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Research Institute of Economy, Trade & Industry, IAA

# RIETI BBL Seminar Handout

November 20, 2015

Speaker: Dr. Lili Yan ING

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Economic Research Institute
for ASEAN and East Asia

RIETI Symposium

Tokyo, 20 November 2015

# How restrictive are ASEAN's RoO?

Olivier Cadot and Lili Yan Ing

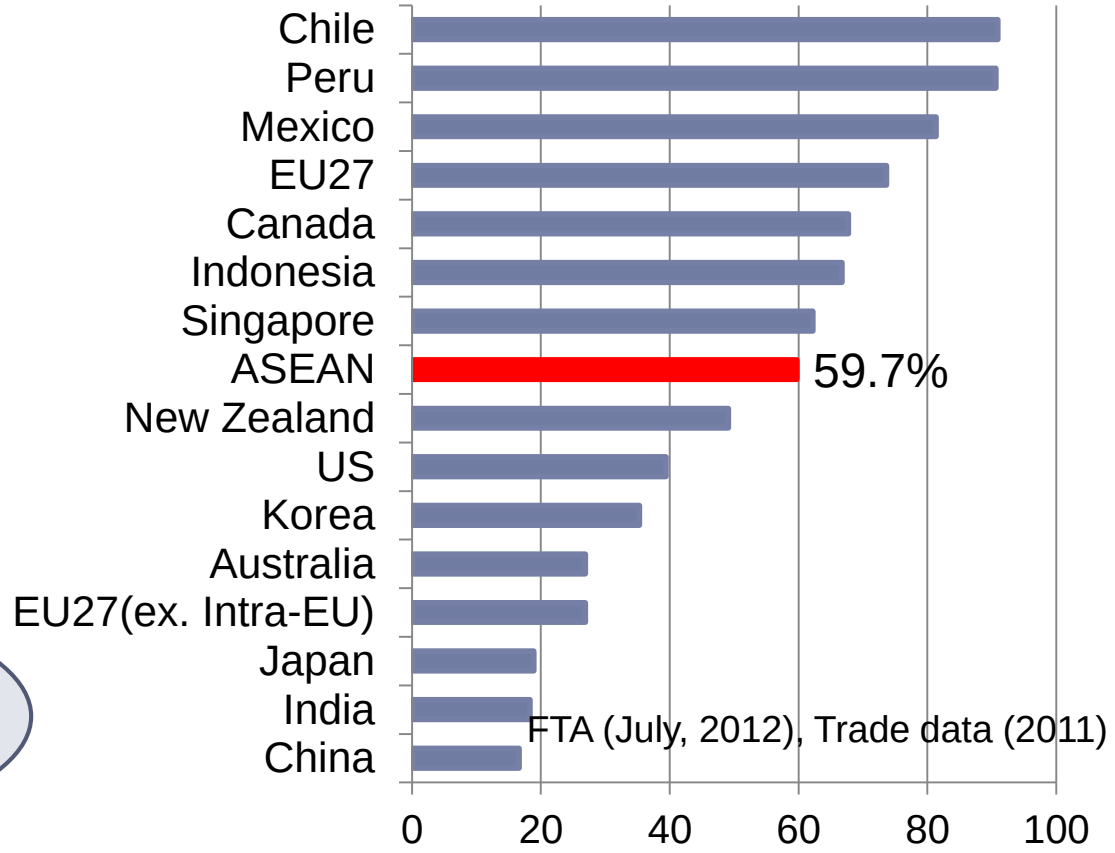
# Outline

1. Introduction
2. Stylized Facts
3. Theoretical Framework
4. Empirical Results
5. Conclusion

# 1. Introduction

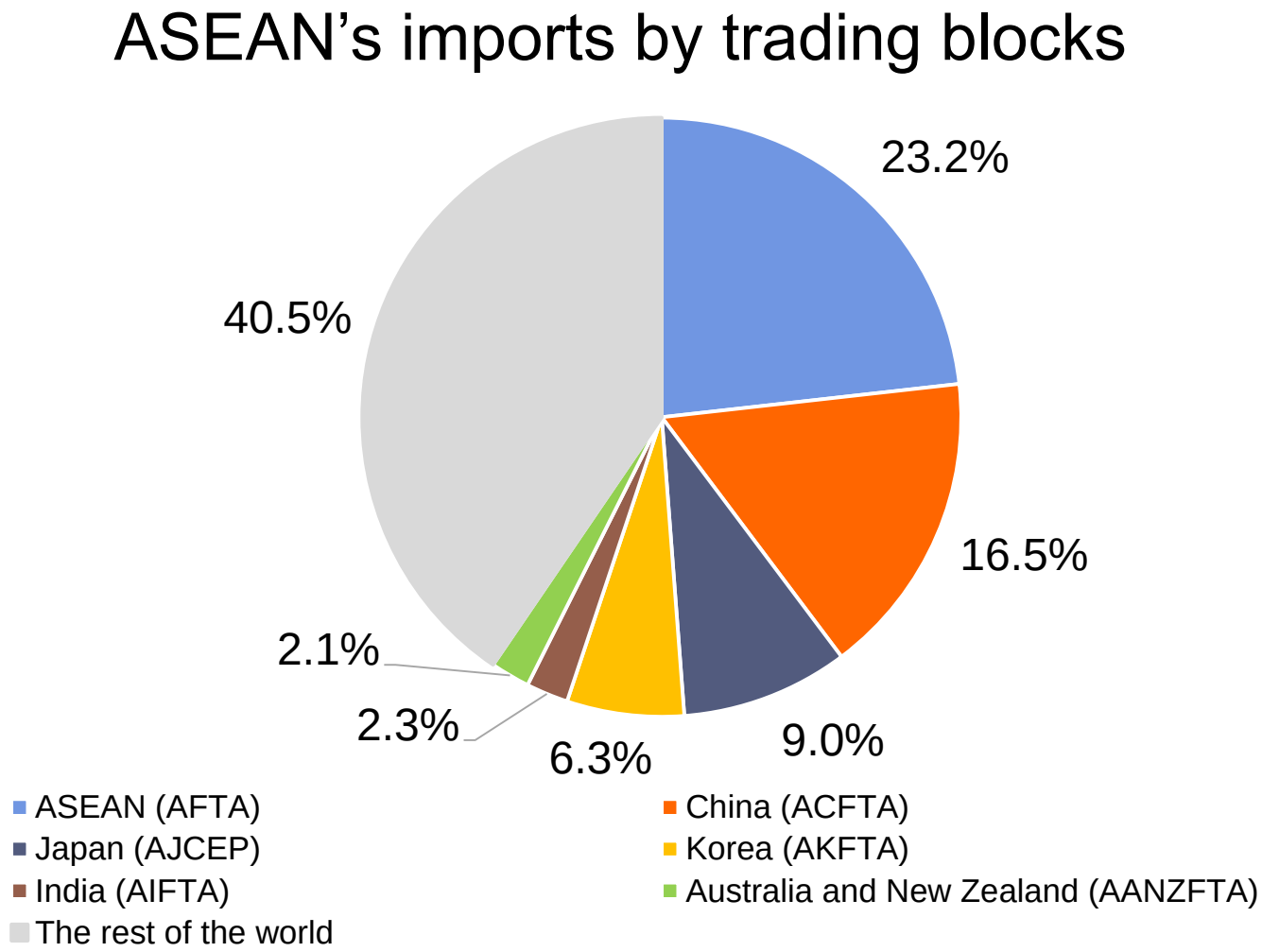
FTA-Trade Coverage Ratios
Proportion of trade with FTA partners in total trade (%)

