

# **The Rising Importance of Non-tariff Measures in China's Trade Policy**

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# Outline

- **Introduction**
- **Evolution of trade policy in China**
- **Methodology and Data**
- **Results**
- **Conclusion**

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- **Non-tariff measures (NTMs)**

- ✓ **Definition:** *NTMs are defined as policy measures other than ordinary customs tariffs, that can have potentially an economic effect on international trade in goods by changing traded quantities, or prices or both. (UNCTAD(2013))*
- ✓ **Core NTMs:** *Price control measures, Quantity restrictions, Monopolistic measures, Technical measures (covers on average 84% of all NTMs used in China)*

- **Statistics of China in 2017** (*from China's national bureau of statistics website*):
  - The GDP of China reached 12686.15 billion dollars, ranked the second in the world.
  - The total volume of import and export is 4104.5 billion dollars, ranked the first in the world.
- With a large economy scale, trade volume and a large number of trade partners, China's trade policy has long been the focus of policymakers, firms and academia.

### Research question

1. How does NTM implementation evolves in China?
2. Is China applying NTMs to substitute for tariff reductions?

### What this paper did

1. Using frequency index and the ad valorem equivalents (AVEs) of NTMs in China to analyse the evolution of China's NTMs (1992–2015).
2. Explore the relationship between tariffs and NTMs, both statically and dynamically in China (1997–2015).

## Contribution of this paper

1.6-digit HS product-level analysis of NTMs in China.

2. Add a time dimension:

--Observe policy adjustment after a tariff reduction in China.

--Address certain methodological issues, such as the endogeneity problem.

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Trade policy in China has experienced **three periods** since the “new China” was founded in 1949: 1) 1949-1992; 2) 1992-2001; and 3) 2002-present.

**(1) 1949–1992:** Inward-oriented and protective period

- Inward-oriented import substitution policy to promote the development of national industry.
- International trade under government control and management.

**1992-2001 Period:** from a protective to more liberalized

**Export policy:** Increased export tax rebate rate, export financial support (espe. electromechanical and high-tech products).

**Import policy:**

1. Tariff system adjusted in accordance with the Harmonized System.
2. Import tariffs generally reduced.
3. Implementation of NTMs normalized.
4. Improved foreign-related legal system, such as technical and anti-dumping regulations.

## **2002-Present:** Open trade policy under the WTO framework

### **---Tariff:**

General tariff cut in a row, dropped from 42.7 per cent in 1992 to 10 per cent in 2008.

### **---NTMs:**

- 1.2002-1-1**, Abolishing the quota licence management for grain, wool, cotton, chemical fibre, chemical fertilizer, some tyres and other products.
- Improve quota management, with the quota growing at a certain rate and administrative provisions for explanation.
- 3.2005-1-1**, removing more than 400 existing NTMs at the tariff line level.
- Improving the legal system of import, export, customs and commodity inspection.

**Present:**

----“Promote a new pattern of comprehensive opening up”-----the 19th National Congress of the Communist Party of China, 2017 October.

----“Belt and Road” initiatives

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## Frequency index

$$\bullet F_t = \left[ \frac{\sum D_{nt}M_{nt}}{\sum M_{nt}} \right], \quad (1)$$

- Data obtained from UNCTAD TRAINS database.
- $M_{nt}$  --the dummy for the existence of non-zero import for product  $n$  at time  $t$ .
- $D_{nt}$  --the dummy taking the value of 1 if there is an NTM for product  $n$  at time  $t$ , or zero otherwise.
- $0 \leq F_t \leq 1$ .
- The percentage of products affected by at certain NTM among all imported products.
- The higher the value, the higher the probability that the corresponding NTM is applied.

- **AVEs of NTMs: Niu et al. (2017)**

The AVEs of NTMs are estimated at HS-6 level for 5009 products, 97 countries (European Union countries separately) over the period 1997–2015 following the methodology in Kee et al. (2009).

