Export Performance of Indian Shrimp to European Union under proposed Free Trade Agreement: An Ex-ante Assessment

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- Shrimp is one of the largest traded commodity in the world

- largest producer -China.

- Main shrimp species produced -white-leg shrimp (*L.vannamei*) .
  - constitutes 1/3rd of total shrimp production.

- In 2011-12 the world exports of shrimp and prawn was 12.59 Billion US$

Indian shrimp production scenario(2012-13)

Shrimp production	0.2 million tonnes
Area under shrimp culture	1.23 lakh ha.
Major species cultured	*L.vannamei* *P.monodon*
Production	*L. vannamei:* 0.123 m tonne. *P. monodon* is 0.114 m tonne.
The major producing states	Andhra Pradesh, West Bengal, and Gujarat

Seafood products exports from India to the world (2013-14)

•Seafood exports from India during 2013-14 was 5 billion US$

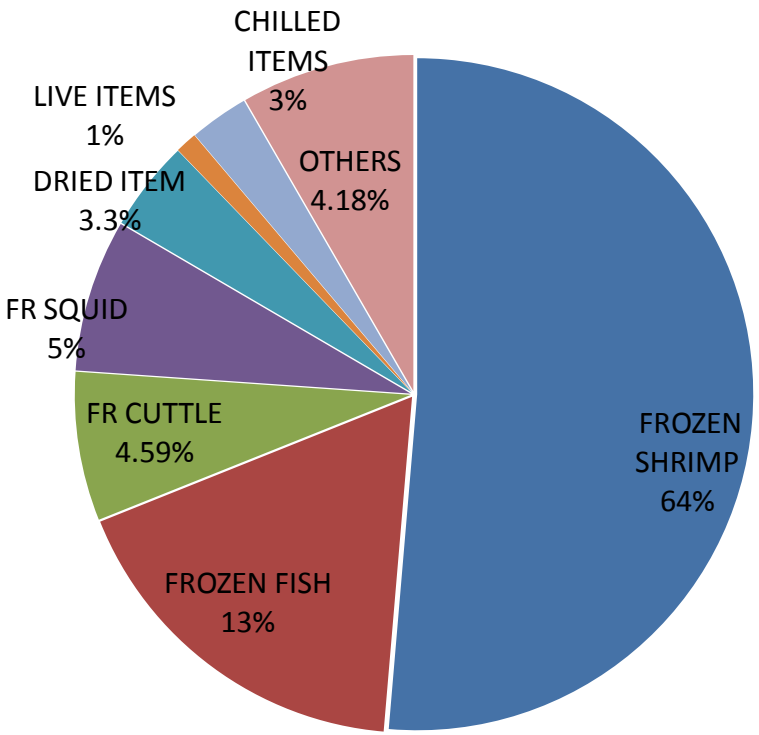
Out of which frozen shrimps exports was 3.21 billion US$ in value and 0.3 m kg in terms of quantity.

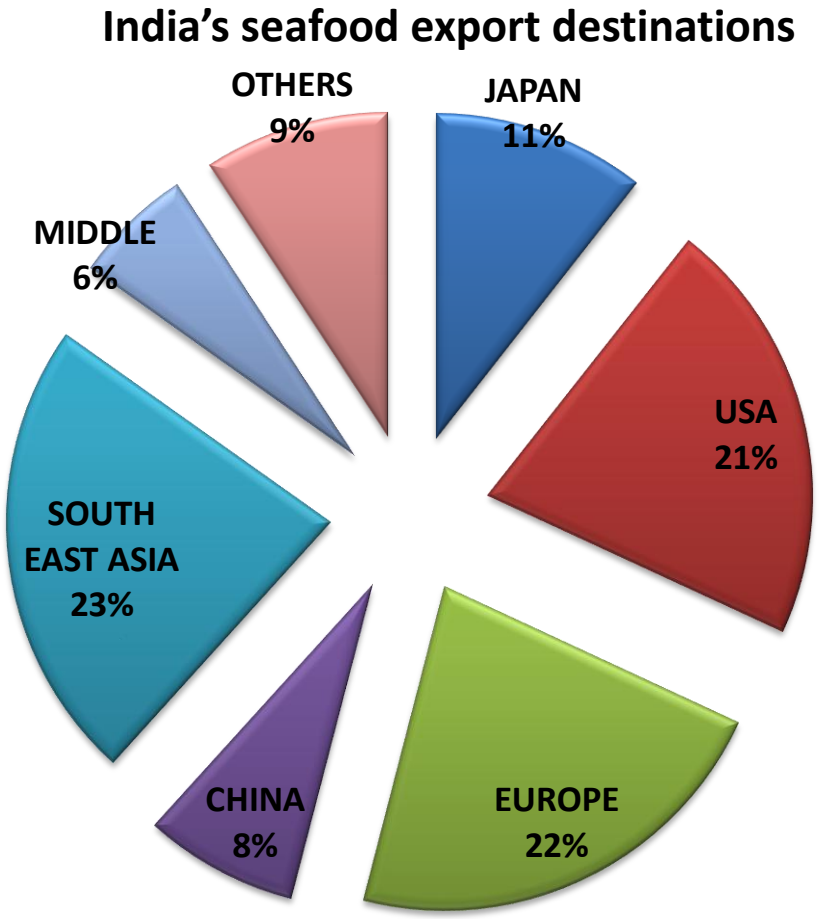
Major species exported are White leg shrimp, Black tiger shrimp,Indian white shrimp and Giant fresh water prawn