ASEAN+Aus and NZ
ASEAN+China,
ASEAN+India,
ASEAN+Japan,
ASEAN+Korea,



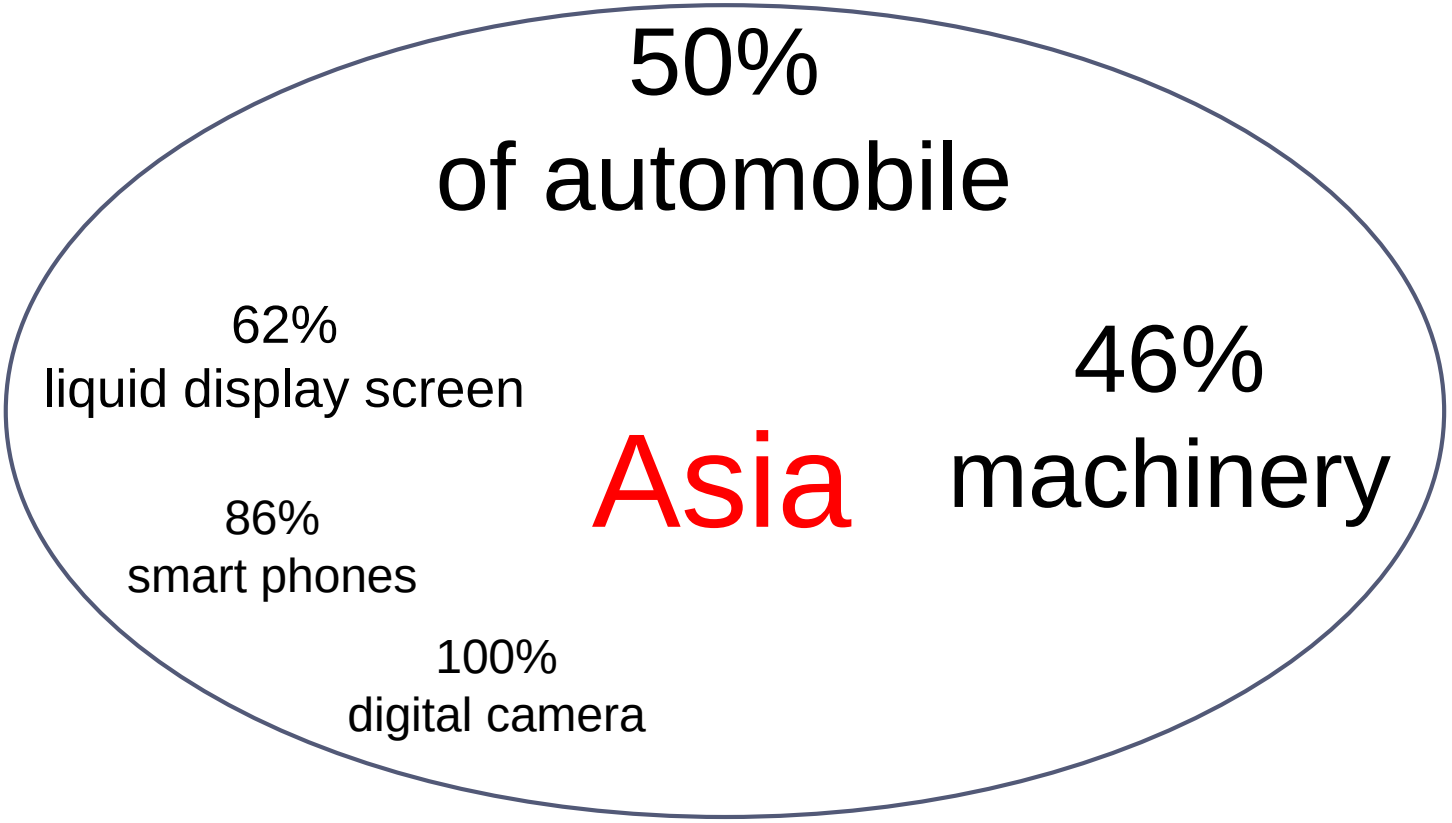

RCEP is currently in the process of negotiations

# 1. Introduction




Source: Authors' calculations based on UNCOMTRADE data

# 1. Introduction




Source: Hiratsuka (2013) and ERIA Staff calculations for machinery based on World Input Output data [accessed in August 2014]

# 2. Sytlized facts

ROO stands in the middle of these two trends. ROO could make them incompatible…

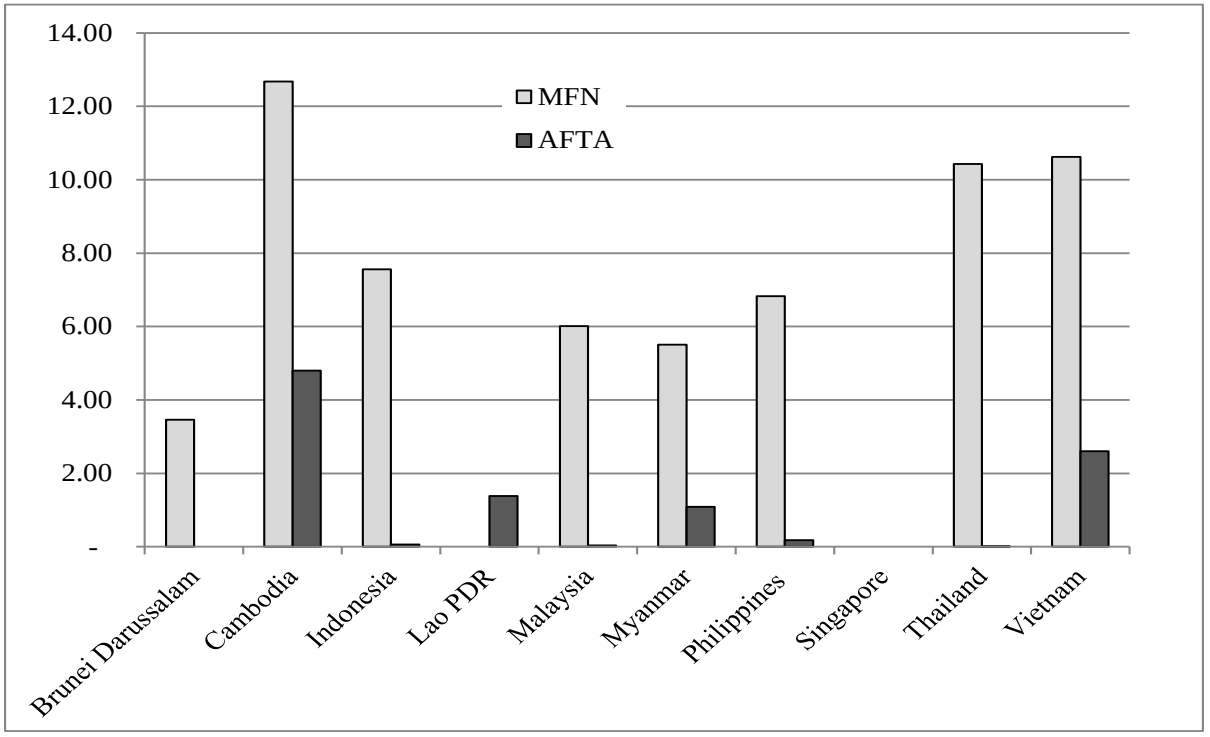
## 2.1. ROO: How do they work?