**Tariff: “effectively applied tariff rate” from: TRAINS.**

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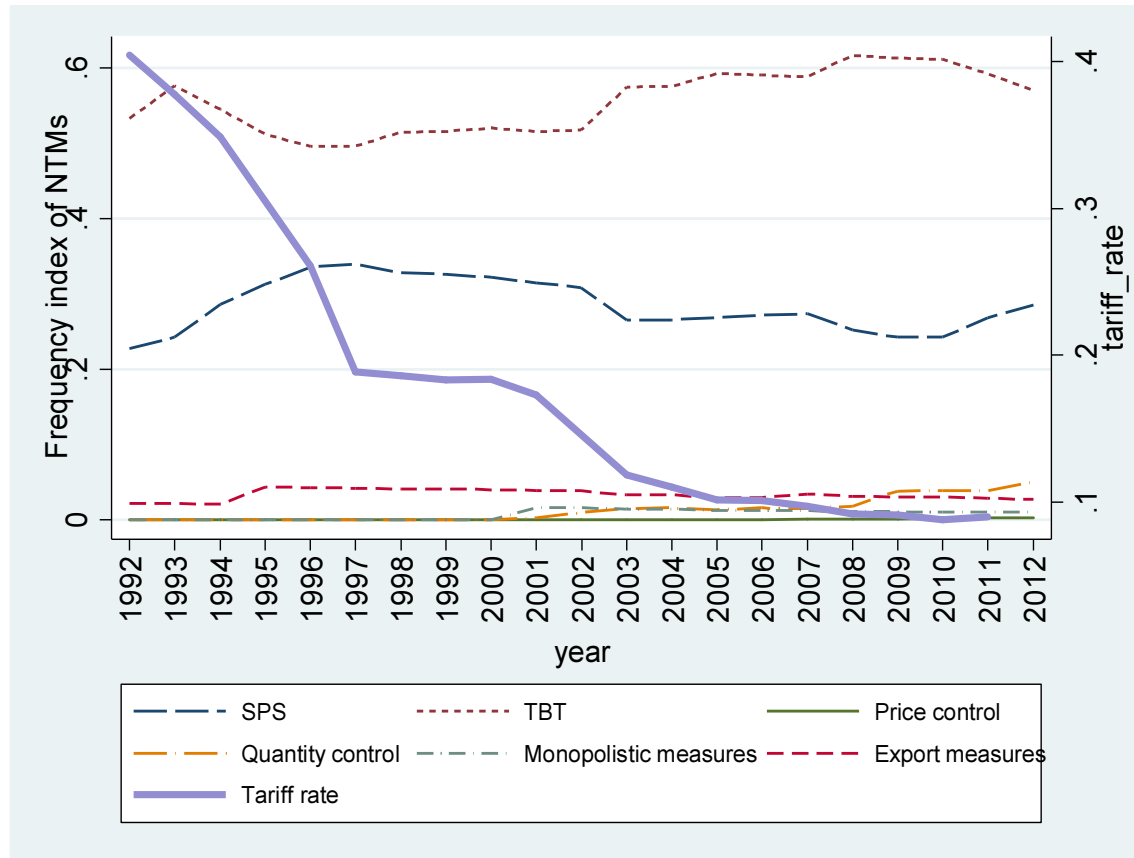
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## 1. How does NTM implementation evolves in China?

- 1) The most frequently applied NTMs in China on average, for each industry
- 2) The major NTM targeting countries in China
- 3) The evolution of NTM protection level over time in China

2. Does the Government of China is applying NTMs to substitute for tariff reductions?



**Figure 1: Frequency index of different types of NTMs and tariff rate in China over time (1992–2012)**

Industry name	SPS	TBT	Price control	Quantity control	Monopolistic measures	Export measures
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Agricultural product (HS0 industry 1-24)</b>						
Live animals (1-5)	0.86	0.05	0	0	0	0.09
Vegetable products (6-14)	0.87	0.05	0	0	0	0.07
Fats and oils (15)	0.76	0.11	0	0.03	0.02	0.05
Prepared foodstuffs (16-24)	0.60	0.26	0	0.01	0.01	0.10
<u>Agricultural mean</u>	0.77	0.12	0	0.01	0.01	0.08
<b>Manufacturing product (HS0 industry 25-97)</b>						
Mineral products (25-27)	0.01	0.95	0	0.03	0.01	0
Chemical products (28-38)	0.06	0.62	0	0.04	0.01	0.01
Rubber and plastics (39-40)	0.01	0.55	0	0.02	0.01	0
Raw hide and skins (41-43)	0.88	0.03	0	0.03	0	0.06
Wood (44-46)	0.07	0.14	0	0.01	0.01	0.65
Paper (47-49)	0	0.78	0.01	0	0	0
Textile (50-63)	0.08	0.84	0	0.04	0.01	0.01
Footwear (64-67)	0	0.50	0	0	0	0.01
Stone and cement (68-70)	0	0.35	0	0.01	0	0
Base metals (71-83)	0	0.72	0	0.01	0.05	0
Machinery and electrical equipment (84-85)	0	0.99	0	0.01	0	0
Motor vehicles (86-89)	0	0.82	0	0.02	0	0
Optical and medical instruments (90-92)	0	0.54	0	0.03	0	0
Miscellaneous goods (93-97)	0	0.26	0	0	0	0

