

# **How Important is the New Goods Margin in International Trade?**

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## **Sectoral Detail: What Drives Increases In Trade?**

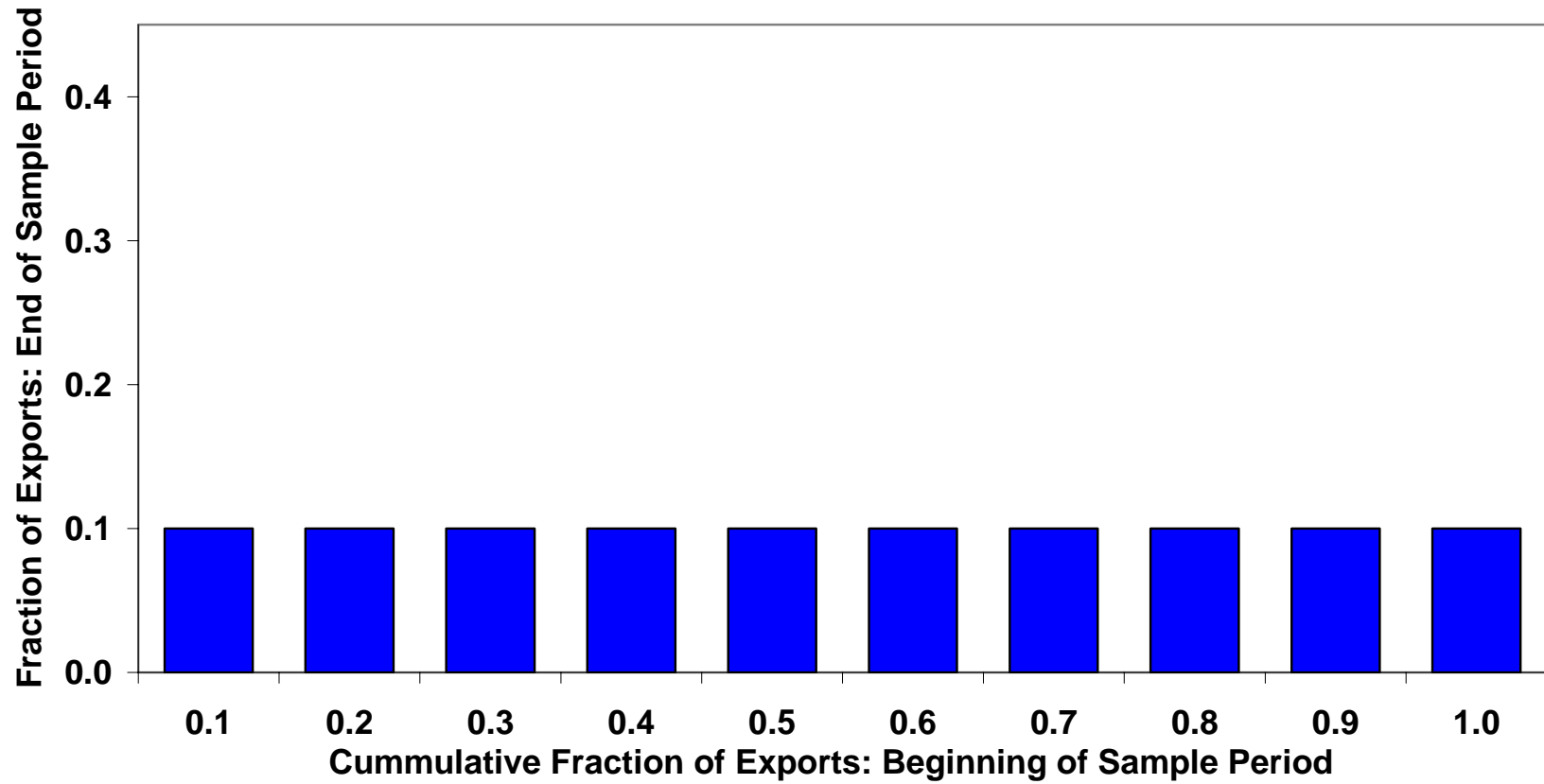
Data:

four-digit SITC bilateral trade data (789 categories in SITC.R2, 1033 categories in SITC.R3 — source: OECD).

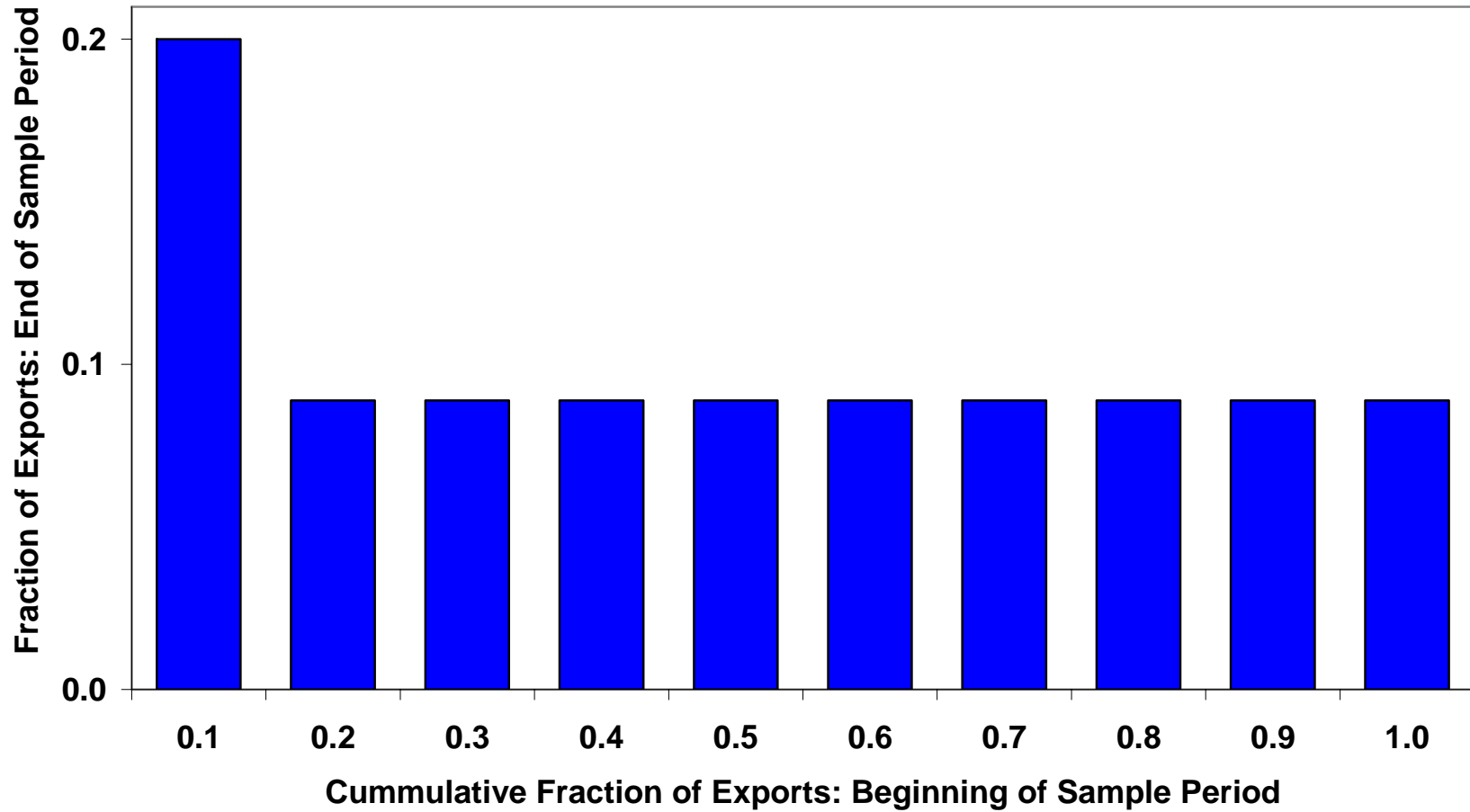
Exercise:

- rank categories in order of base year exports.
- form sets of categories by cumulating exports — the first 645 categories account for 10 percent of exports, for example; the next 82 categories account for 10 percent of exports; and so on.
- calculate the fraction of exports in subsequent years accounted for by each set of categories.

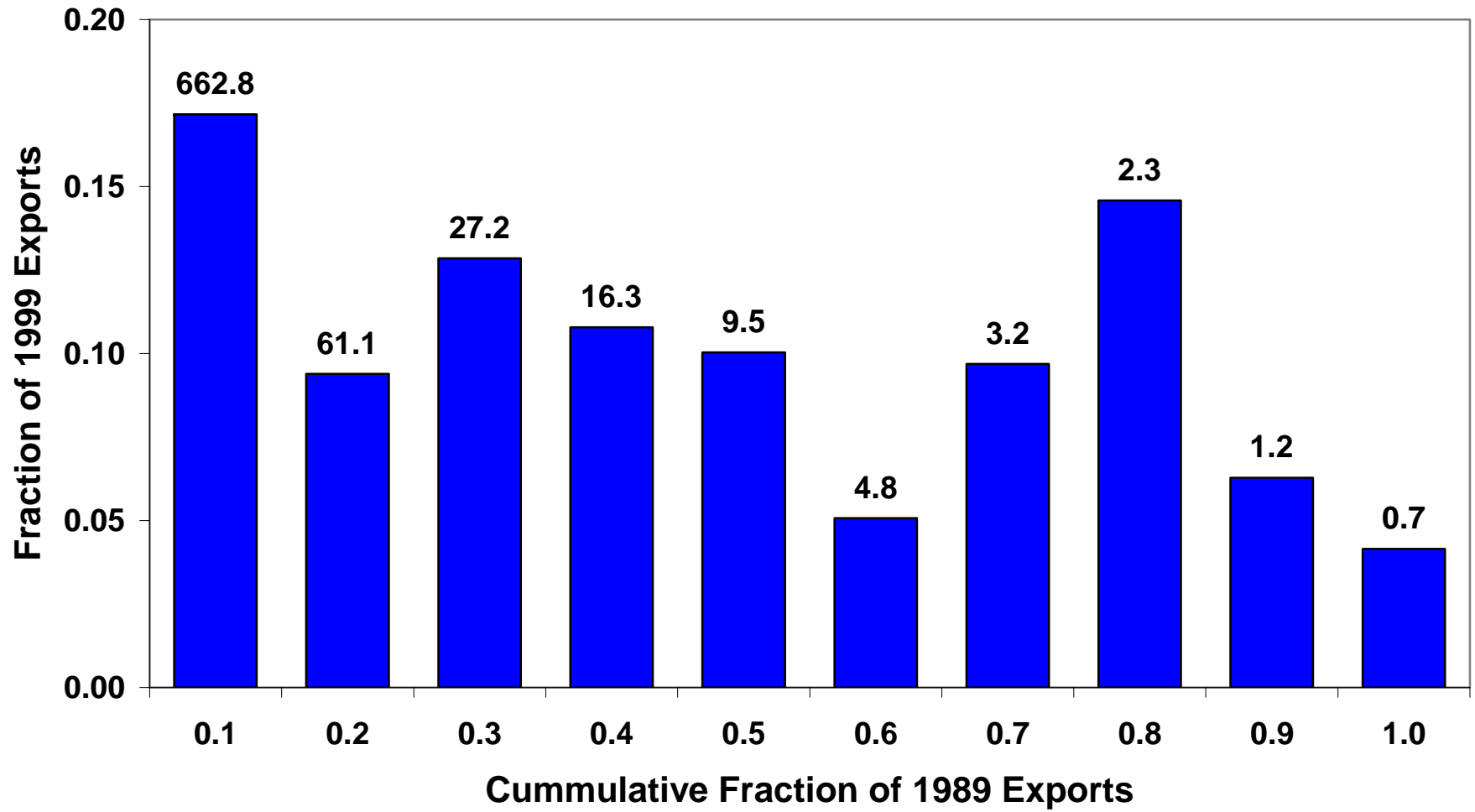
## Composition of Exports Sets of Categories Based on Export Size