- Product specific rules: changes in tariff classification, regional value contents, or technical requirements
- Regime-wide rules –essentially cumulation rules (bilateral, diagonal and full cumulation)

# 2. Sytlized facts

## 2.3. ASEAN's tariff and ROO

- ROO can be binding only when tariff preference margins are substantial.




Source: ASEAN Secretariat

# 3. Theoretical framework

## 3.1. Set up

Suppose that country $i$ exports $n_i$ varieties to country $j$ and let $x_{ijk}$ be the quantity of variety $k$ exported from $i$ to $j$ (in tons), $p_{ijk}$ its CIF price, $E_j$ the total expenditure in country $j$, and $s_{ijk}$ its share in country $j$'s expenditure. We have

$$p_{ijk}x_{ijk} = s_{ijk}E_j \qquad (1)$$

# 3. Theoretical framework

Let $p_{ik}$ be the producer price of variety $k$ in country $i$; we will assume that it is affected by an idiosyncratic shock $\varphi_{ik}$ representing comparative advantage, i.e.

$$p_{ik} = \frac{p_i}{\varphi_{ik}} \tag{3}$$

Let $\tau_{ijk}$ be the bilateral trade cost between $i$ and j for variety $k$, including all of its components (tariffs, RoOs, and other measures). The consumer price of variety $k$ in country $j$ is then

$$p_{ijk} = \tau_{ijk} p_{ik} \tag{4}$$

# 3. Theoretical framework

Let $V_{ij}$ be the total value of exports from $i$ to $j$. Bilateral trade between $i$ and $j$ is:

$$V_{ij} = \sum_k p_{ijk} x_{ijk} = \sum_k s_{ijk} E_j = \sum_k \left( \frac{p_{ijk}}{P_j} \right)^{1-\sigma} E_j = \sum_k \left( \frac{\tau_{ijk} p_{ik}}{P_j} \right)^{1-\sigma} E_j \quad (5)$$

Country $i$'s GDP is the sum of its sales to all destinations, including itself:

$$Y_i = \sum_{j=1}^{m} V_{ij} = \sum_{j=1}^{m} \sum_k \left( \frac{\tau_{ijk} p_{ik}}{P_j} \right)^{1-\sigma} E_j = \sum_k \left[ {p_{ik}}^{1-\sigma} \sum_{j-1}^{m} \left( \frac{\tau_{ijk}}{P_j} \right)^{1-\sigma} E_j \right] \quad (6)$$

# 3. Theoretical framework

Noting finally that income equals expenditure, $E_j = Y_j$ and letting $\bar{\tau}_{ij} = \sum_k \tau_{ijk}^{1-\sigma}$ be the average trade cost from $i$ to $j$ across all varieties gives a modified gravity equation holding the aggregate level in the absence of symmetry:

$$v_{ijk} = s_{ijk} V_{ij} = \left(\frac{p_{ijk}}{P_j}\right)^{1-\sigma} V_{ij} = \left(\frac{p_i \tau_{ijk}}{\varphi_{ik} P_j}\right)^{1-\sigma} \bar{\tau}_{ij} \frac{Y_i Y_j}{\widetilde{\Omega}_i P_j^{1-\sigma}} \qquad (13)$$

# 3. Theoretical framework

## 3.2. Estimation strategy, data and data sources

The estimation strategy is based on the Anderson-van Wincoop (2004) framework at the product level from but relaxing key symmetry assumptions on production costs and trade costs. We log-linearize equation (13):

$$\ln v_{ijk} = \beta_1 \ln \tau_{ijk} + \beta_2 \ln \tau_{ij} + \delta_{ik} + \delta_j + u_{ij} \qquad (14)$$

Let $\tau_{ijk}$ stand for product-specific trade costs, which are what we are interested here (product-specific tariffs and RoOs)

$$\tau_{ijk} = e^{\gamma_1 t_{ijk} + \gamma_2 r_{ijk}} \qquad (15)$$

# 3. Theoretical framework

$$\ln v_{ijk} = \beta_1 t_{ijk}^{MFN} + \beta_2 \left(I_{ijk}^{RTA} \times t_{ijk}^{MFN}\right) + \beta_3 I_{ij}^{RTA} + \sum_l \beta_{4l} I_{ij}^{ASEAN} r_{ijkl} + \mathbf{x}_{ij}\boldsymbol{\gamma} + \delta_i + \delta_j + \delta_{s(k)} + u_{ijk} \quad (19)$$

Let $t_{ijk}^{MFN}$ be the MFN tariff rate on product $k$ applicable to trade between $i$ and $j$, $I_{ij}^{RTA}$ is a dummy variable marking preferential trade (for any RTA), where $l$ indexes the various forms of RoOs (CTC, local content, etc.)