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**Table 2: Top 5 most frequently NTM targeted countries each year in China (1992-2012)**

Year	Rank	Country name	Frequency index of all NTM	Year	Rank	Country name	Frequency index of all NTM
1992	1	Uruguay	0.57	2007	1	Kyrgyz Republic	0.51
	2	Mongolia	0.41		2	Kazakhstan	0.39
	3	Myanmar	0.24		3	Mongolia	0.30
	4	Argentina	0.23		4	Turkmenistan	0.26
	5	Korea, Dem. Rep.	0.21		5	Uruguay	0.25
1997	1	Kyrgyz Republic	0.60	2012	1	Kyrgyz Republic	0.56
	2	Mongolia	0.59		2	Kazakhstan	0.32
	3	Uruguay	0.46		3	Uzbekistan	0.24
	4	Kazakhstan	0.39		4	Mongolia	0.23
	5	Turkmenistan	0.33		5	Uruguay	0.22
2002	1	Kyrgyz Republic	0.51				
	2	Mongolia	0.32				
	3	Kazakhstan	0.30				
	4	Uruguay	0.29				
	5	Myanmar	0.21				

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**Table 3: Summary statistics of tariff and NTMs protection level in China**

Year	Number of products with available data for		Average by year				
	NTM (1)	Tariff (2)	Tariff (3)	NTM (4)	Overall (5)	$\Delta$ NTM (6)	$\Delta$ Tariff (7)
1997	4384	4830	0.18	0.38	0.56		
2000	4390	4813	0.17	0.62	0.79	0.24	-0.01
2003	4554	4736	0.11	0.71	0.82	0.11	-0.06
2006	4418	4743	0.09	0.46	0.55	-0.27	-0.02
2009	4385	4482	0.09	0.64	0.73	0.17	-0.01
2012	4266	4482	0.09	0.61	0.70	-0.05	0.00
2015	3658	4451	0.08	0.75	0.84	0.15	0.00

## 1. How does NTM restrictions evolves in China?

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## **2 Is China is applying NTMs to substitute for tariff reductions?**

- 1) Literature review
- 2) Regression results

## **No consensus from the literature:**

### **---Substitutes**

1. **“Law of constant protection” (Bhagwati, 1989)** and Replacement of trade policy measures (Anderson and Schmitt, 2003)
2. Kee et al. (2009)

### **---Complements**

1. **Protection for sale (Grossman and Helpman, 1994)**
2. Endogenous protection theory (Trefler, 1993; Lee and Swagel, 1997) and Price-based measure (Dean et al., 2009)

### **---Reconciled the two effects**

1. **Consumption externality (Essaji, 2010)**
2. Kee and Neagu (2011) and Ronen (2016)