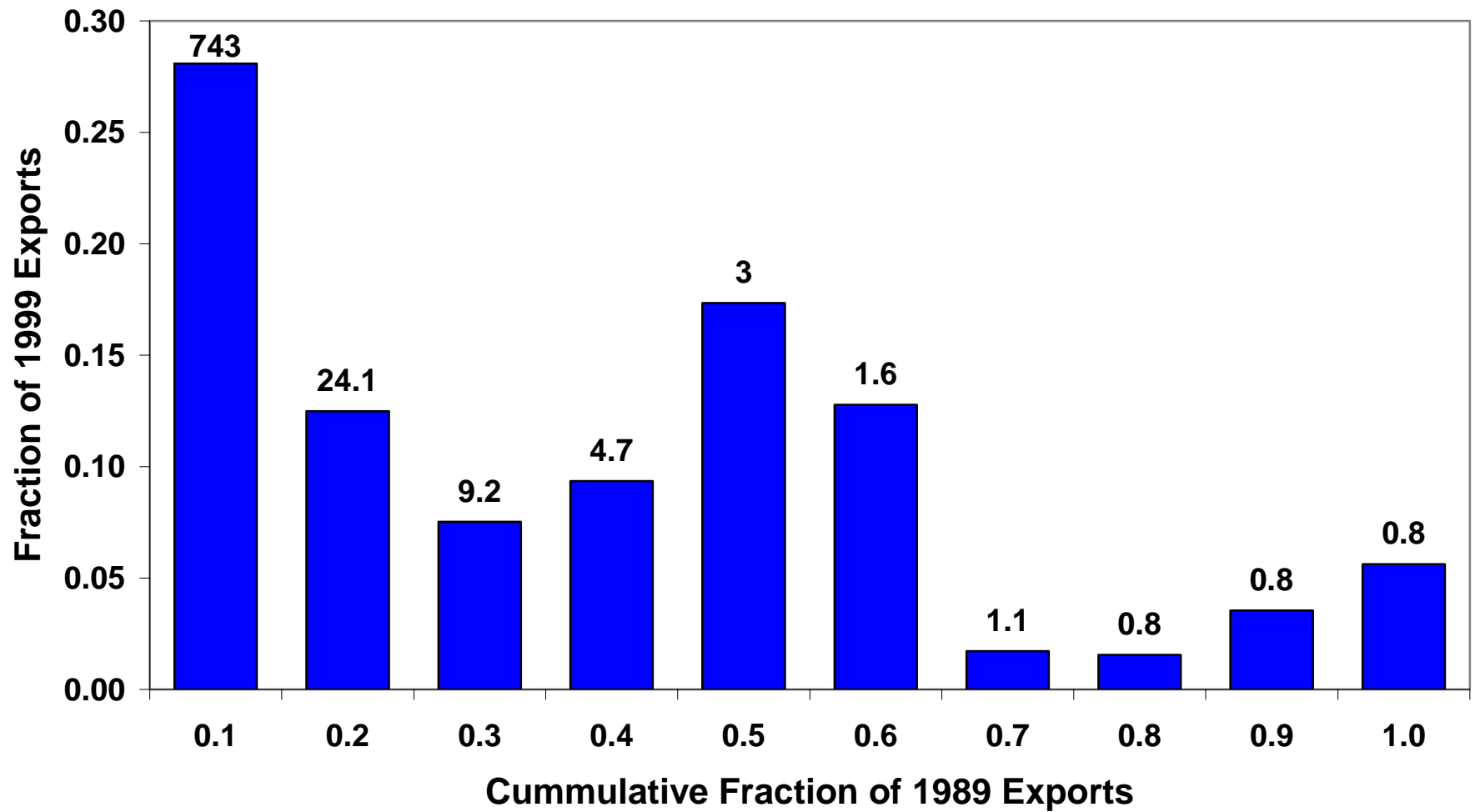
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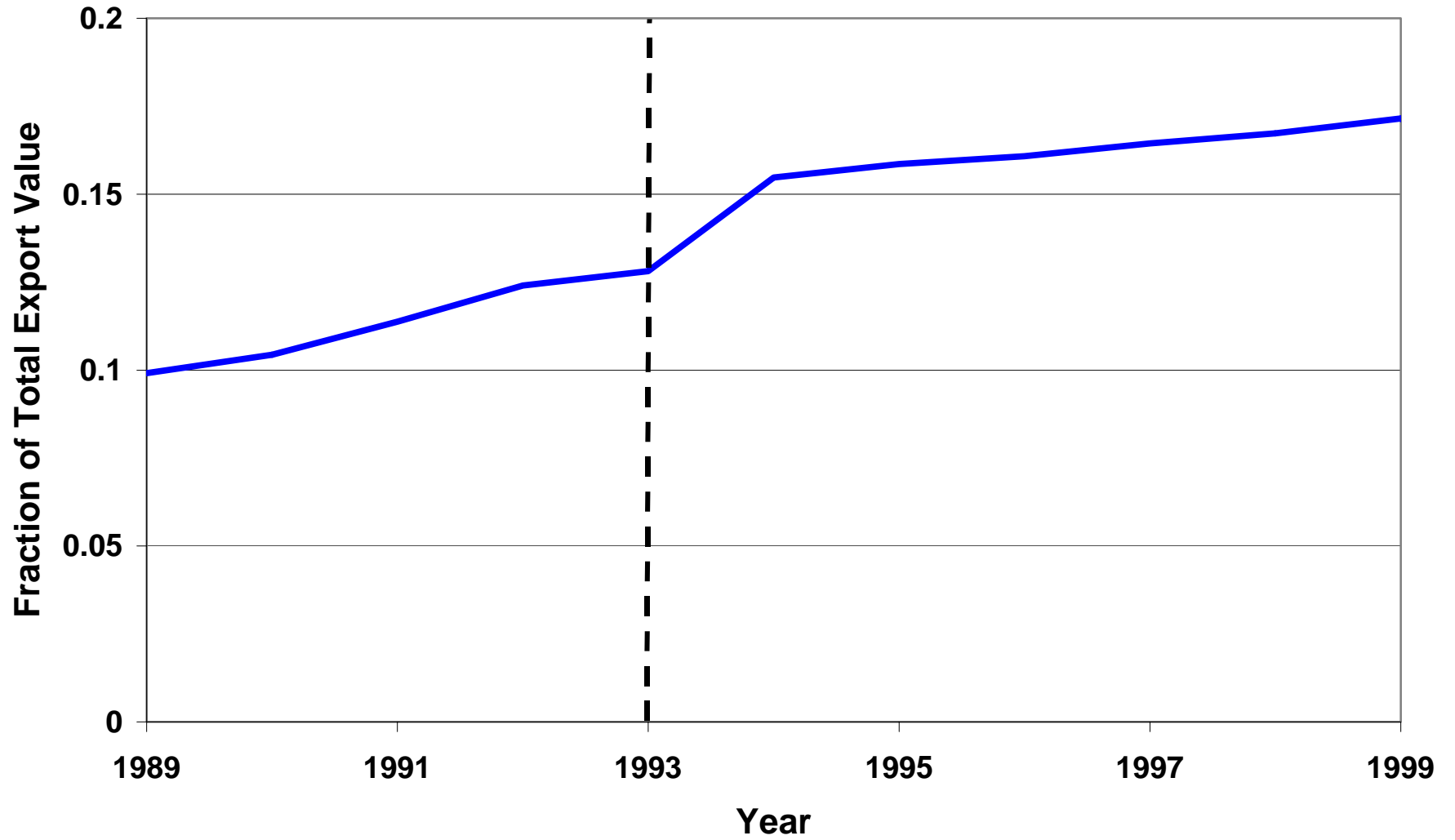
## Composition of Exports: Mexico to U.S. 1989-1999 By Sets of Categories Based on Export Size