$x_{ij}$ be a vector of country-pair attributes such as distance, common border, common language and common colonizer.

Where $\delta_i$, $\delta_j$, and $\delta_{s(k)}$ are respectively exporter, importer and sector (HS4) fixed effects, $s(k)$ being the HS4 sector to which HS6 product $k$ belongs.

# 3. Theoretical framework

We also carry out the estimation by section, making sure that each section includes goods with different types of ROO. We then convert estimates into ad-valorem equivalents (AVEs) of ROOs using a standard formula for semi-logarithmic equations

$$AVE_l = e^{\beta_{4l}}\text{-}1 \qquad (20)$$

# 3. Theoretical framework

Data and data sources

- The main data source are RoO data in the form of precise requirements at the HS6 level of product classification were provided to us by the ASEAN Secretariat.

- Trade data in thousand U.S. dollars are from the CEPII's BACI database, which is based on COMTRADE but reconciles direct export and mirrored import data.

- Gravity variables are from the CEPII's free-access online database.

# 4. Empirical results

**Table 2: Gravity Regression Results, Non-commodity Trade: Control Variables**

| Estimator | OLS (within) | OLS (within) | OLS (within) |
|---|---|---|---|
| Sample | All a/ | All a/ | Manufacturing |
| Dependent variable: ln(trade value) | (1) | (2) | (3) |
| Gravity controls | | | |
| ln(distance) | -0.442 | -0.448 | -0.477 |
| | (268.00)*** | (260.15)*** | (264.38)*** |
| Comm. border | 0.420 | 0.415 | 0.407 |
| | (97.47)*** | (95.84)*** | (89.42)*** |
| Comm. language | 0.189 | 0.191 | 0.227 |
| | (55.28)*** | (55.77)*** | (63.38)*** |
| Comm. colonizer | 0.234 | 0.235 | 0.234 |
| | (38.24)*** | (38.18)*** | (36.33)*** |
| Trade policy variables | | | |
| MFN tariff | -0.005 | -0.005 | -0.009 |
| | (22.52)*** | (22.30)*** | (38.31)*** |
| RTA pair | 0.223 | 0.223 | 0.231 |
| | (54.28)*** | (54.13)*** | (54.22)*** |
| MFN tariff x RTA | 0.001 | 0.001 | 0.001 |
| | (3.59)*** | (2.96)*** | (2.56)** |

**Table 2 (continued): Gravity Regression Results, Non-commodity Trade: RoOs**

| Estimator | OLS (within) | OLS (within) | OLS (within) |
|---|---|---|---|
| Sample | All a/ | All a/ | Manufacturing |
| Dependent variable: ln(trade value) | (1) | (2) | (3) |
| Rules of origin | | | |
| CC | | -0.205 | -0.204 |
| | | (5.35)*** | (3.97)*** |
| CTH | | -0.101 | -0.067 |
| | | (1.26) | (0.75) |
| RVC | | -0.062 | -0.063 |
| | | (4.02)*** | (3.89)*** |
| RVC at 35% (ASEAN-India) | | -0.443 | -0.519 |
| | | (19.69)*** | (22.17)*** |
| Wholly obtained | | -0.459 | -0.136 |
| | | (10.42)*** | (1.16) |
| CTC & exception | | -0.177 | -0.193 |
| | | (6.40)*** | (6.80)*** |
| CTC & RVC | | 0.542 | 0.841 |
| | | (1.71)* | (1.69)* |
| CTC or TR | | -0.533 | -0.528 |
| | | (8.33)*** | (8.19)*** |
| CTC or (TR & RVC) | | -0.314 | -0.340 |
| | | (1.64) | (1.78)* |
| RVC or CC | | -0.149 | -0.036 |
| | | (6.08)*** | (1.16) |
| RVC or CTH | | 0.059 | 0.047 |
| | | (5.76)*** | (4.48)*** |
| RVC or CTSH | | -0.170 | -0.222 |
| | | (8.71)*** | (11.06)*** |
| RVC or TR | | -0.459 | -0.563 |
| | | (11.19)*** | (13.76)*** |
| RVC or (CTC & exception) | | -0.286 | -0.347 |
| | | (15.94)*** | (19.07)*** |
| Constant | 6.525 | 6.600 | 6.518 |
| | (138.18)*** | (138.45)*** | (128.62)*** |
| Observations | 4411362 | 4411362 | 3959384 |
| R-squared | 0.26 | 0.26 | 0.28 |