Data Source: Marine Products Export Development Authority(MPEDA) (http://www.mpeda.com/inner_home.asp?pg=trends)

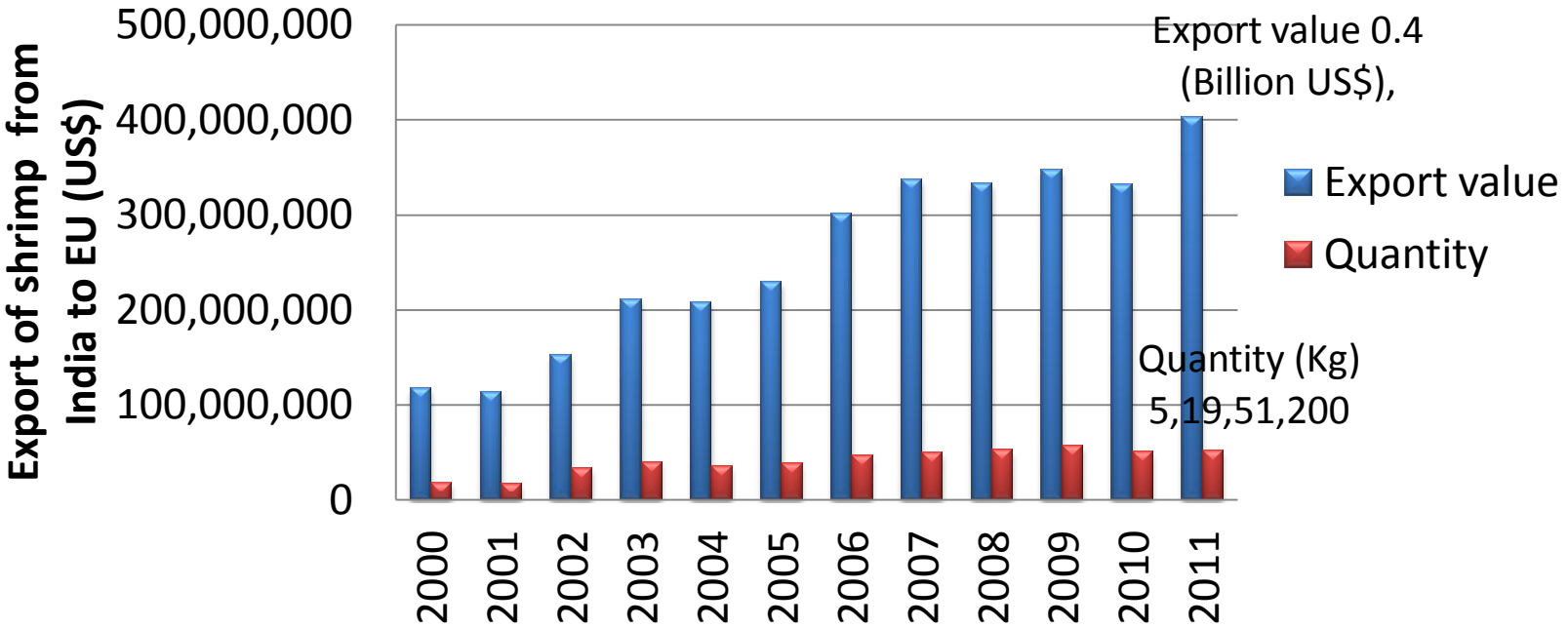
Seafood products exports from India to the world (2013-14)

