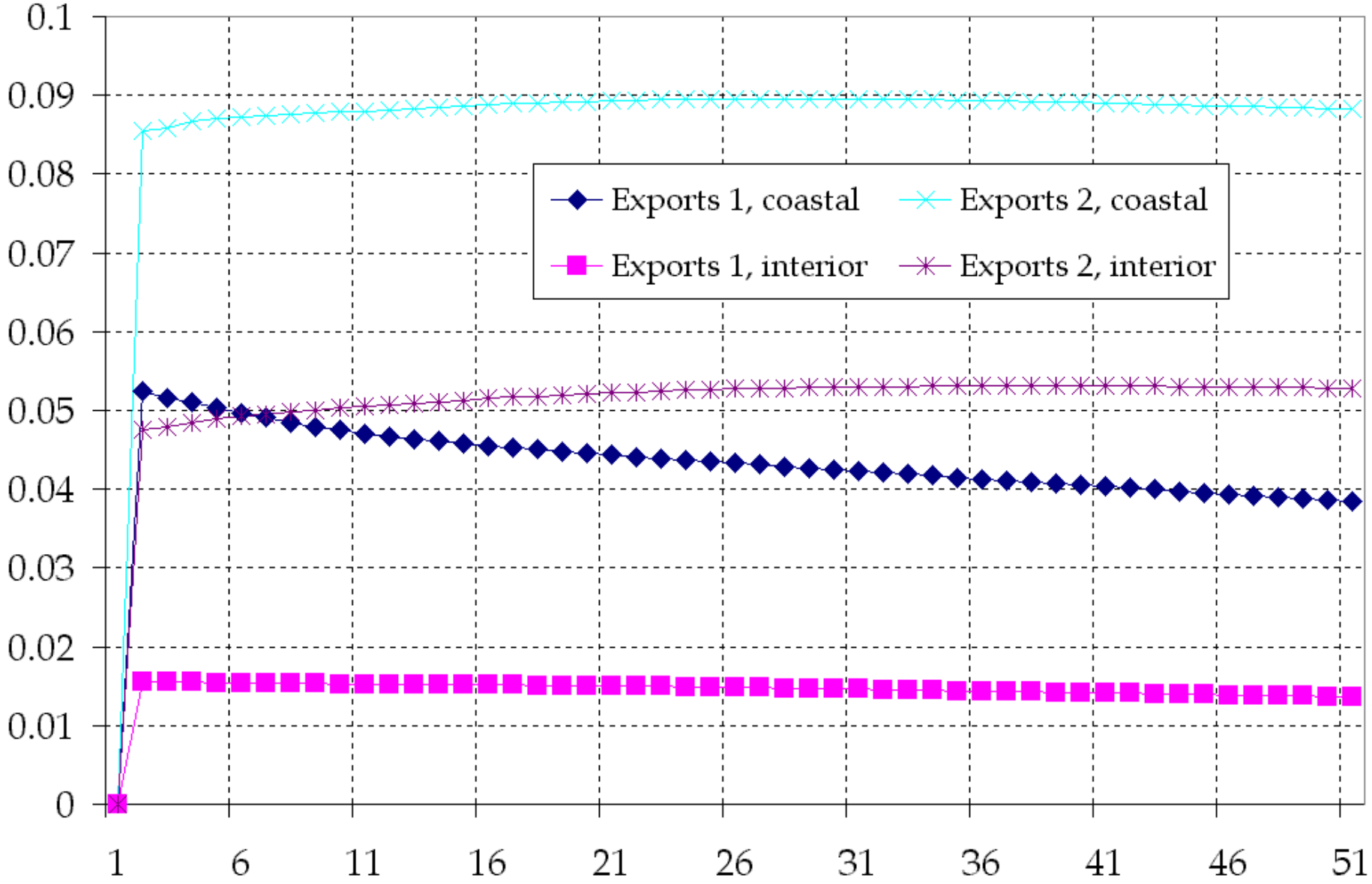
Shock B : Decrease in local tariffs
Graph 1 : Global variation of supply and demand