**Table 3: Average AVEs for All RoO Instruments, by Section**

| Section | Summary description | Average AVE (%) | Trade weights a/ |
|---|---|---|---|
| 1 | Live animals; animal products | - | |
| 2 | Vegetable products | 1.91 | 2.61 |
| 3 | Animal or vegetable fats | 6.67 | 0.58 |
| 4 | Food, beverages and tobacco | 1.73 | 3.05 |
| 5 | Mineral products | 1.52 | 19.59 |
| 6 | Products of the chemical or allied industries | 3.50 | 9.70 |
| 7 | Plastics and articles thereof; rubber and articles thereof | 1.87 | 4.63 |
| 8 | Leather and leather products | 9.05 | 0.60 |
| 9 | Wood and articles of wood | -3.20 | 0.77 |
| 10 | Pulp and paper | 4.98 | 1.75 |
| 11 | Textiles and apparel | 8.29 | 4.06 |
| 12 | Footwear | 12.67 | 0.77 |
| 13 | Cement, glass and stone | 2.42 | 0.93 |
| 14 | Precious metals and stones | 3.81 | 2.97 |
| 15 | Base metals and articles of base metal | -0.46 | 7.77 |
| 16 | Machinery and electrical equipment | -0.36 | 25.89 |
| 17 | Vehicles | 6.89 | 8.99 |
| 18 | Precision instruments, optics, watchmaking | 3.34 | 3.33 |
| 19 | Arms and ammunition; parts and accessories thereof | - | - |
| 20 | Miscellaneous manufactured articles | -3.37 | 1.99 |
| 21 | Works of art, collectors' pieces and antiques | - | |
| *Average (%)* | | | |
| *Simple* | | ***3.40*** | |
| *Trade-weighted* | | | ***2.09*** |

*Note*: Trade weights calculated using world trade, following Leamer (1974), averaged over 2010-11. Only sections where RoO AVEs are significant used in their calculations; Section 1 omitted because entirely covered by "wholly obtained" rule.

# 5. Conclusion

1. ASEAN's RoOs have a relatively simple and transparent structure: 40% are RVC and CTH. The Textile Rule seems to stand out as a relatively more trade-inhibiting rule than others.

2. An average tariff equivalent, across all measures and products is 3.40%. The trade-weighted average is 2.09%. The effects are heterogeneous. While it is small in sectors like electronics or capital equipment, it peaks in sectors like fats (6.7%), leather products (9%), textile and apparel (8.3%), footwear (12.7%), or automobiles (6.9%).

3. The simplification and streamlining of ROOs should prioritize light industries like textiles and apparel, footwear and prepared foods and this should be seen as part of ASEAN's internal development and poverty-reduction strategy.

# Appendix

# Review of Free Trade Agreements

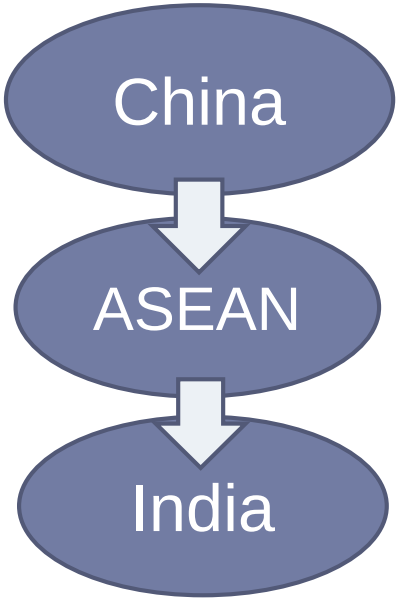
- By January 2010, ASEAN has 6 FTAs in effect (AFTA, ASEAN+Australia and New Zealand, ASEAN+China, ASEAN+India, ASEAN+Japan, ASEAN+Korea FTAs)

- In Nov 2011, the Regional Comprehensive Economic Partnership (RCEP) was proposed. The RCEP is currently in the process of negotiations.

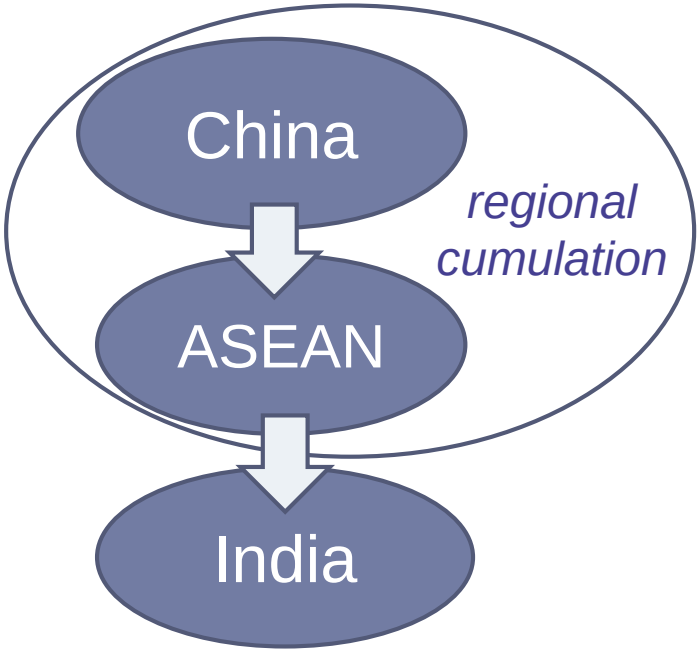
- RCEP Members: ASEAN-10 and its main trading partners, Australia, China, India, Korea, Japan and New Zealand