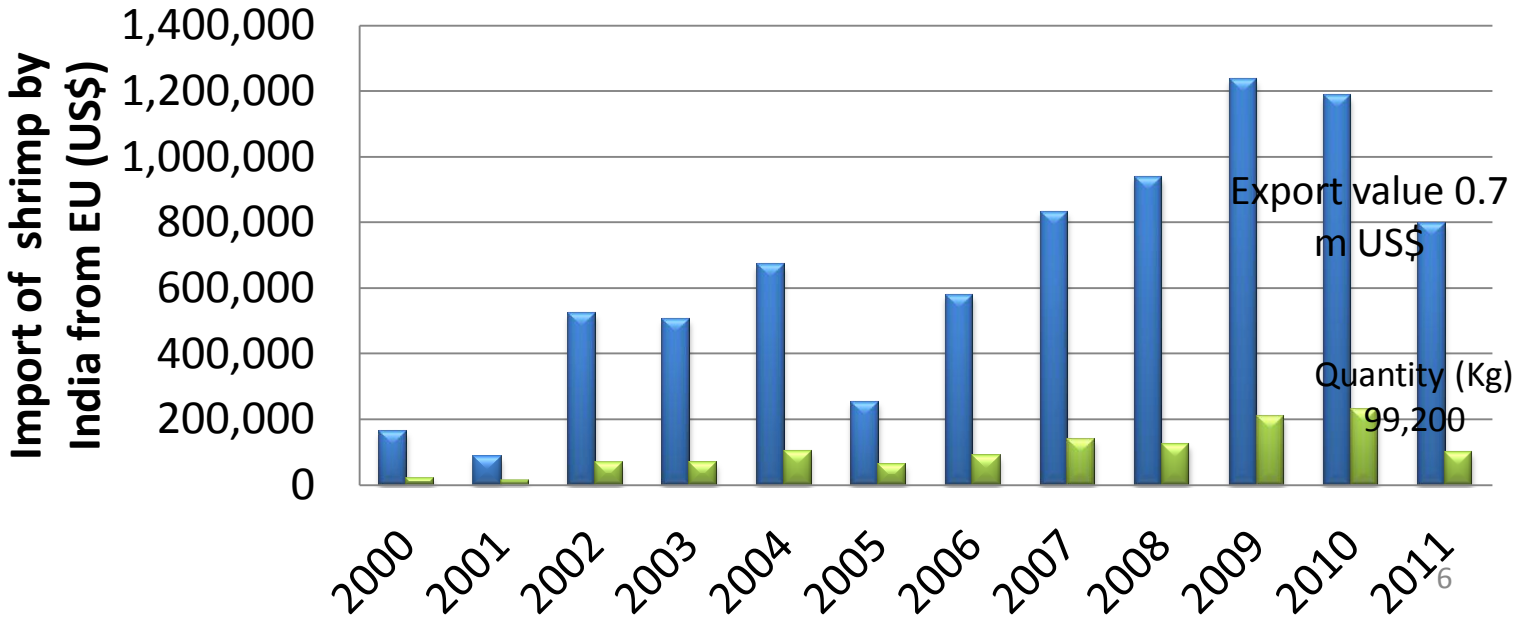
Percentage share of India's export of fish and fishery products





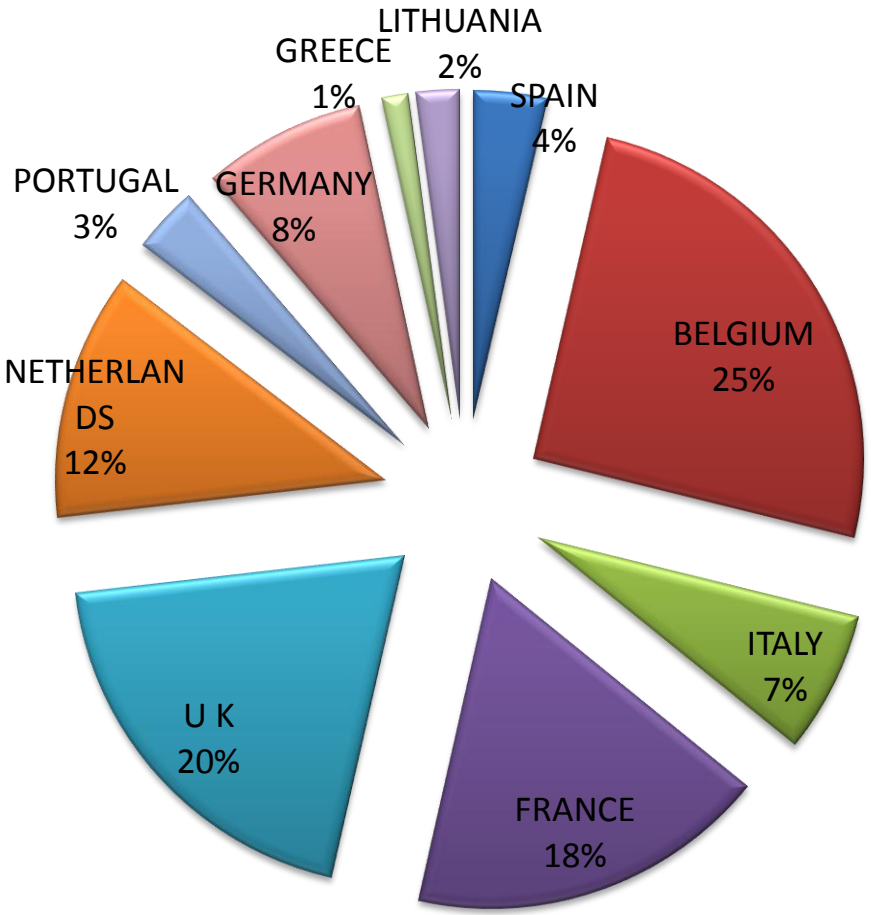
Bilateral trade of shrimp between India and EU





India's shrimp export destination within EU(2011-12)

Country	Quantity	Value (US$)	Percentage contribution
BELGIUM	**13624**	**102.73**	**24.73**
U K	**8689**	**79.80**	**19.21**
FRANCE	**9412**	**72.04**	**17.34**
NETHERLANDS	**7068**	**49.42**	**11.89**
GERMANY	**3661**	**32.44**	**7.81**
ITALY	5273	28.33	6.82
PORTUGAL	2041	13.41	3.23
SPAIN	2317	14.56	3.50
GREECE	835	5.30	1.28
LITHUANIA	1759	8.41	2.02