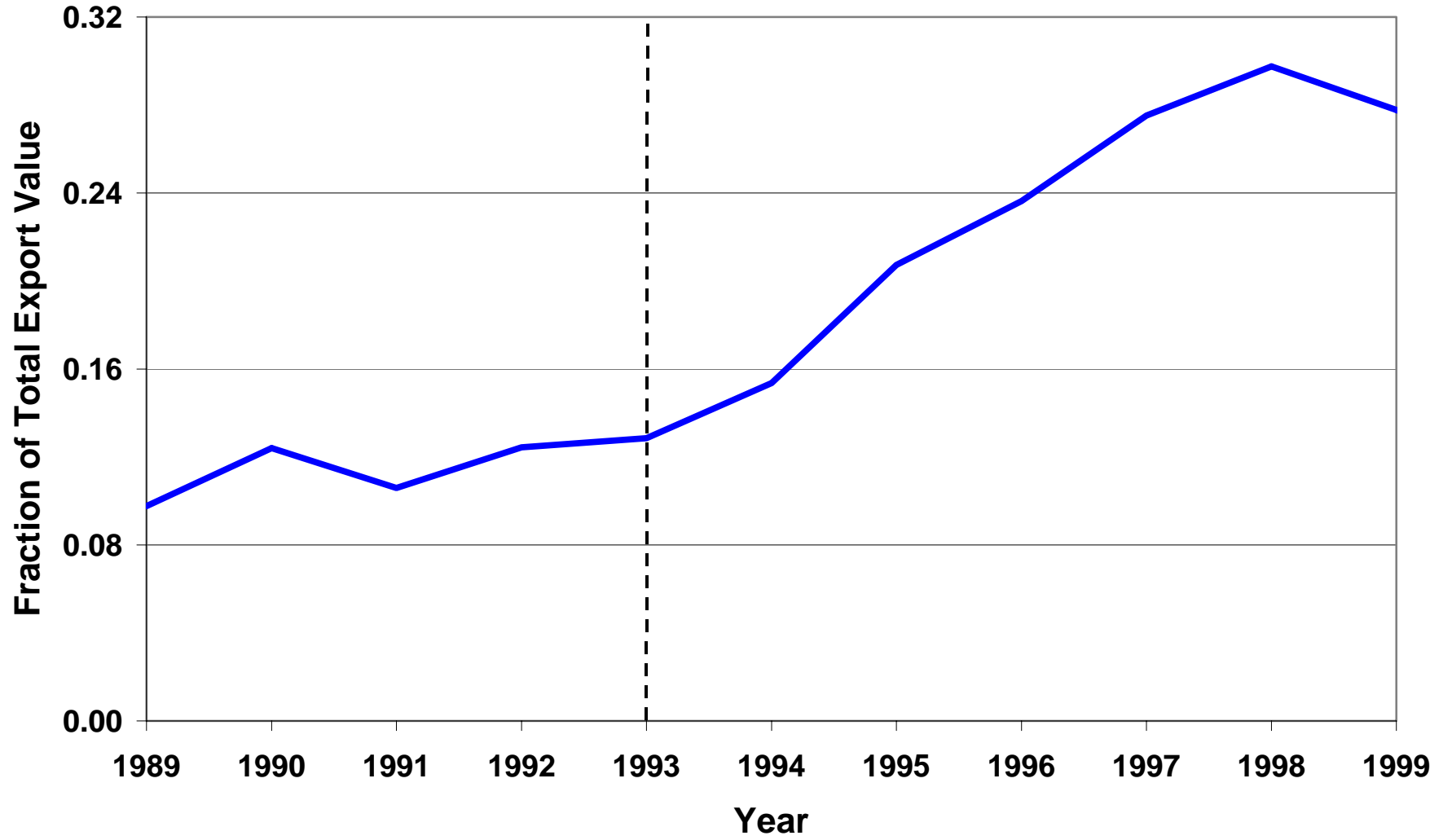
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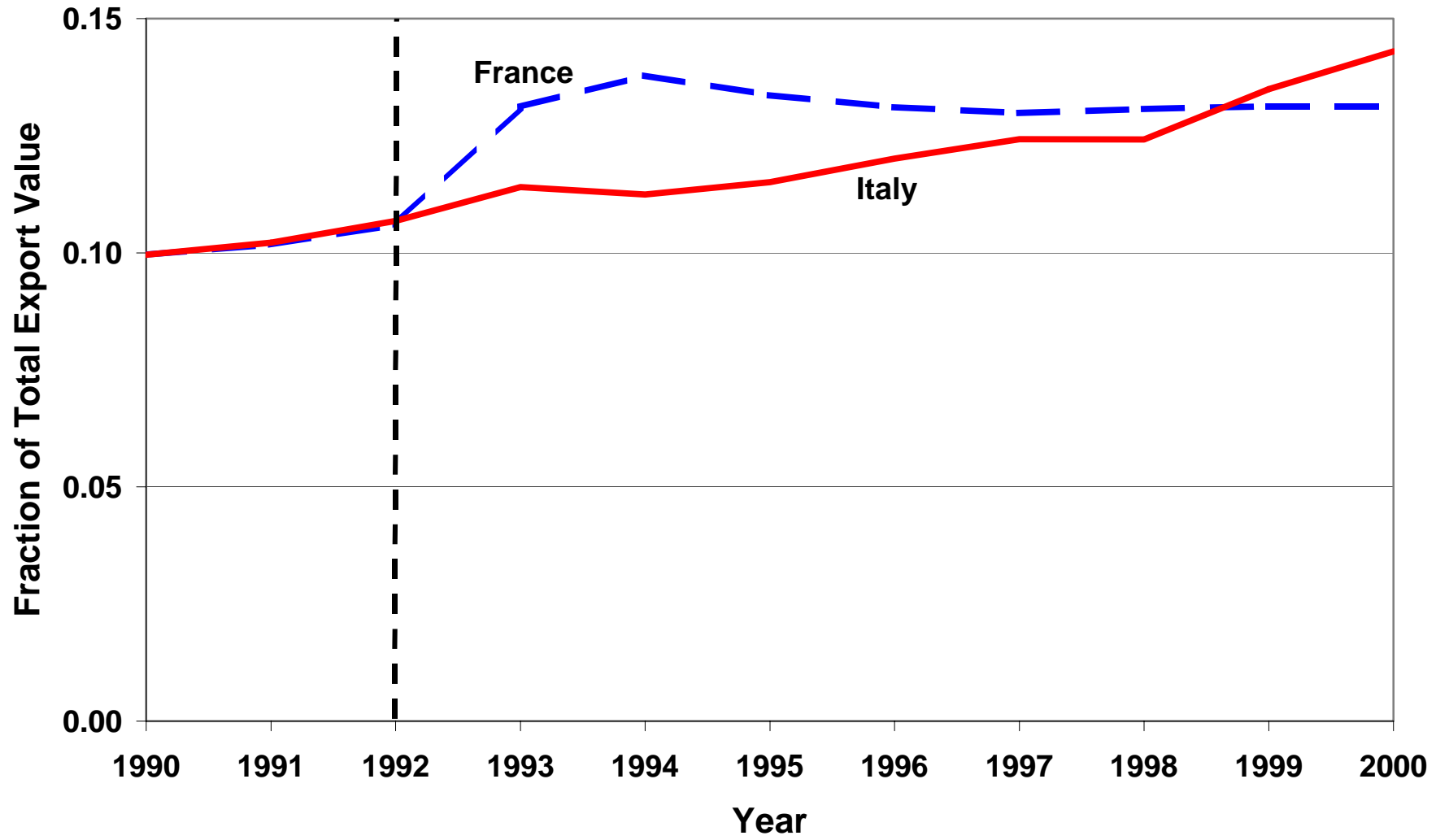
## Exports: Mexico to U.S.