# RCEP: regional cumulation

The existing ASEAN+1 FTAs




RCEP




RCEP enables business operating in Indonesia to enjoy preferential rates by using *regional cumulation* of RCEP members (eg. using imports from China, producing in Indonesia and exporting to India, Australia or other RCEP members). RCEP members: the ASEAN-10, Australia, China, India, Japan, Korea and New Zealand

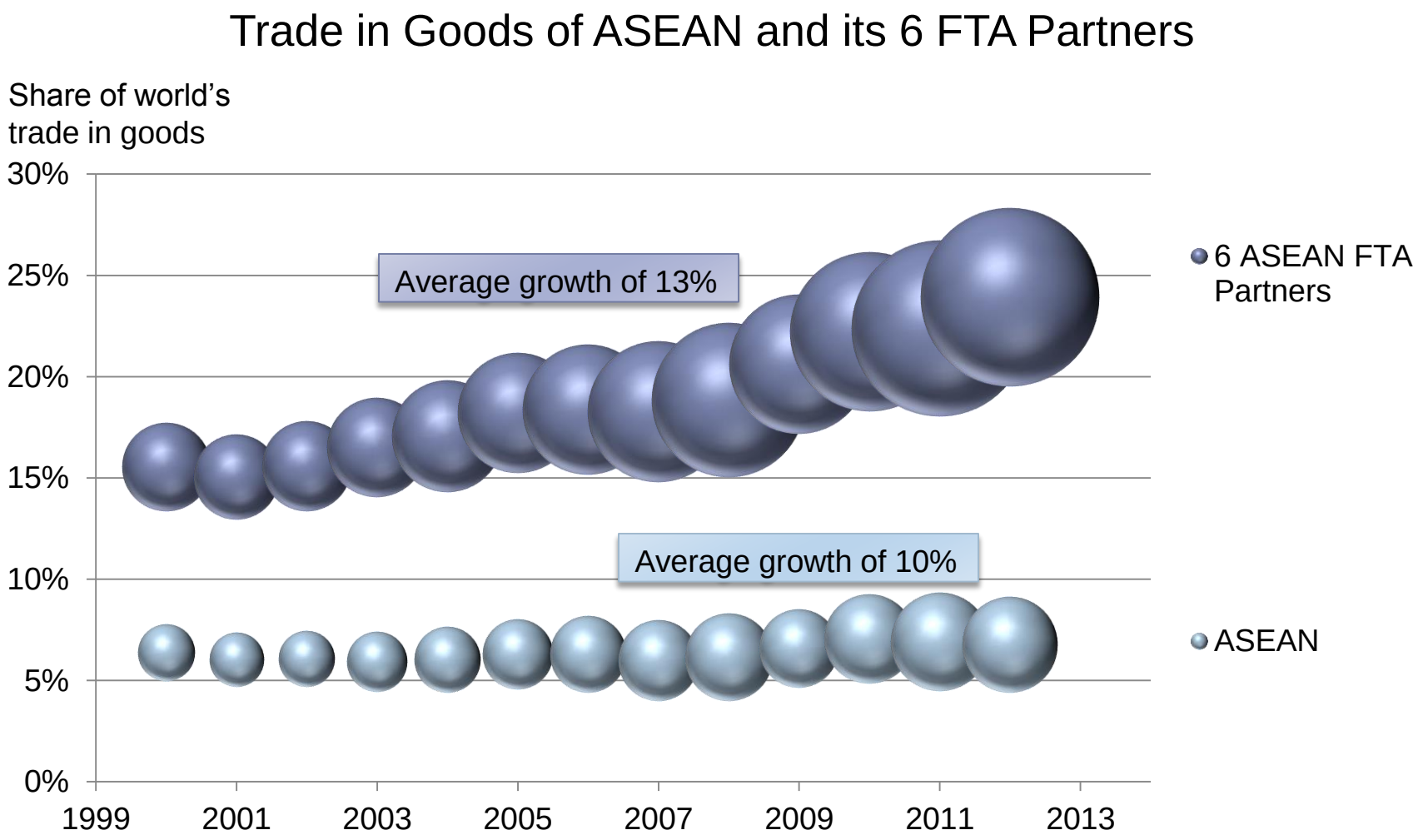
# Evaluation of the use of existing FTAs