Shock B : Decrease in local tariffs
Graph 2 : Trade and State balances

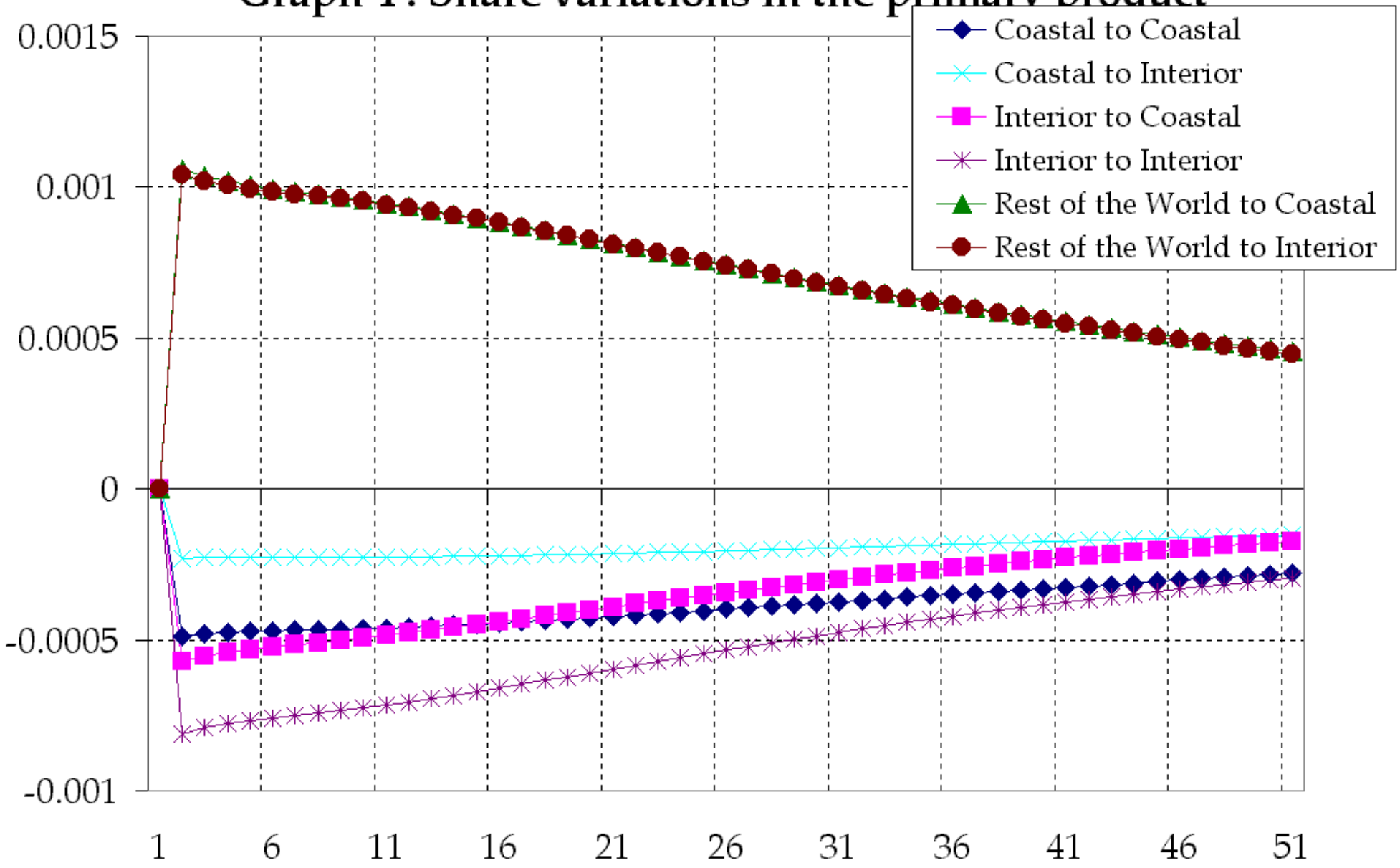


Shock B : Decrease in local tariffs
Graph 3 : Export to value added ratio