**One year for AVEs of NTMs, no dynamic analysis (empirical works).**

- **Static relationship:**

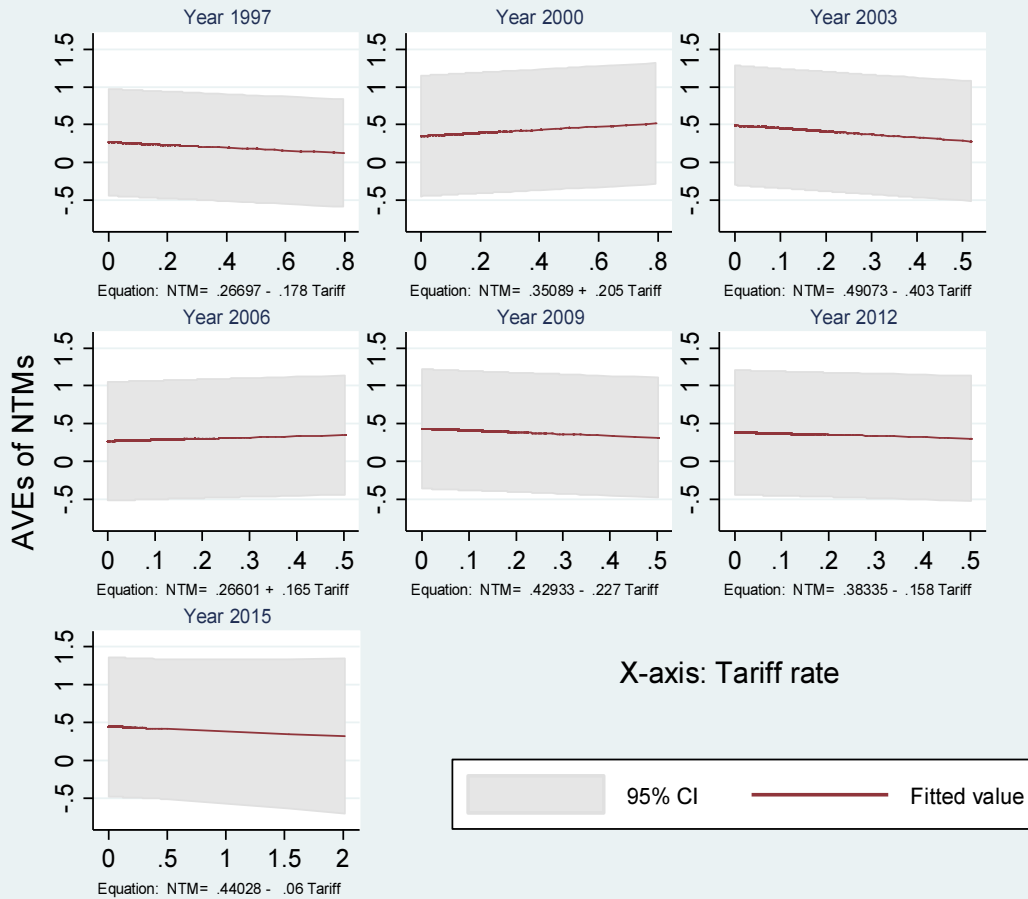
$$NTM_{nt} = \alpha_{nt} + \beta_1 Tariff_{nt} + \theta_n + \tau_t + \epsilon_{nt}, \quad (1)$$

- **Dynamic relationship:**

$$NTM_{nt} = \alpha_{nt}^* + \beta_1^* \Delta Tariff_{nt} + \theta_n + \tau_t + \epsilon_{nt}^* \quad (2)$$

- $\beta_1 > 0$ , complements;  $\beta_1 < 0$ , substitutes





Slope coefficients for each year

Year	1997	2000	2003	2006	2009	2012	2015
Slope coefficient	-0.178*** (0.07)	0.205*** (0.07)	-0.403*** (0.09)	0.166 (0.11)	-0.227** (0.12)	-0.158 (0.12)	-0.06 (0.11)

Figure 2: Average AVEs of NTMs over average tariff (1997–2015)

<i>Dependent variable: <math>\ln(1 + NTM_t)</math></i>				<i>Dependent variable: <math>\ln(1 + NTM_t)</math></i>			
<i>Independent variable</i>	(1)	(2)	(3)	<i>Independent variable</i>	(4)	(5)	(6)
<i><math>\ln(1 + tariff_t)</math></i>	-0.36*** (0.04)	-0.06 (0.05)	-0.02*** (0.01)	<i><math>\ln(1 + \Delta tariff_t)</math></i>	-0.16*** (0.03)	-0.02 (0.03)	-0.04 (0.04)
<i><math>\ln(1 + tariff) \times Year 2000</math></i>			0.36*** (0.07)	<i><math>\ln(1 + \Delta tariff) \times Year 2000</math></i>			0.26*** (0.08)
<i><math>\ln(1 + tariff) \times Year 2003</math></i>			-0.23** (0.09)	<i><math>\ln(1 + \Delta tariff) \times Year 2003</math></i>			-0.39*** (0.10)
<i><math>\ln(1 + tariff) \times Year 2006</math></i>			0.31*** (0.10)	<i><math>\ln(1 + \Delta tariff) \times Year 2006</math></i>			0.17 (0.11)
<i><math>\ln(1 + tariff) \times Year 2009</math></i>			-0.06 (0.11)	<i><math>\ln(1 + \Delta tariff) \times Year 2009</math></i>			-0.17 (0.12)
<i><math>\ln(1 + tariff) \times Year 2012</math></i>			0.06 (0.11)	<i><math>\ln(1 + \Delta tariff) \times Year 2012</math></i>			-0.08 (0.12)
<i><math>\ln(1 + tariff) \times Year 2015</math></i>			0.09 (0.11)	<i><math>\ln(1 + \Delta tariff) \times Year 2015</math></i>			-0.02 (0.12)
Constant	0.40*** (0.00)	0.26*** (0.01)	0.28*** (0.01)	Constant	0.37*** (0.00)	0.25*** (0.01)	0.25*** (0.01)
Observations	29,721	29,721	29,721	Observations	25,274	25,274	25,274
Year FEs	NO	YES	YES	Year FEs	NO	YES	YES
Regression model	FE	FE	FE	Regression model	FE	FE	FE
R-squared	0.00	0.05	0.05	R-squared	0.00	0.05	0.01
Product group	4,646	4,646	4,646	Product group	4,626	4,626	4,626