The use of FTAs in ASEAN countries (2013): Survey based analysis

| FTAs | Firms using FTAs for Exports (% of exporting firms) | Firms using FTAs for Imports (% of importing firms) |
|---|---|---|
| FORM D (AFTA-ATIGA) | 51.5% | 39.4% |
| FORM E (ACFTA) | 25.6% | 38.7% |
| FORM AK (AKFTA) | 20.0% | 12.3% |
| FORM AANZ (AANZFTA) | 13.8% | 5.4% |
| FORM AJ (AJCEP) | 6.6% | 3.3% |
| FORM AI (AIFTA) | 10.8% | 9.6% |
| | | |
| FORM A (GSP) | 42.0% | 16.5% |

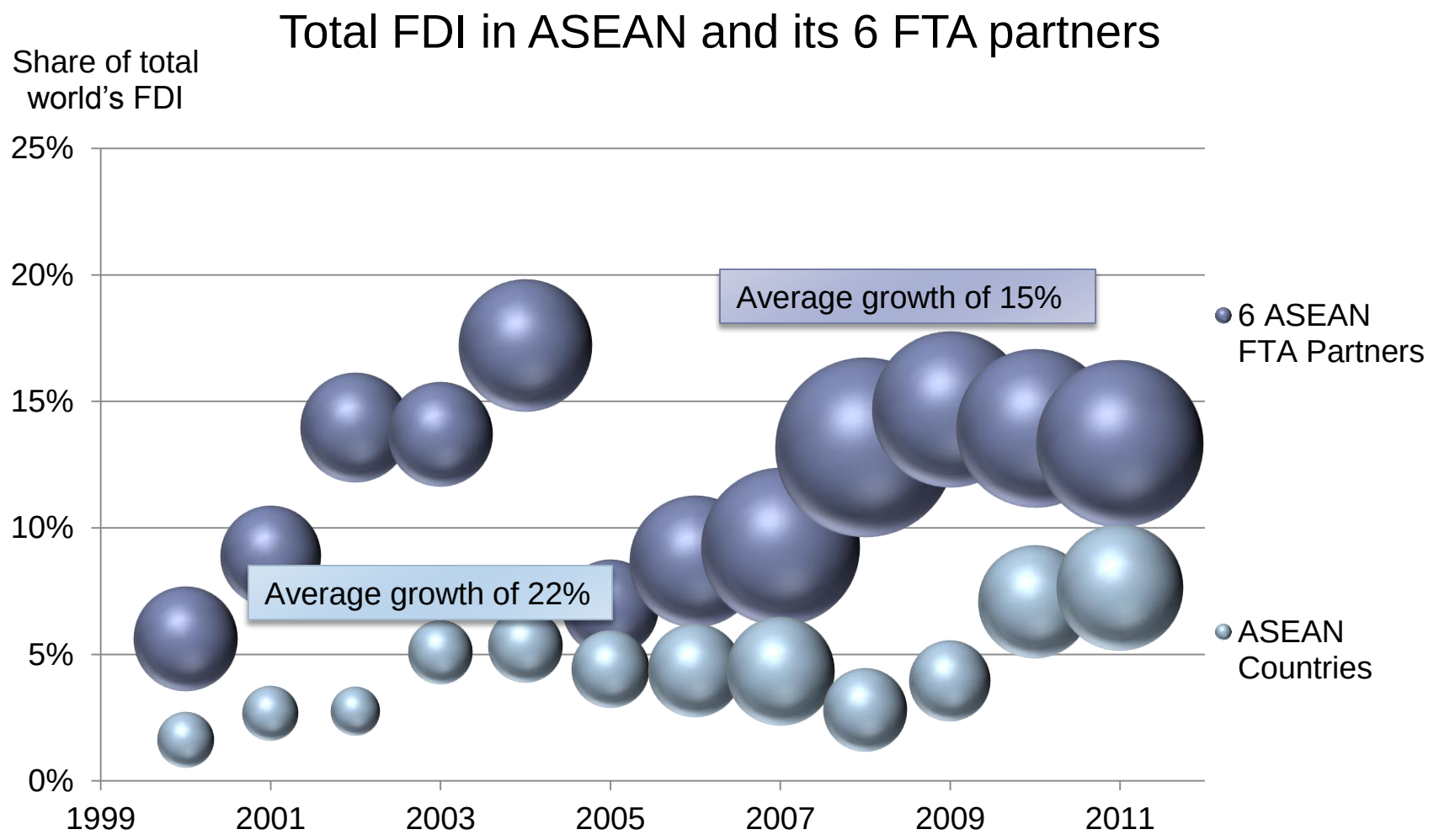
Source: The Use of FTA in ASEAN (ERIA study, forthcoming)
Note: The summation of the use of FTA COOs does not necessarily add up to 100% as not all of firms use FTAs and one firm may have more than one FTA and non-FTA COOs.

# Recent trends in trade in goods




Source: Pangestu, Mari Elka and Lili Yan Ing, 2015.

# Recent trends in FDI




Source: Pangestu, Mari Elka and Lili Yan Ing, 2015.