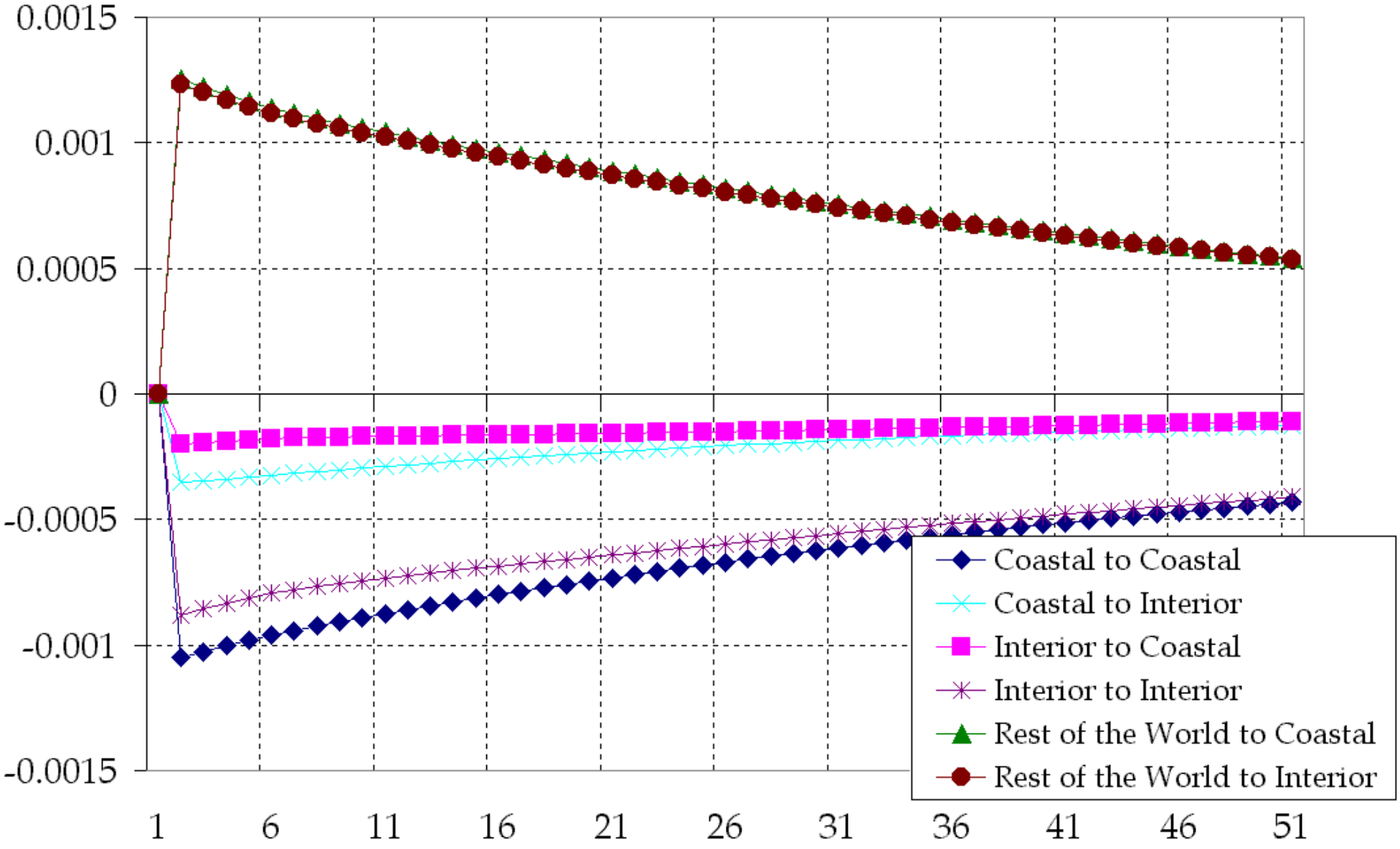
Shock B : Decrease in local tariffs

Graph 4 : Share variations in the primary product

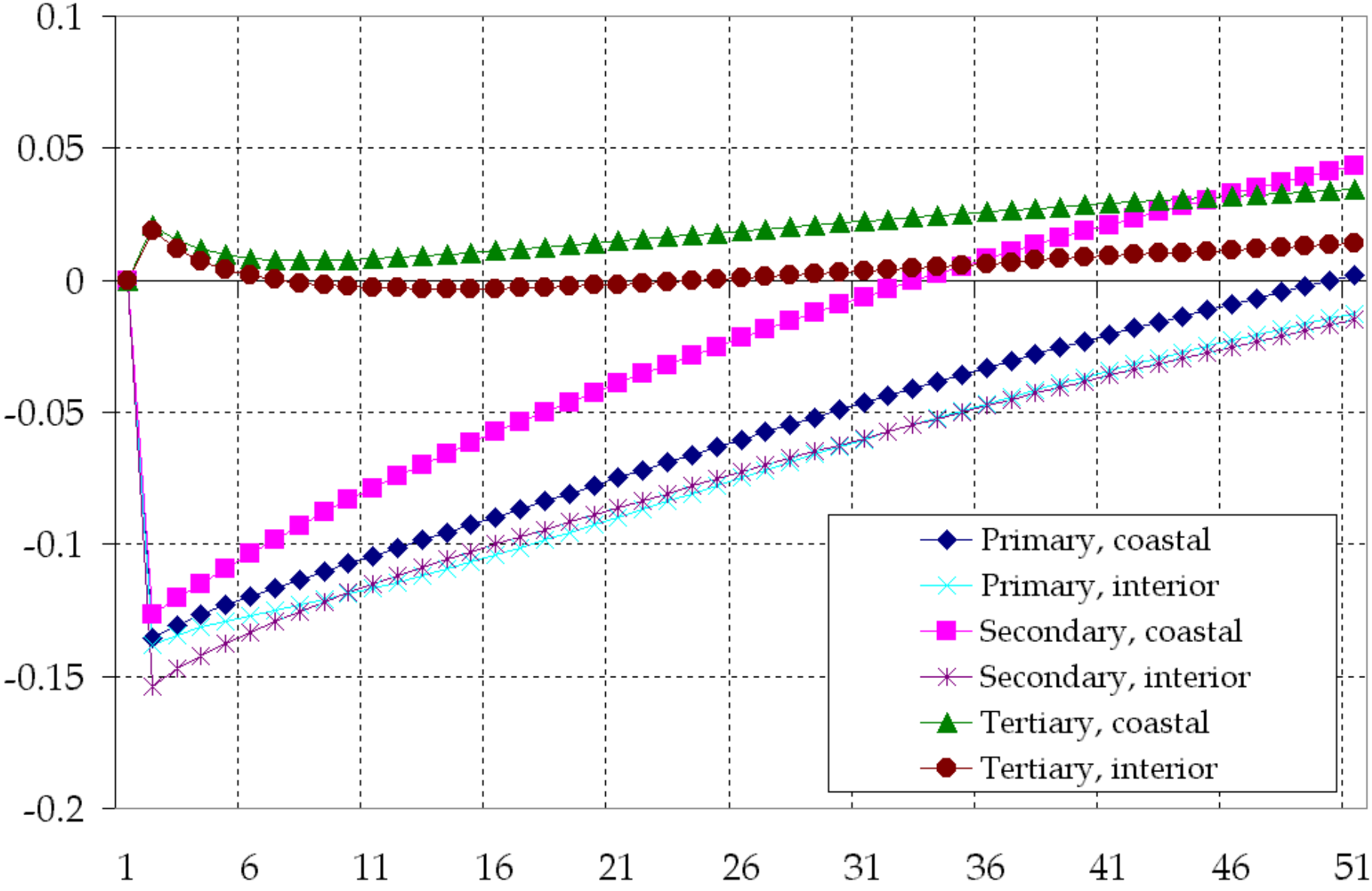


Shock B : Decrease in local tariffs