Source: Seafood Exporters Association of India (SEAI), 2011-12

Top ten exporters of shrimp and prawn to EU (2011-12)

Rank	Country	Export to EU(US$)	%Contribution
1	Ecuador	574.3m	16.98
2	Argentina	438.9m	12.98
3	**India**	**403.3m**	**11.93**
4	Bangladesh	337.4m	9.98
5	Thailand	266.3m	7.87
6	Viet Nam	250.5m	7.40
7	China	177.9m	5.26
8	Greenland	149.9m	4.43
9	Madagascar	98.2m	2.90
10	Indonesia	90.9m	2.69
11	Morocco	64.6m	1.91
12	Others		15.62
		Total	**100**

Source: UN COMTRADE database

Indian shrimp exports to Europe under FTA

- Ex ante analysis is concerned with the analyzing the impact of a reform which has not yet taken place / reform has been in place for a while.

- Ex post analysis requires policy / reform to have been in place for a sufficient period of time for its effects to be observed.

Trade Intensity Index

- The trade intensity is the ratio of two export shares.
- In simple terms whether a country exports more (as a percentage) to a given destination than to rest of the world on average.

- Takes a value between 0 and +∞. Values greater than 1 indicate an 'intense' trade relationship.

- Trade intensity index greater than one indicates that India's trade of shrimp and prawn are more intense with EU than its other destinations and vice versa

Trade Intensity Index

- **Intra-Regional Trade Intensity**

- i = [Tie / Ti] / [Ti / TW]= Tie/TW

  where
- Tie = exports of region i(India) to region e (Europe) plus imports of region i (India)from region e(Europe)

- Ti = total exports of region i(India) to the world plus total imports of region i(India) from the world

- TW = total world exports plus total world imports or twice the value of world exports.

Trade Intensity calculation

Indicators	Value (billion US $)
Tie	0.404
Ti	1.592
TW	25.87
Tie/Ti	0.2539
Ti/Tw	0.062
Trade Intensity value	4.127 India's trade of Shrimp and prawn are four times more intense with EU than compared to India's trading destination in rest of the world

Partial equilibrium model :

SMART model (Jammes and Olarreaga in 2005)

- It is used to analyze the effect of a tariff change that provides a more favorable treatment for one trading partner

- The core assumption (Armington assumption):
  - Import from different countries are imperfect substitutes.
  - E.g: Shrimp from India is not a perfect substitute of shrimp from Thailand.

SMART comes out with 3 effects of a reform.

- Trade diversion effect
- Trade creation effect
- Trade welfare effect

- **Diversion effect**
- **Europe lowering the tariff on Indian shrimp compared to other importing countries.**
- **This changes the relative prices of the shrimp from different countries.**
- **Thus import of shrimp from India to EU will increase where as it will decrease from other countries.**

Trade creation happens when lower price of variety coming from India enables consumers in EU to increase the quantity consumed, keeping expenditures constant.

Thus consumers are now able to import more of the variety from India with same expenditure.

Tariff imposed by EU for Shrimp and Prawn (HS 30613)

Country	Duty Imposed	Simple Average
India	MFN	
Ecuador	MFN	
Argentina	MFN	
Bangladesh	MFN	
Thailand	MFN	
China	MFN	13.0
Greenland	MFN	
Indonesia	MFN	
Madagascar	MFN	
Morocco	MFN	
Vietnam	MFN	

Country	Duty Imposed	Simple Average
India	PRF	-
Ecuador	PRF	-
Argentina	PRF	5.92
Bangladesh	PRF	0.00
Thailand	PRF	5.92
China	PRF	5.92
Greenland	PRF	0.00
Indonesia	PRF	5.92
Madagascar	PRF	0.00
Morocco	PRF	0.00
Vietnam	PRF	5.92