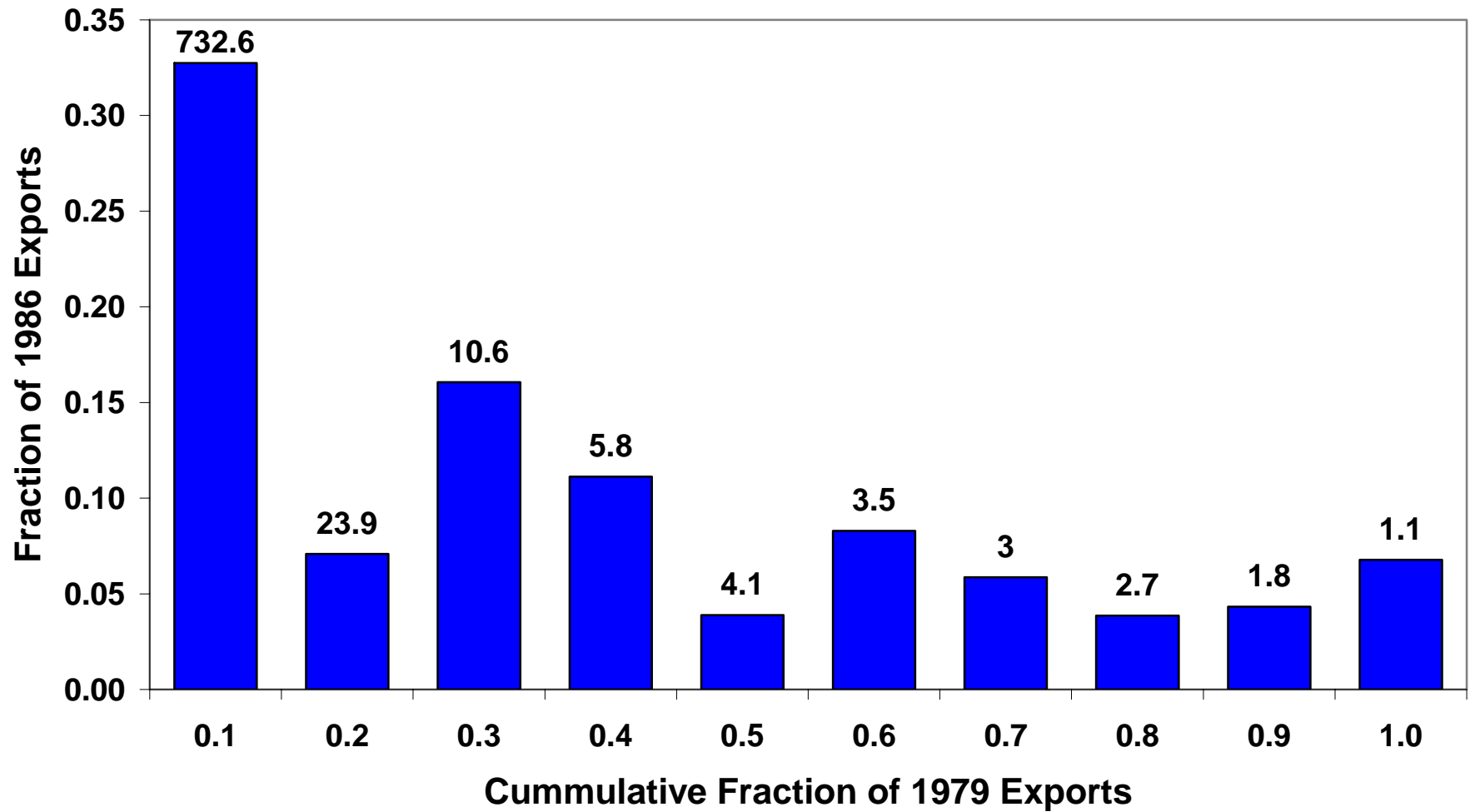
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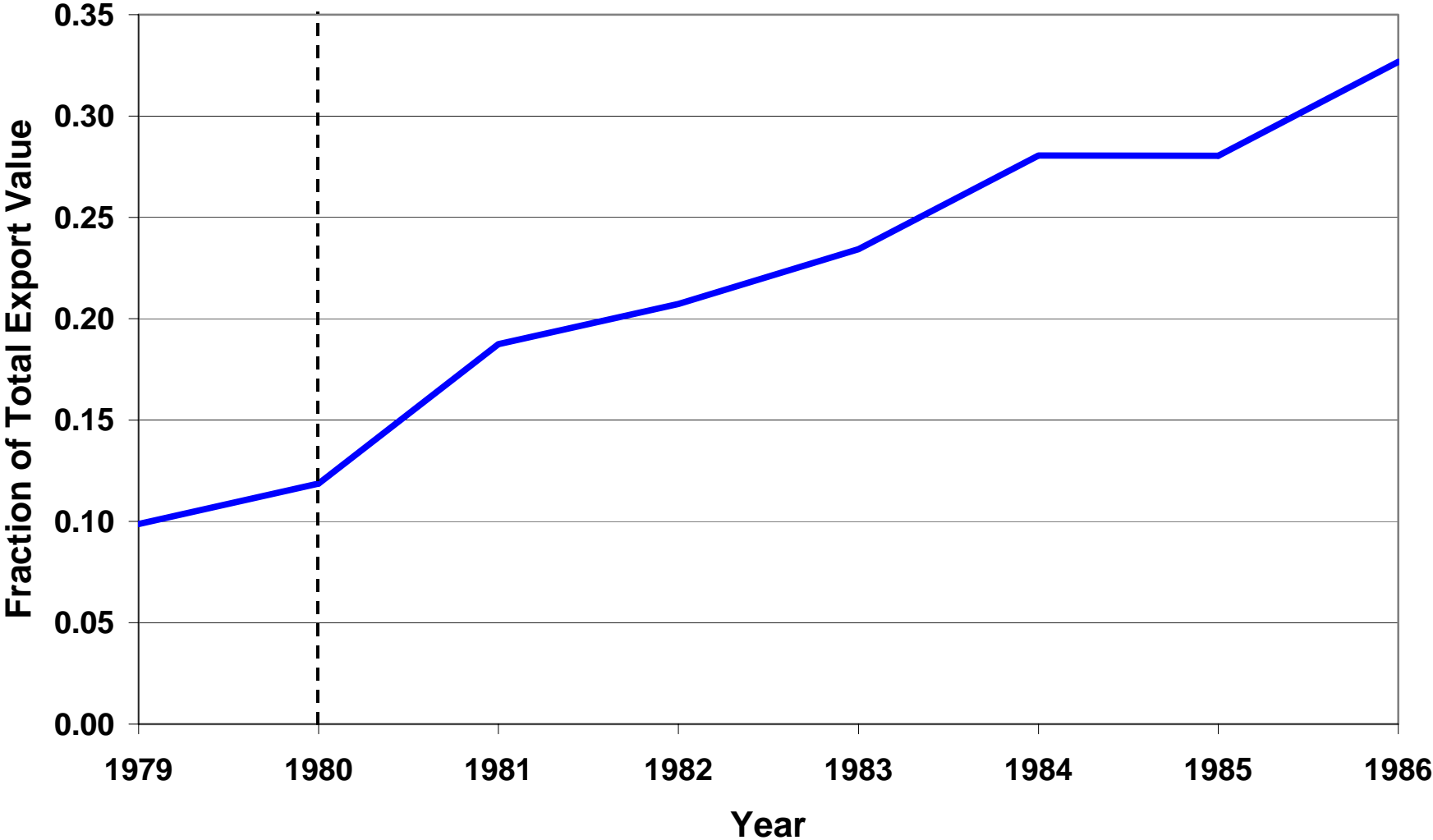
## Exports to the Single Market