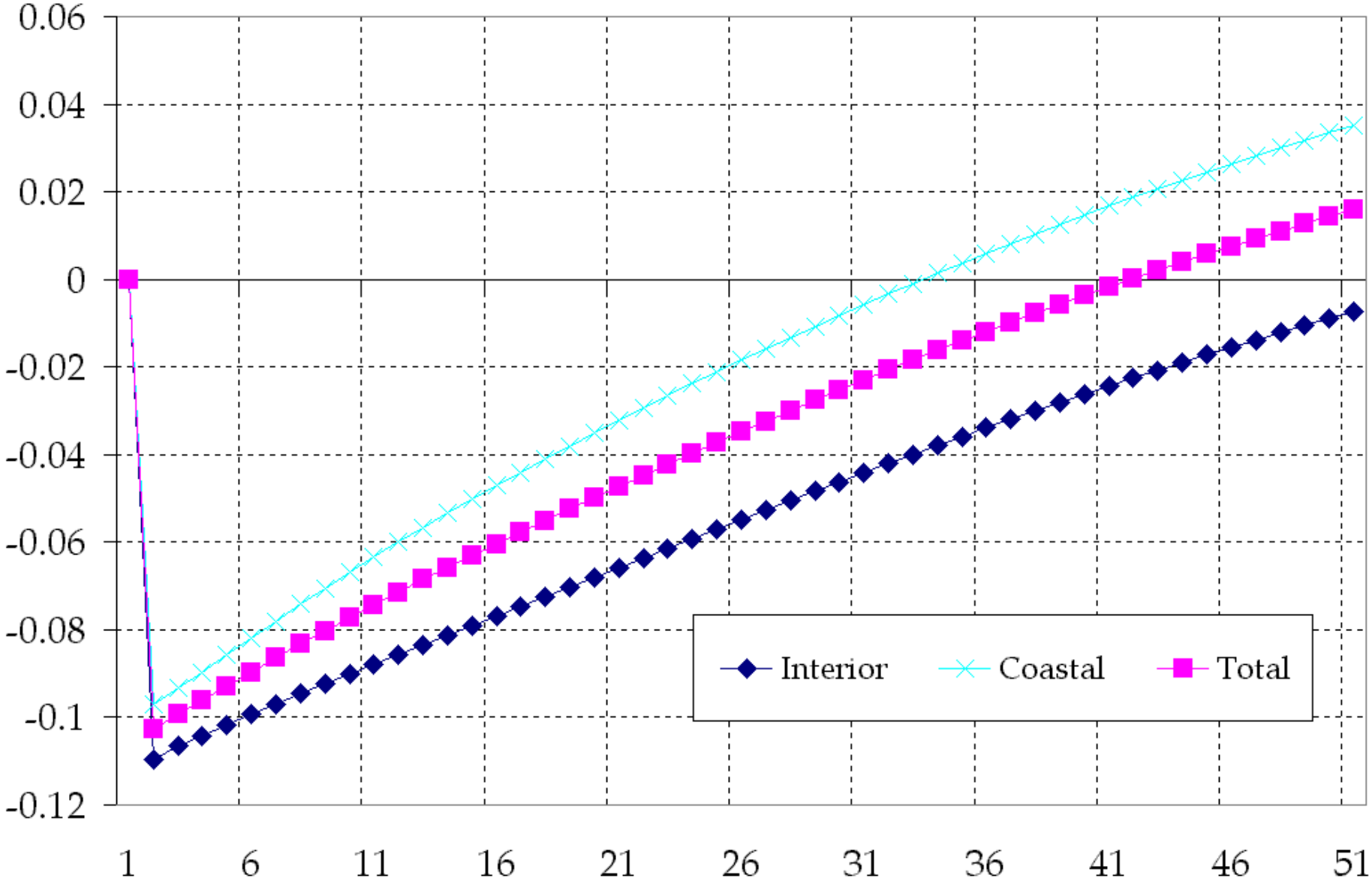
Graph 5 : Share variations in the secondary product



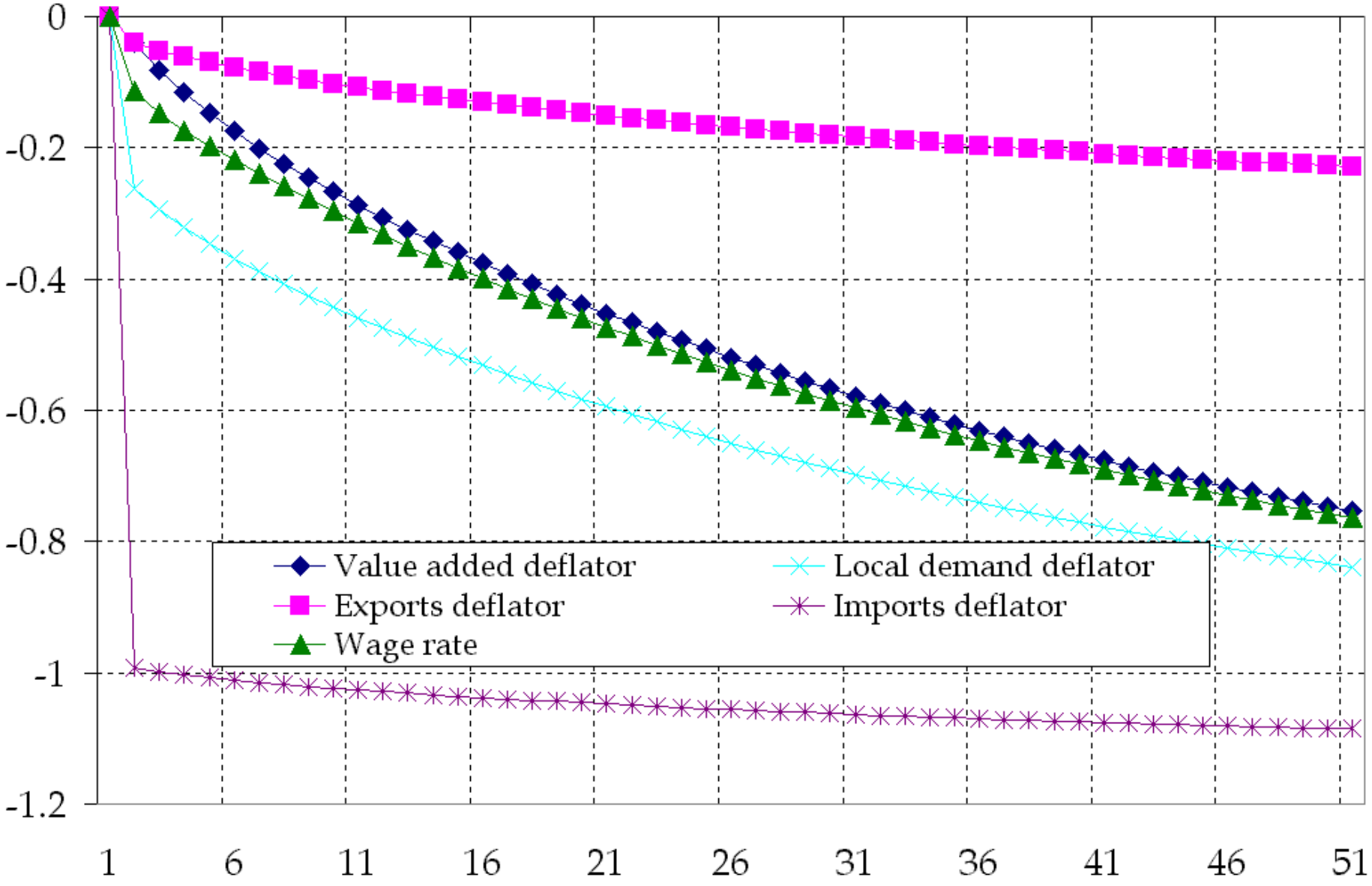
Shock B : Decrease in local tariffs
Graph 6 : Value added relative changes