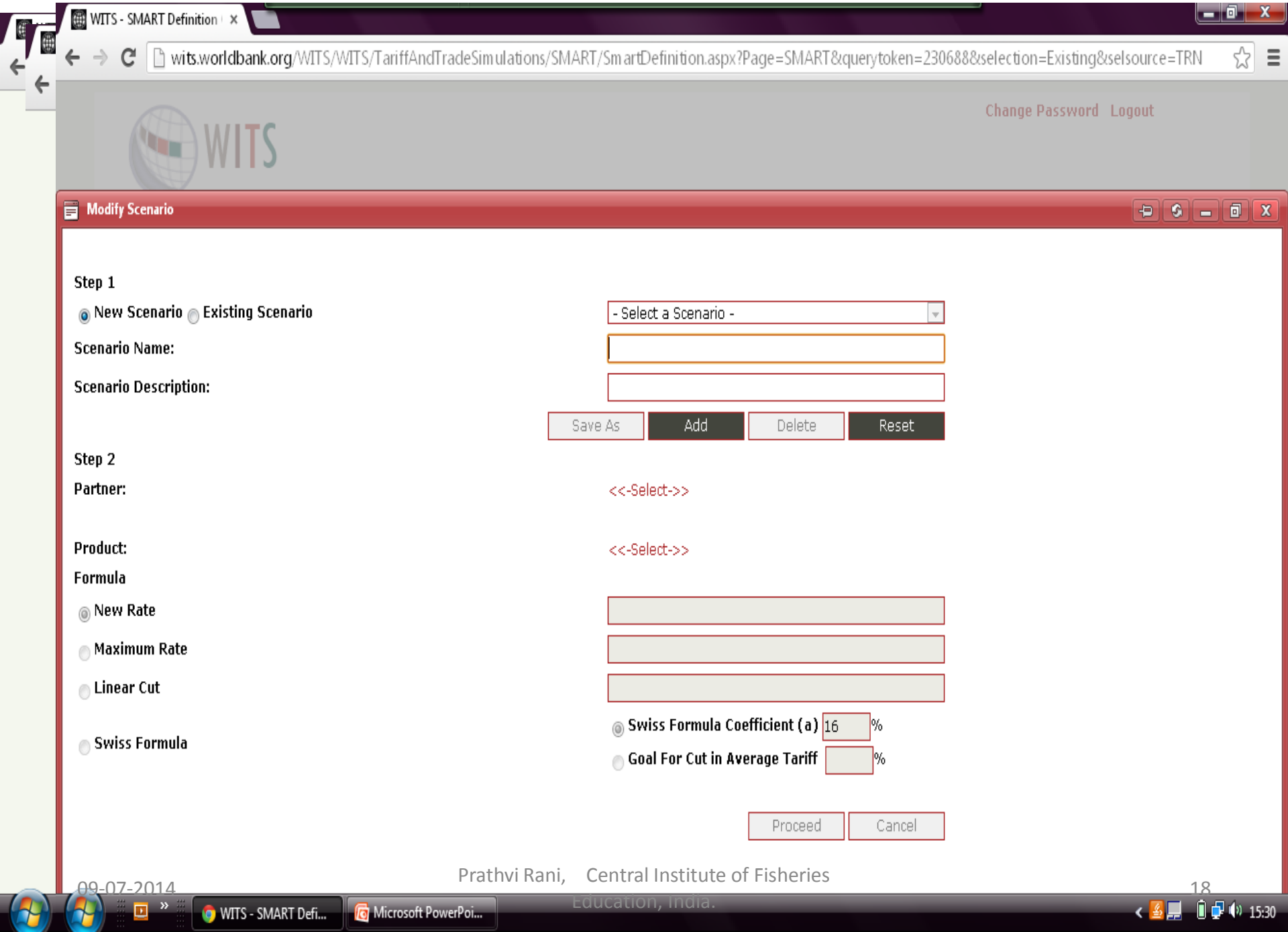
Source: WITS, (World Bank)

SMART MODEL

Scenarios for simulation

Scenario 1. EU agree to reduce existing tariff to a level of 5.92% similar to other preferential trading partners

Scenario 2. EU agree to reduce existing tariff for imports from India to a level of zero


WITS - SMART Definition
wits.worldbank.org/WITS/WITS/TariffAndTradeSimulations/SMART/SmartDefinition.aspx?Page=SMART&querytoken=230688&selection=Existing&selsource=TRN
Change Password Logout
WITS
Modify Scenario
Step 1
New Scenario
Existing Scenario
- Select a Scenario -
Scenario Name:
Scenario Description:
Save As
Add
Delete
Reset
Step 2
Partner:
<<-Select->>
Product:
<<-Select->>
Formula
New Rate
Maximum Rate
Linear Cut
Swiss Formula
Swiss Formula Coefficient (a)
16
%
Goal For Cut in Average Tariff
%
Proceed
Cancel