## Composition of Exports: Greece to the EEC 1979-1986 By Sets of Categories Based on Export Size



# Exports: Greece to EEC



## **Trade Liberalization Experiences in North America**

### **NAFTA**

#### **Share of Export Value in 1999: Least-Traded Goods in 1989**

Mexico to United States	.172
United States to Mexico	.155
Mexico to Canada	.281
Canada to Mexico	.415
Canada to United States	.160
United States to Canada	.123

### **Canada – U.S. FTA**

#### **Share of Export Value in 1993: Least-Traded Goods in 1988**

Canada to United States	.134
United States to Canada	.134

## **Trade Liberalization Experiences in Europe**

### **EU Single Market**

#### **Share of Export Value 2000: Least-Traded Goods in 1990**

Austria to Single Market	.175
Denmark to Single Market	.150
Finland to Single Market	.097
France to Single Market	.131
Germany to Single Market	.129
Greece to Single Market (1990-1998)	.262
Ireland to Single Market	.098
Italy to Single Market	.144
Netherlands to Single Market	.123
Norway to Single Market	.078
Portugal to Single Market	.193
Spain to Single Market	.158
Sweden to Single Market	.169
Switzerland to Single Market	.129
United Kingdom to Single Market	.137

**Share of Export Growth Accounted for by the Least-Traded Goods  
Following Accession to the EEC**

Greece to the EEC (1978-1986)	.327
Spain to the EEC (1982-1987)	.153
Portugal to the EEC (1982-1987)	.161

## Ricardian model with a continuum of goods $x \in [0,1]$

production technologies  $y(x) = \ell(x)/a(x)$ ,  $y^*(x) = \ell^*(x)/a^*(x)$

*ad valorem* tariffs  $\tau$ ,  $\tau^*$

$$(1 + \tau^*)wa(x) < w^*a^*(x) \Leftrightarrow \frac{a(x)}{a^*(x)} < \frac{w^*}{(1 + \tau^*)w}$$

$\Rightarrow$  home country produces good and exports it to the foreign country.

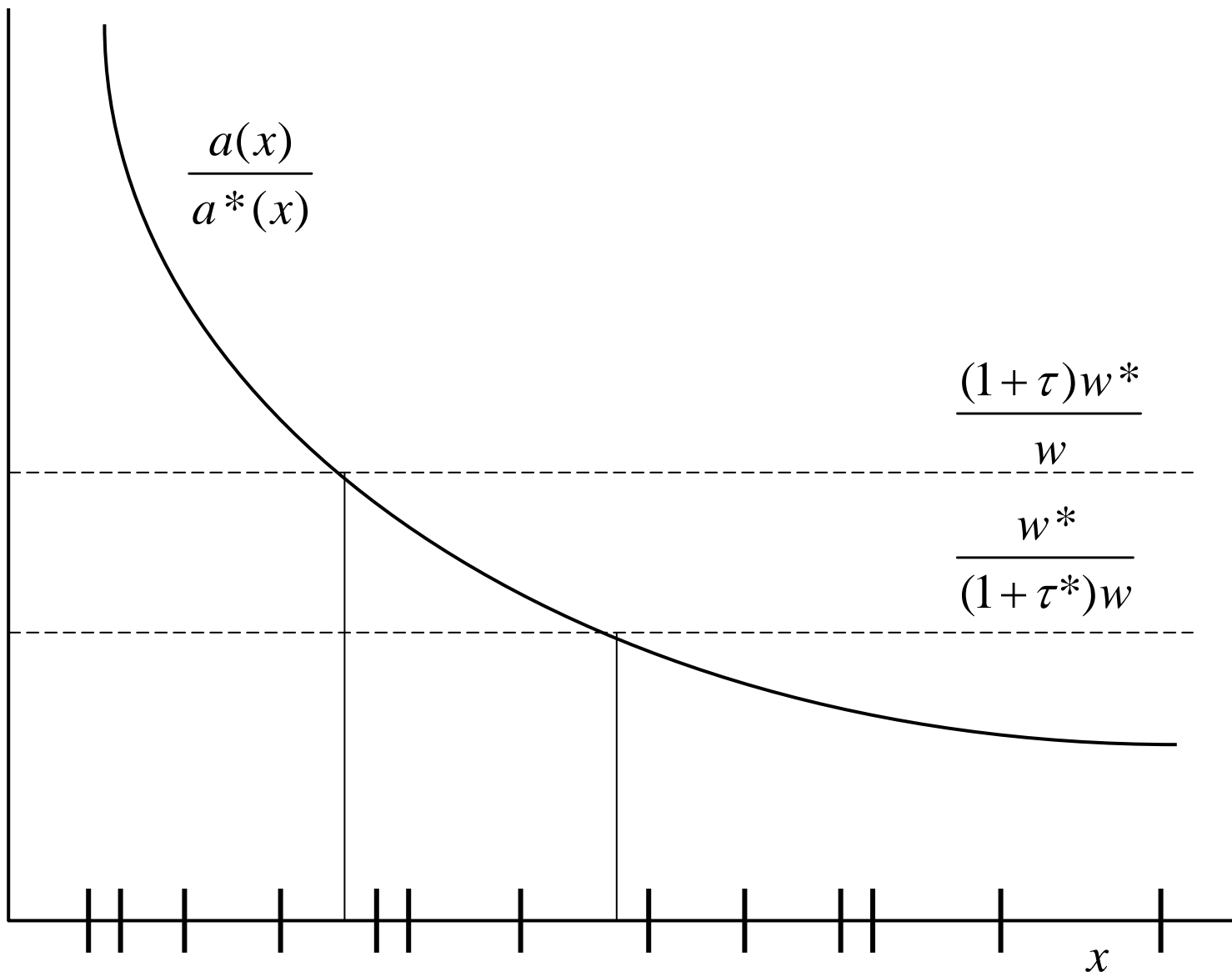
$$\frac{a(x)}{a^*(x)} > \frac{(1 + \tau)w^*}{w}$$

$\Rightarrow$  foreign country produces good and exports it to the home country.

$$\frac{(1+\tau)w^*}{w} > \frac{a(x)}{a^*(x)} > \frac{w^*}{(1+\tau^*)w}$$

⇒ good is not traded.