Shock B : Decrease in local tariffs
Graph 7 : Value added relative changes



Shock B : Decrease in local tariffs
Graph 8 : Prices



A reduction of Chinese tariffs : regional results

- The regional evolution is also complex
- The imports share is higher for coastal demand so the ex ante loss is higher
- But the prices are more affected
- And the higher profitability creates investment and capacity
- The gains in trade shares to both Rest of the World and interior makes the coast lose less

A reduction of foreign quotas : global and regional results

- Results are similar to a change in tariffs
- Especially with unitary elasticities
- They would be different with actual decisions

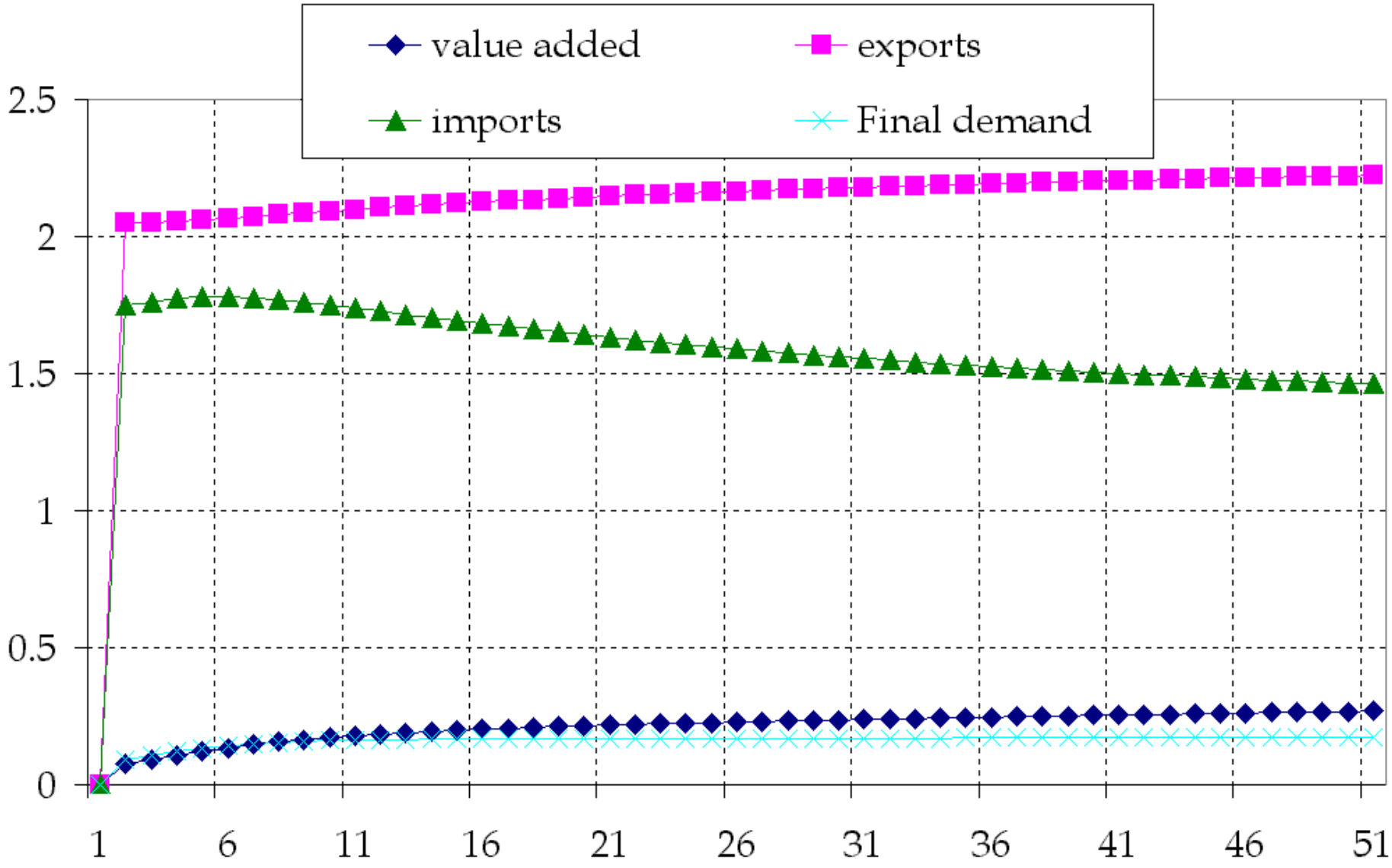
A reduction of Chinese quotas : global results