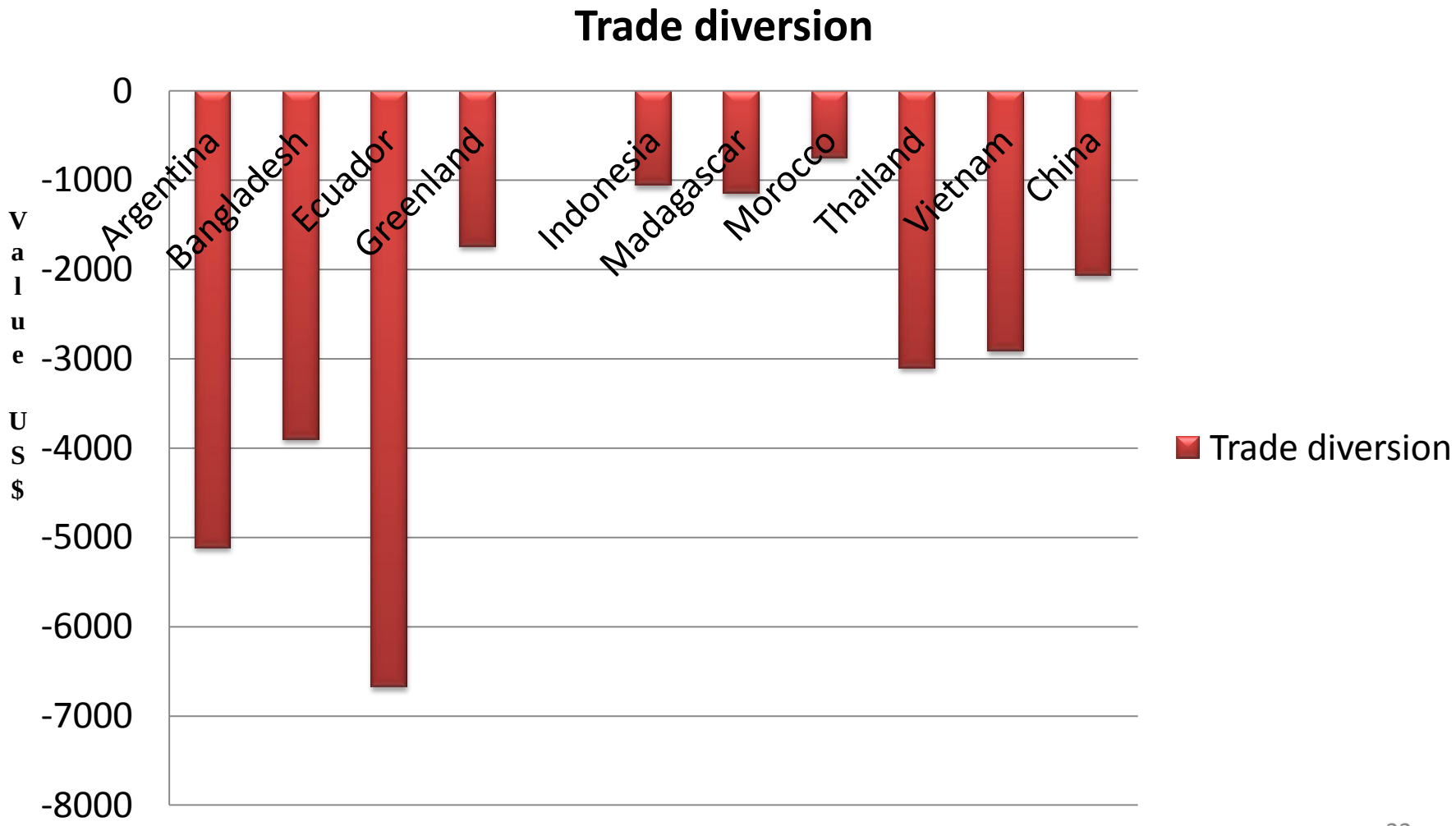
- Scenario 1 of trade simulation –

  Europe imposing a tariff of 5.92% similar to other preferential trading partners

Reporter Name	Partner Name	Old duty rate	New duty rate	Present exports (1000 USD)	Exports After FTA (1000 USD)	Export Change (1000 USD)
EU	**India**	**13**	**5.92**	**30613.00**	**403361.53**	**468765.50**
EU	**Ecuador**	**13**	**13**	**574348.50**	**567669.94**	**-6678.54**
EU	**Argentina**	**5.92**	**5.92**	**438919.19**	**433800.94**	**-5118.25**
EU	Indonesia	5.92	5.92	90979.05	89922.17	-1056.87
EU	Thailand	5.92	5.92	266332.56	263233.06	-3099.50
EU	Vietnam	5.92	5.92	250501.00	247586.25	-2914.75
EU	China	5.92	5.92	177932.70	175863.94	-2068.77
EU	Madagascar	0	0	98243.66	97104.27	-1139.40
EU	Morocco	0	0	64668.59	63918.40	-750.19
EU	Bangladesh	0	0	337416.25	333511.13	-3905.12
EU	Greenland	0	0	149989.78	148251.00	-1738.78

ReporterName	PartnerName	Trade Creation Effect in 1000 USD	Trade Diversion Effect in 1000 USD	Trade Total Effect in 1000 USD
EU	**India**	**30802.95**	**34601.00**	**65403.96**
EU	**Argentina**	**0**	**-5118.25**	**-5118.25**
EU	Bangladesh	0	-3905.12	-3905.12
EU	**Ecuador**	**0**	**-6678.54**	**-6678.54**
EU	Greenland	0	-1738.78	-1738.78
EU	Indonesia	0	-1056.87	-1056.87
EU	Madagascar	0	-1139.40	-1139.40
EU	**Morocco**	**0**	**-750.19**	-750.19
EU	Thailand	0	-3099.50	-3099.50
EU	Vietnam	0	-2914.75	-2914.75
EU	China	0	-2068.77	-2068.77