**Table 4: Panel regression of NTMs over tariff (level and change 1997–2015)**

## **Regressions for sectors with above and below average tariff reduction**

- The Uruguay Round: Tariff cut to average 1/3 of original level.
- Sectors with above average tariff cut (67% of the sample) and below average tariff cut (33% of the sample)

**Table 5: Panel regressions of NTMs over tariff and overhang for different sectors in China (1997–2015)**

	Static				Dynamic				
	Regressors: $\ln(1+NTM_t)$				Regressors: $\ln(1+NTM_t)$				
	Above average		Below average		Above average		Below average		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
$\ln(1+tariff_t)$	-0.27*** (0.08)	-0.59*** (0.12)	0.06 (0.08)	-0.03 (0.09)	$\ln(1+tariff_t)$	-0.01 (0.06)	-0.25 (0.17)	0.02 (0.04)	-0.13 (0.12)
<i>Tariff</i> × <i>Year</i> 2000		0.50*** (0.14)		0.14 (0.11)	$\Delta$ <i>Tariff</i> × <i>Year</i> 2000		0.35 (0.23)		0.39** (0.17)
<i>Tariff</i> × <i>Year</i> 2003		0.32** (0.16)		0.12 (0.14)	$\Delta$ <i>Tariff</i> × <i>Year</i> 2003		0.24 (0.26)		0.14 (0.16)
<i>Tariff</i> × <i>Year</i> 2006		0.42** (0.16)		0.18 (0.15)	$\Delta$ <i>Tariff</i> × <i>Year</i> 2006		-0.02 (0.25)		0.33* (0.17)
<i>Tariff</i> × <i>Year</i> 2009		-0.08 (0.18)		-0.04 (0.15)	$\Delta$ <i>Tariff</i> × <i>Year</i> 2009		0.46* (0.26)		-0.09 (0.17)
<i>Tariff</i> × <i>Year</i> 2012		-0.63*** (0.18)		0.51*** (0.15)	$\Delta$ <i>Tariff</i> × <i>Year</i> 2012		0.43* (0.25)		0.21 (0.17)
<i>Tariff</i> × <i>Year</i> 2015		0.53*** (0.15)		0.13 (0.20)	$\Delta$ <i>Tariff</i> × <i>Year</i> 2015		0.24 (0.24)		0.04 (0.16)
Constant	0.28*** (0.01)	0.32*** (0.02)	0.24*** (0.02)	0.26*** (0.02)	Constant	0.24*** (0.01)	0.25*** (0.01)	0.26*** (0.01)	0.28*** (0.01)
Observations	19,243	19,243	10,478	10,478	Observations	16,379	16,379	8,893	8,893

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- The most widely applied NTMs in China are technical measures, namely TBT and SPS measures, which affecting more than half of imported products. Quantity measures are more frequently used from 1992 to 2012 in China.
- NTMs are much more influential for agricultural products than for manufacturing products. Most imported agricultural products are affected by SPS measures while the most frequently used measures for manufacturing products are TBT measures in China.
- NTMs are generally substituting for tariffs in China, except in the years 2000 and 2006, when they both them decreased
- For sectors with above average tariff reduction, tariff and NTMs show stronger substitution relationship.

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- **Application and extension of the this paper**
- 1. The panel data analysis adopted here could also be applied to other countries.
- 2. Extending the estimation of AVEs of NTMs in more recent years.
- 3. Exploring the policy making mechanisms of NTMs.
- 4 Exploring the impact of NTM implementation on socio-economic development.

**Thanks for listening.**  
**Questions and comments?**  
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