- Same as tariffs but no ex ante change in prices
- Prices do decrease, but from the ex post optimising behaviour of firms
- And also from unemployment and wages
- Disinflation and freed capacities favour exports
- The effect is worse than tariffs from the first, and does not improve
- The ex ante effect is divided by two, again

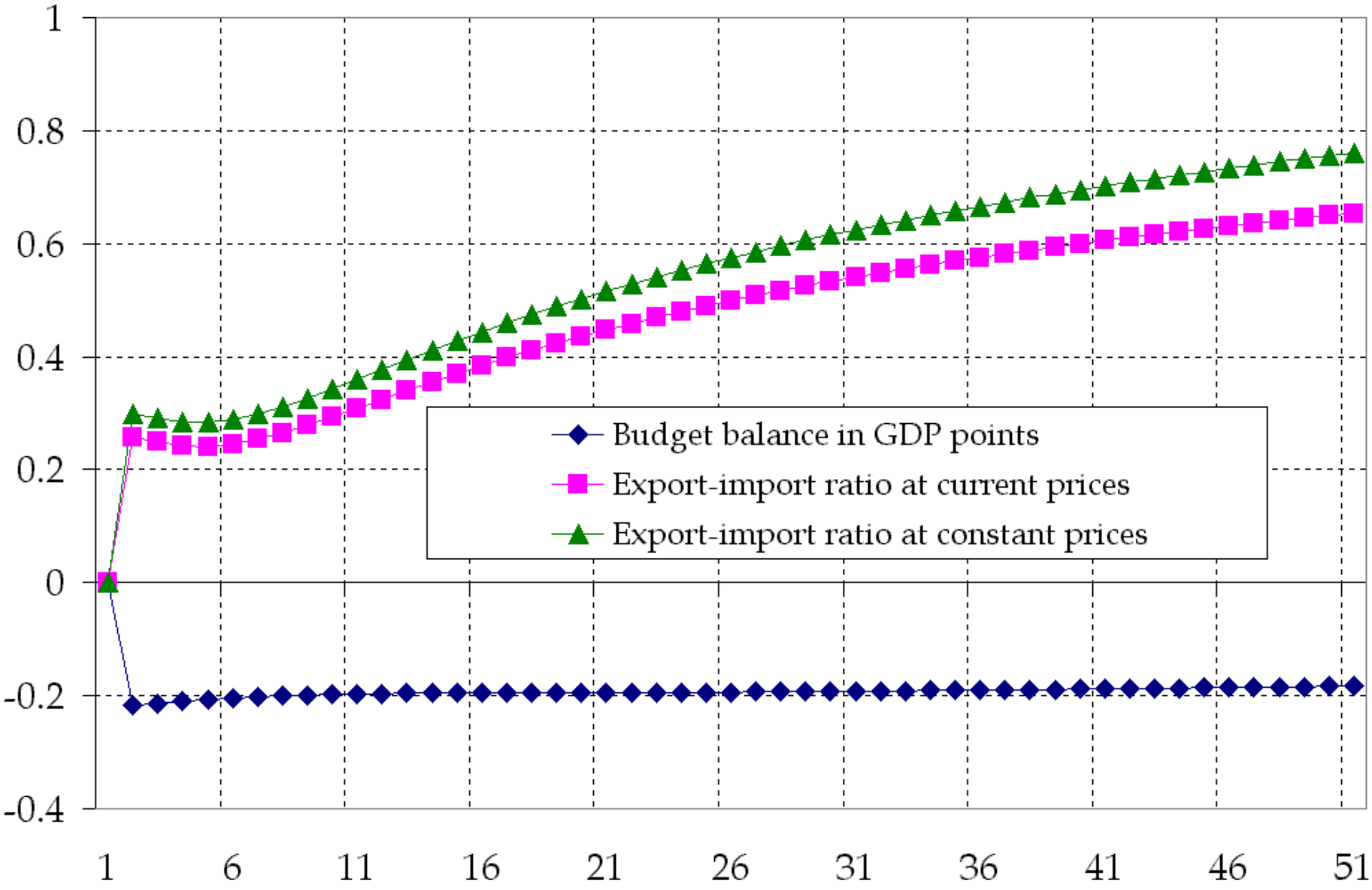
A reduction of Chinese quotas : regional results

- The higher deflation increases the ex post competitiveness gains for the coast
- And exports grow more
- Global results are very close.