Trade diversion effect for other trading partners



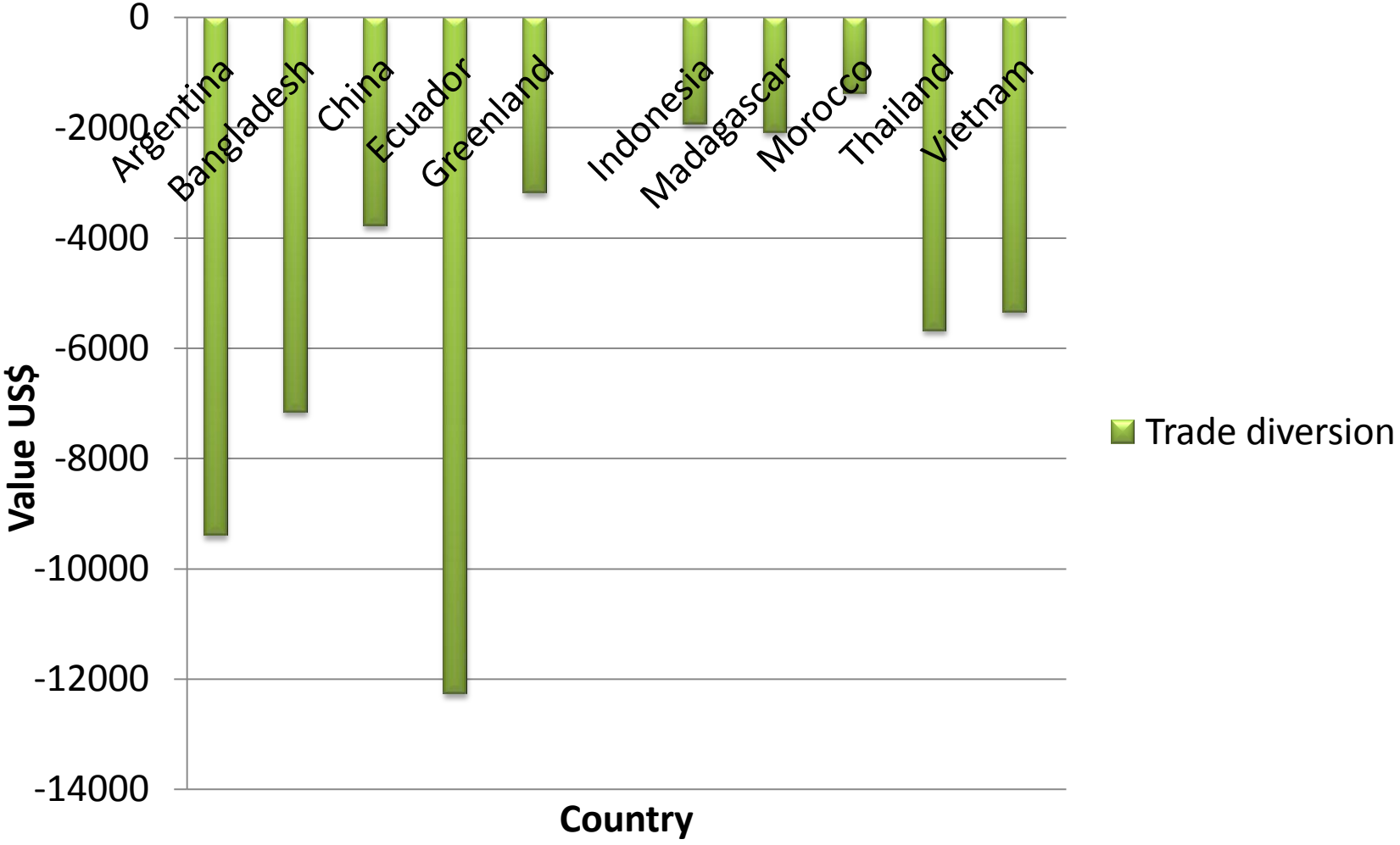
- Scenario 2.

  -Europe imposing zero tariff for Indian imports of shrimp and prawns

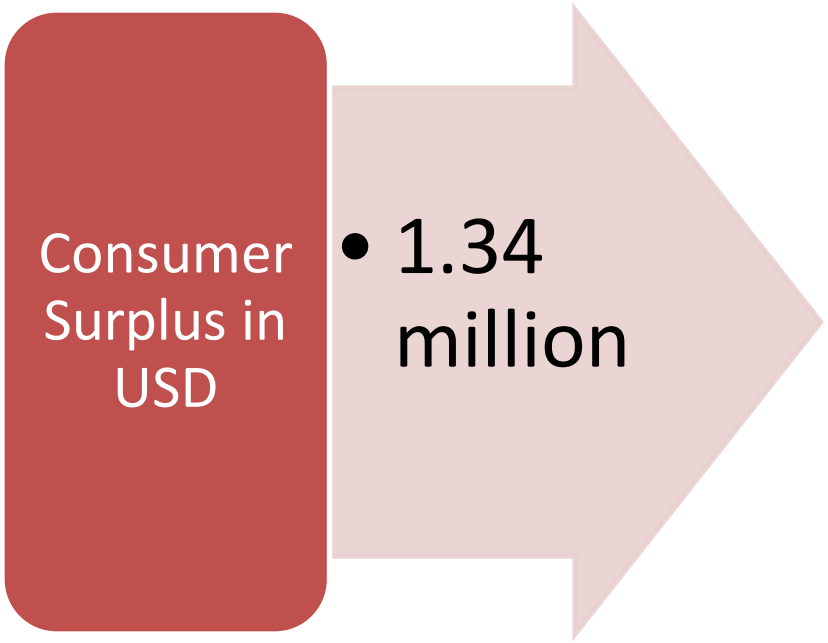
Reporter Name	PartnerName	Present exports (1000 USD)	Exports After FTA (1000 USD)	Export Change (1000 USD)
EU	**India**	**403361.531**	**523401.4**	**120039.9**
EU	Argentina	438919.188	429520.5	-9398.7
EU	Bangladesh	337416.25	330250.4	-7165.82
EU	China	177932.703	174140	-3792.7
EU	Ecuador	574348.5	562073.3	-12275.2
EU	Greenland	149989.781	146802.6	-3187.15
EU	Indonesia	90979.047	89042.42	-1936.62
EU	Madagascar	98243.664	96155.76	-2087.91
EU	Morocco	64668.594	63294.13	-1374.47
EU	Thailand	266332.563	260647.3	-5685.3
EU	Vietnam	250501	245155.1	-5345.92