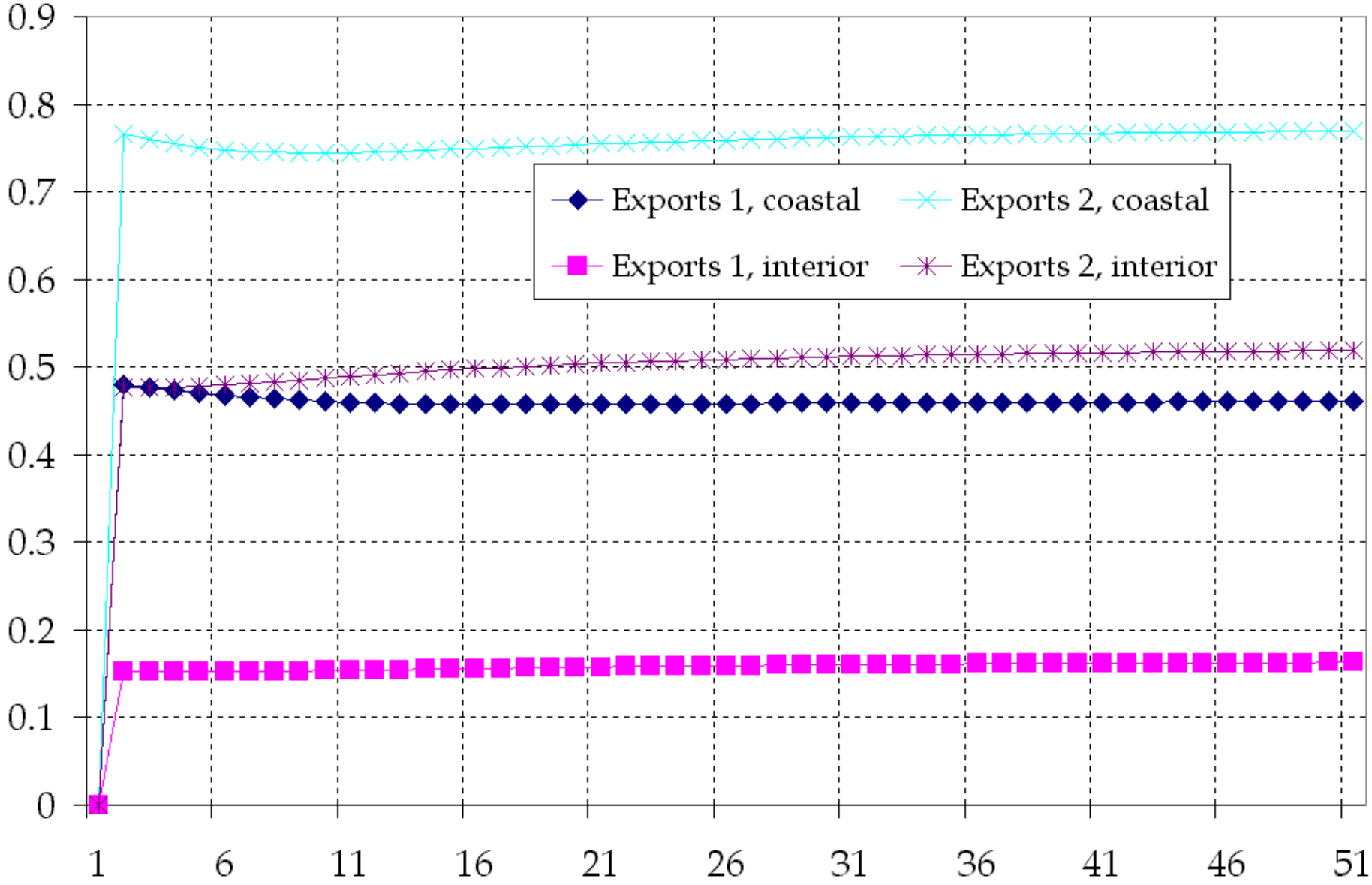
Shock T : Combined decisions
Graph 1 : Global variation of supply and demand



Shock T : Combined decisions
Graph 2 : Trade and State balances



Shock T : Combined decisions
Graph 3 : Export to value added ratio



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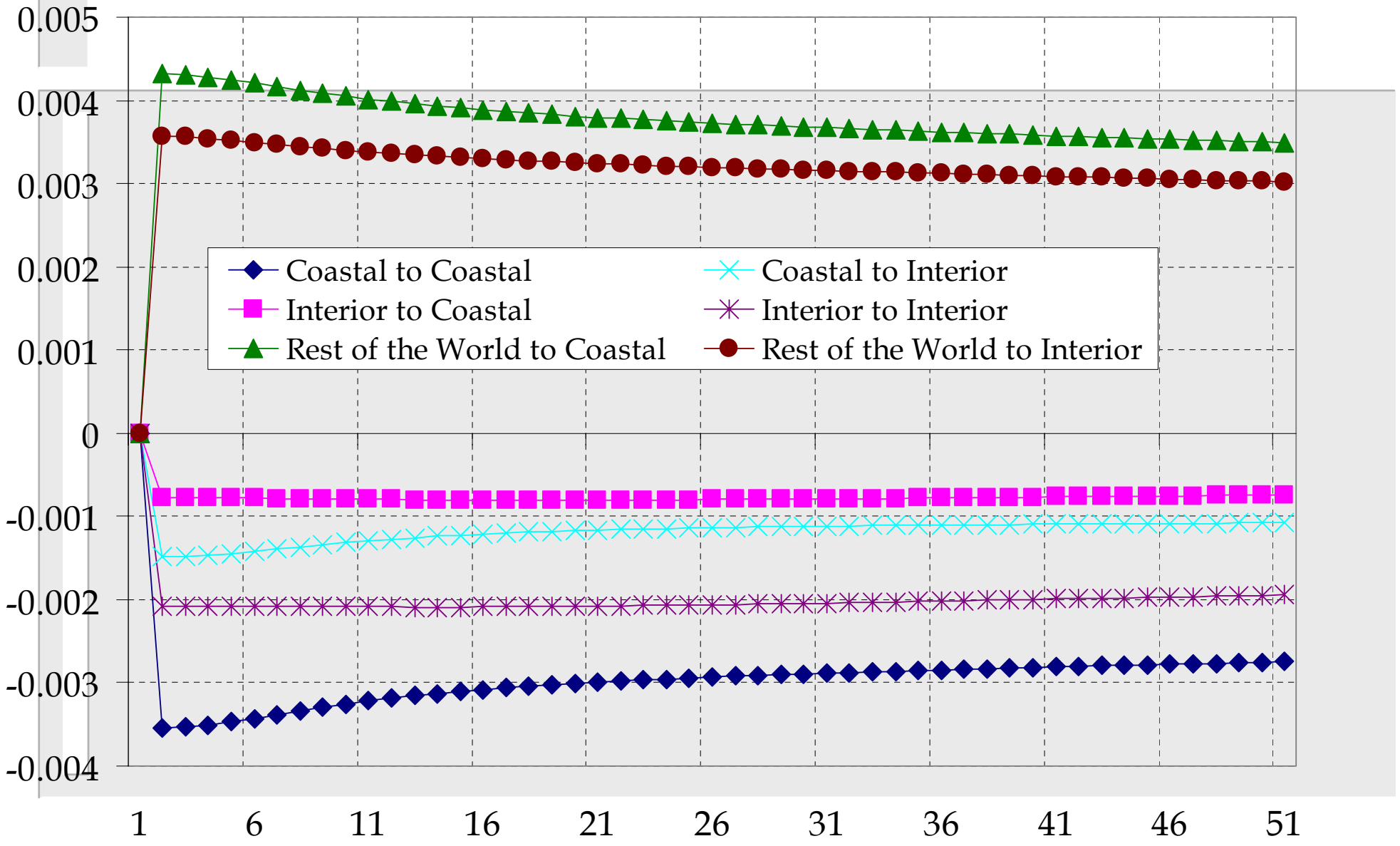
Graph 5 : Share variations in the secondary product