Partner Name	Old duty rate	New duty rate	Trade Creation Effect in 1000 USD	Trade Diversion Effect in 1000 USD	Trade Total Effect in 1000 USD
India	**13**	**0**	**56559.105**	**63480.766**	**120039.867**
Ecuador	**13**	**13**	**0**	**-12275.212**	**-12275.212**
Argentina	**5.92**	**5.92**	**0**	**-9398.696**	**-9398.696**
China	5.92	5.92	0	-3792.698	-3792.698
Thailand	5.92	5.92	0	-5685.295	-5685.295
Vietnam	5.92	5.92	0	-5345.919	-5345.919
Indonesia	5.92	5.92	0	-1936.623	-1936.623
Greenland	0	0	0	-3187.154	-3187.154
Bangladesh	**0**	**0**	**0**	**-7165.816**	**-7165.816**
Madagascar	0	0	0	-2087.908	-2087.908
Morocco	0	0	0	-1374.469	-1374.469

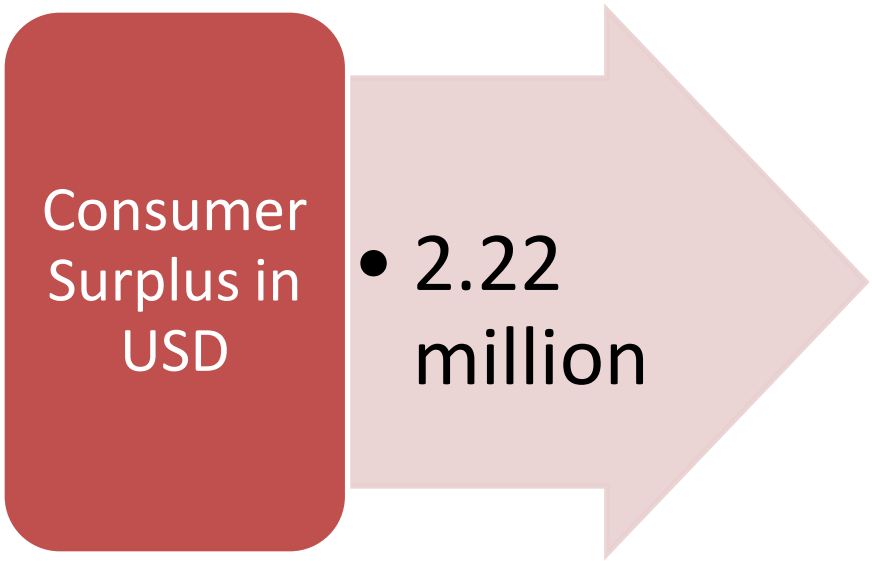
Trade diversion effect for other trading partners



Impact on EU @5.92 % tariff



Impact on EU @ Zero tariff



Conclusions

India- EU coming under a FTA and EU imposing tariff rate of 5.92,

will gain 65.40 million USD of trade benefit

-trade creation of 30.80 million USD

-diversification effect of 34.60 million USD

And at the rate of zero tariff Indian shrimp exports

will gain 0.12 billion USD of trade benefit

-with trade creation of 0.05 billion USD

- diversification effect of 0.063 billion USD

Ecuador and Argentina are the main losers who will lose the market in EU.

The effect On Ecuador is relatively high because of high tariff charged by EU compared to rest of the trading partners.

Europe will have huge welfare effects in terms of the consumer surplus gained.

Therefore this scenario of tariff reduction can be positive for both the nations as both benefit from trade.

SMART model studies the effect with respect to reduction in tariff on both the trading partners. This focuses on India's export performance post FTA.

Similar study can be attempted to know the impact on EU ‘s trade gain and loses with India post FTA.

WITS SMART model does not allow us to evaluate the total impact of the FTA on welfare, because it captures only consumer’s surplus. In order to obtain a complete view of this impact, it is necessary to address also the effects for producers for which Other equilibrium models may be used.

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