Shock T : Combined decisions
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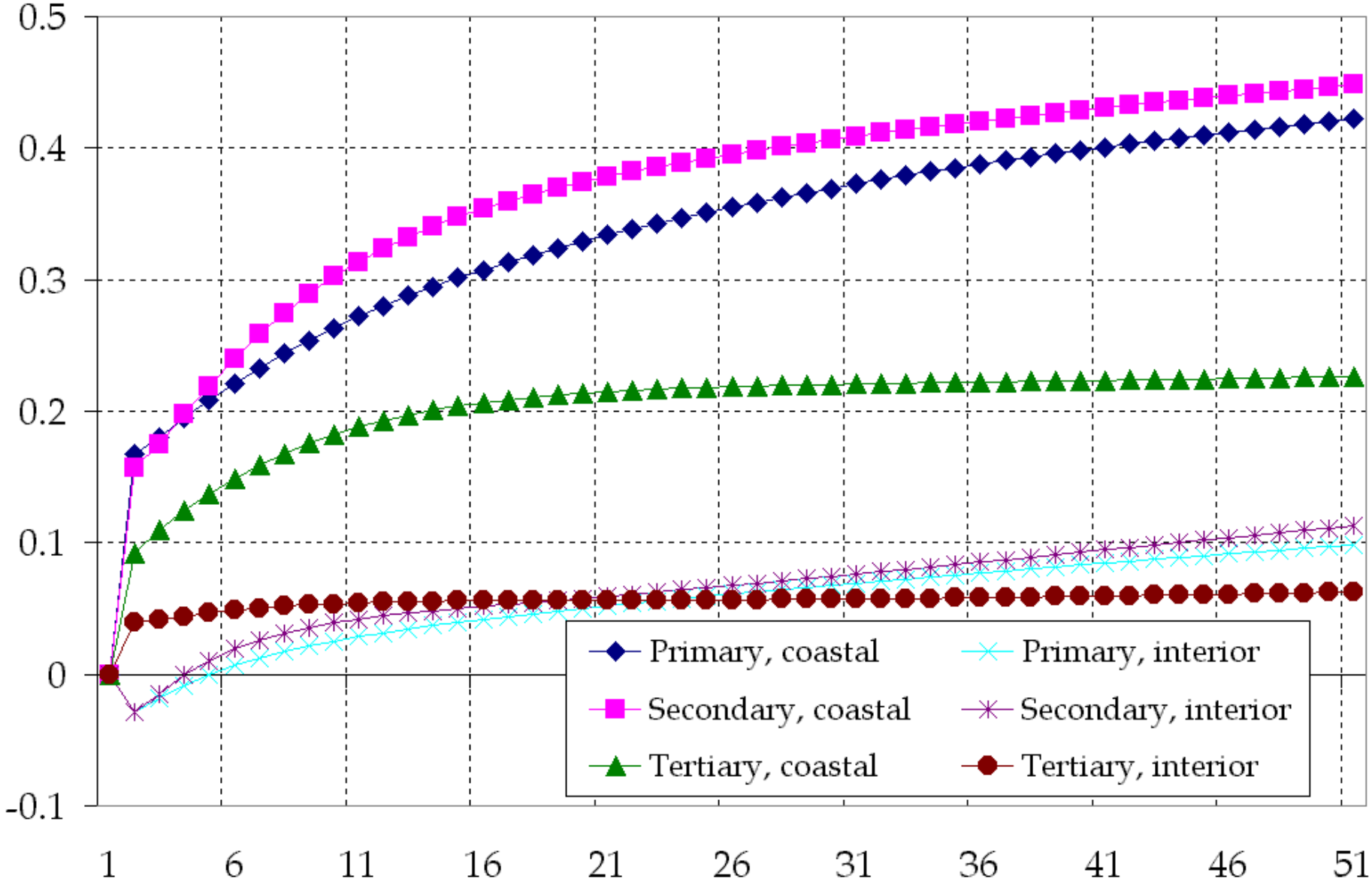

General conclusion

- The direct effects of WTO are globally favourable, except for the State budget (tariffs)
- More for the coast, still a little for the interior
- Almost each individual decision favours the coast
- So WTO accession should widen the gap
- This should be increased by FDI, or technology transfers.

General conclusion

- The gap could be reduced by policy decisions
  - An autoritary increase in local investment
  - Incitations such as tax rebates
  - The development of transportation (double edged)
- This can be studied by our model
- We shall develop these features shortly.
- Along with a rural / urban decomposition