**Lowering tariffs generates trade in previously nontraded goods.**



## Intraindustry trade

Grubel-Lloyd (1975) index for four-digit SITC category  $k$ :

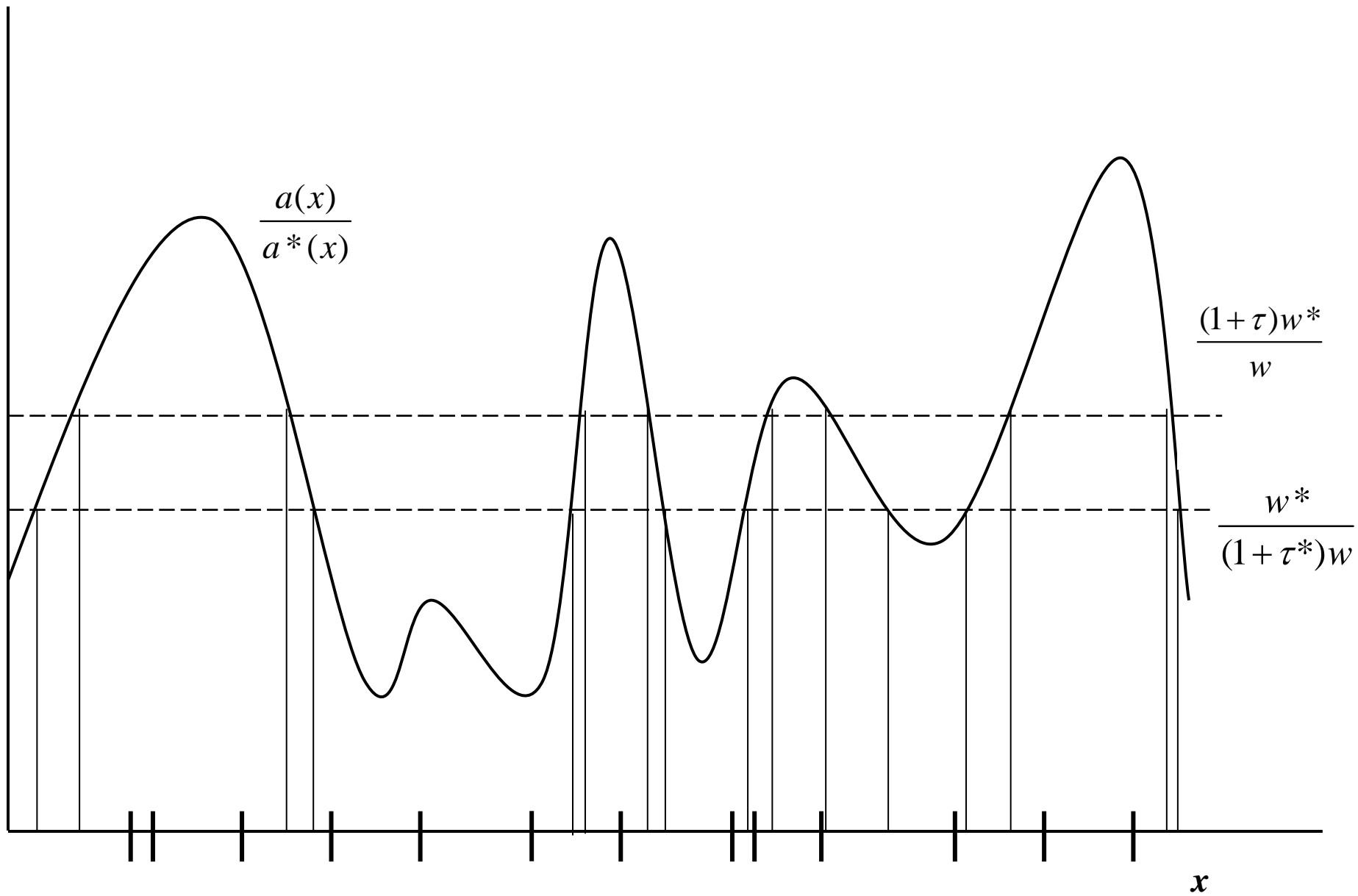
$$gl_{MEX,k}^{US} = \left( 1 - \frac{|EX_{MEX,k}^{US} - EX_{US,k}^{MEX}|}{EX_{MEX,k}^{US} + EX_{US,k}^{MEX}} \right) \times 100.$$

0 if there is no intra-industry trade; 100 if exports of  $k$  and imports are the same size.

Trade-weighted Grubel-Lloyd index:

$$WGL_{MEX}^{US} = \sum_{k \in SITC} gl_{MEX,k}^{US} size_{MEX,k}^{US} = \frac{\sum_{k \in SITC} (EX_{MEX,k}^{US} + EX_{US,k}^{MEX} - |EX_{MEX,k}^{US} - EX_{US,k}^{MEX}|)}{\sum_{k \in SITC} (EX_{MEX,k}^{US} + EX_{US,k}^{MEX})}.$$

Trade-weighted Grubel-Lloyd index for Mexico-U.S. trade was 48.7 in 1989.



## **A Serious Problem in the Data**

- Prior to 1988, data was collected by the individual nations according to their respective classification, and was then converted into STIC.R2. For example, the United States collected data on imports and exports under the Tariff Schedule of the United States Annotated (TSUSA) system and the "Schedule B," respectively. Canada also used a national classification system. Most European countries used the Customs Cooperation Council Nomenclature (CCCN) or a derivation.
- In 1988 and 1989 most countries switched to the Harmonized System for reporting imports and exports.
- Although efforts have been made to make data collected after the switch to the Harmonized System compatible with data from before the switch, it appears that there are serious inconsistencies, especially in data from countries that did not employ the CCCN before the switch.

## Calibrated Model

A grid of  $J + 1$  equally spaced points on  $[0,1]$ ,  $x_j = j/J$ ,  $j = 0, 1, \dots, J$ .

$$\alpha_j = \log a(x_j) - \log a^*(x_j), \quad j = 0, 1, \dots, J.$$

Relative productivities  $\alpha_j$  are drawn from a uniform distribution.

$$\alpha_j \sim u[-\bar{\alpha}, \bar{\alpha}], \quad j = 0, 1, \dots, J.$$

Points  $x \in [0,1]$  that are not on grid are filled in by linear interpolation — similar goods have similar productivities.

Trade liberalization lowers  $\tau$  from 0.15 to 0.05.

Utility function

$$\int_0^1 \log(c^i(x)) dx.$$

Feasibility:

$$\int_0^1 \ell^i(x) dx \leq L^i.$$

Calibration to Mexico/U.S. trade 1989-1999:

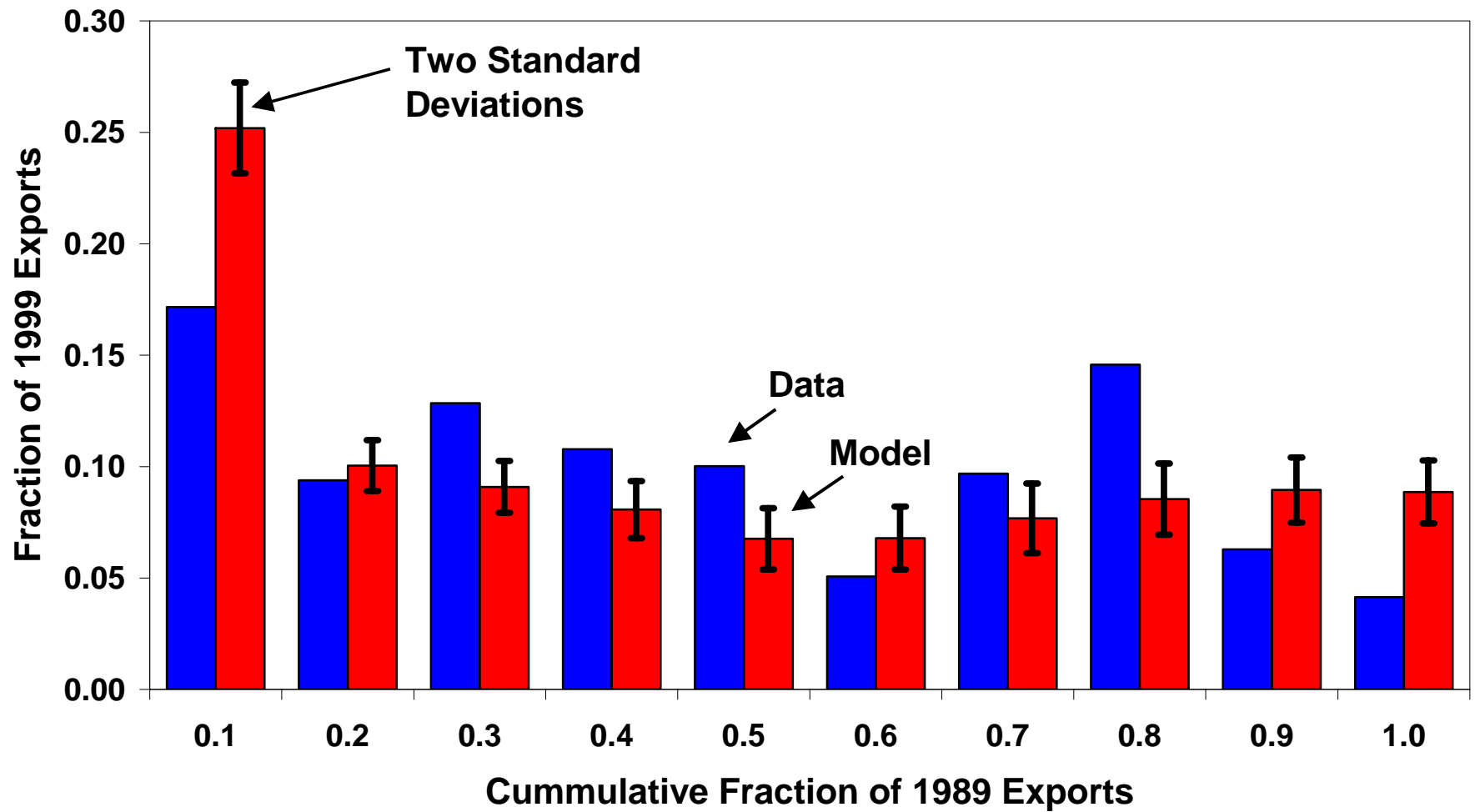
Sizes of SITC categories:

$$s_j = \frac{EX_j^{MEX} + EX_j^{US}}{\sum_j (EX_j^{MEX} + EX_j^{US})}.$$

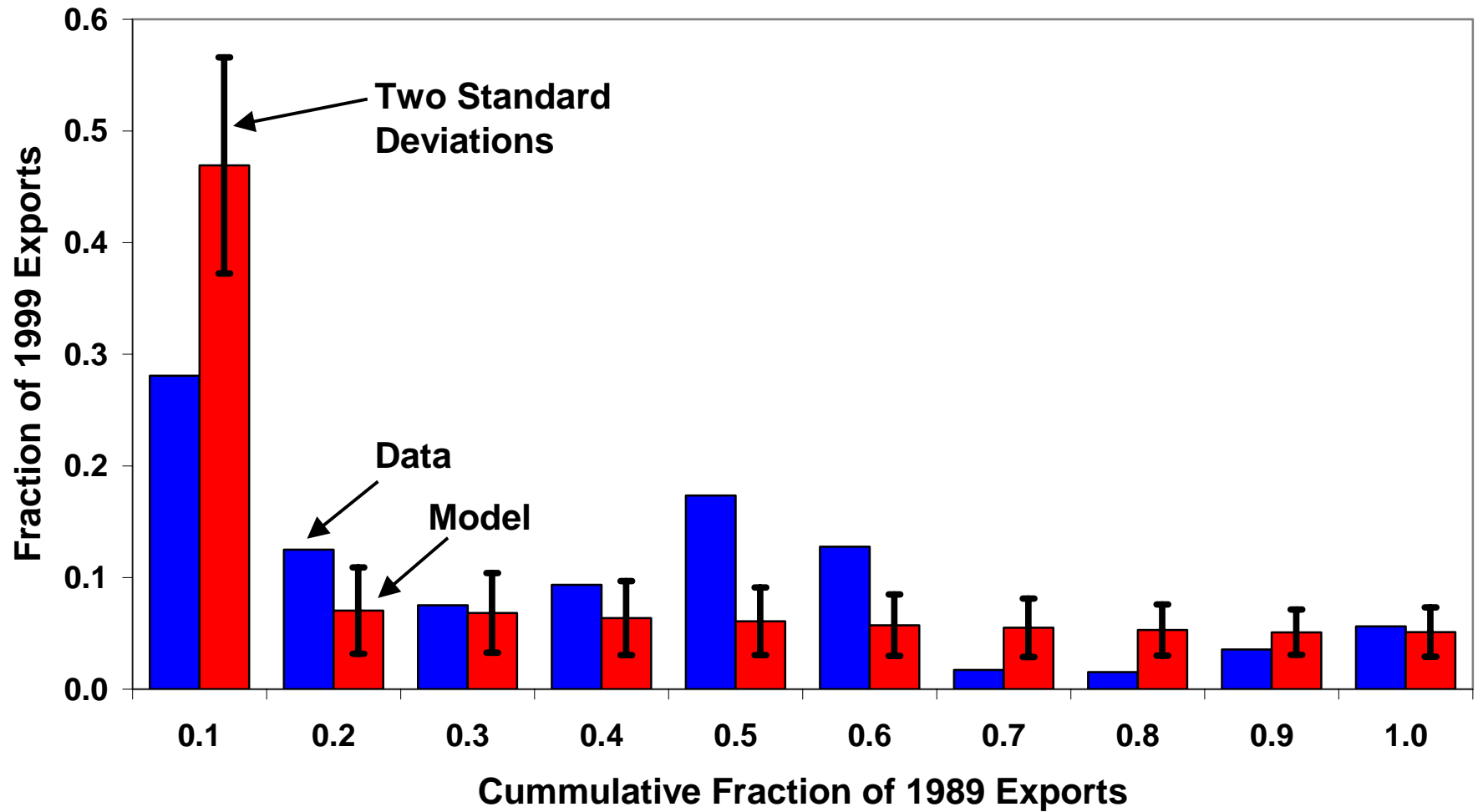
## Calibration

Parameter	Value	Fact
$\frac{L^{MEX}}{L^{US}}$	0.062	Relative Output of Commodities
$J$	4251	Growth in Trade Share of Production (202%)
$\bar{\alpha}$	0.211 (= log 1.245)	and Trade-Weighted Grubel- Lloyd Index (48.7)

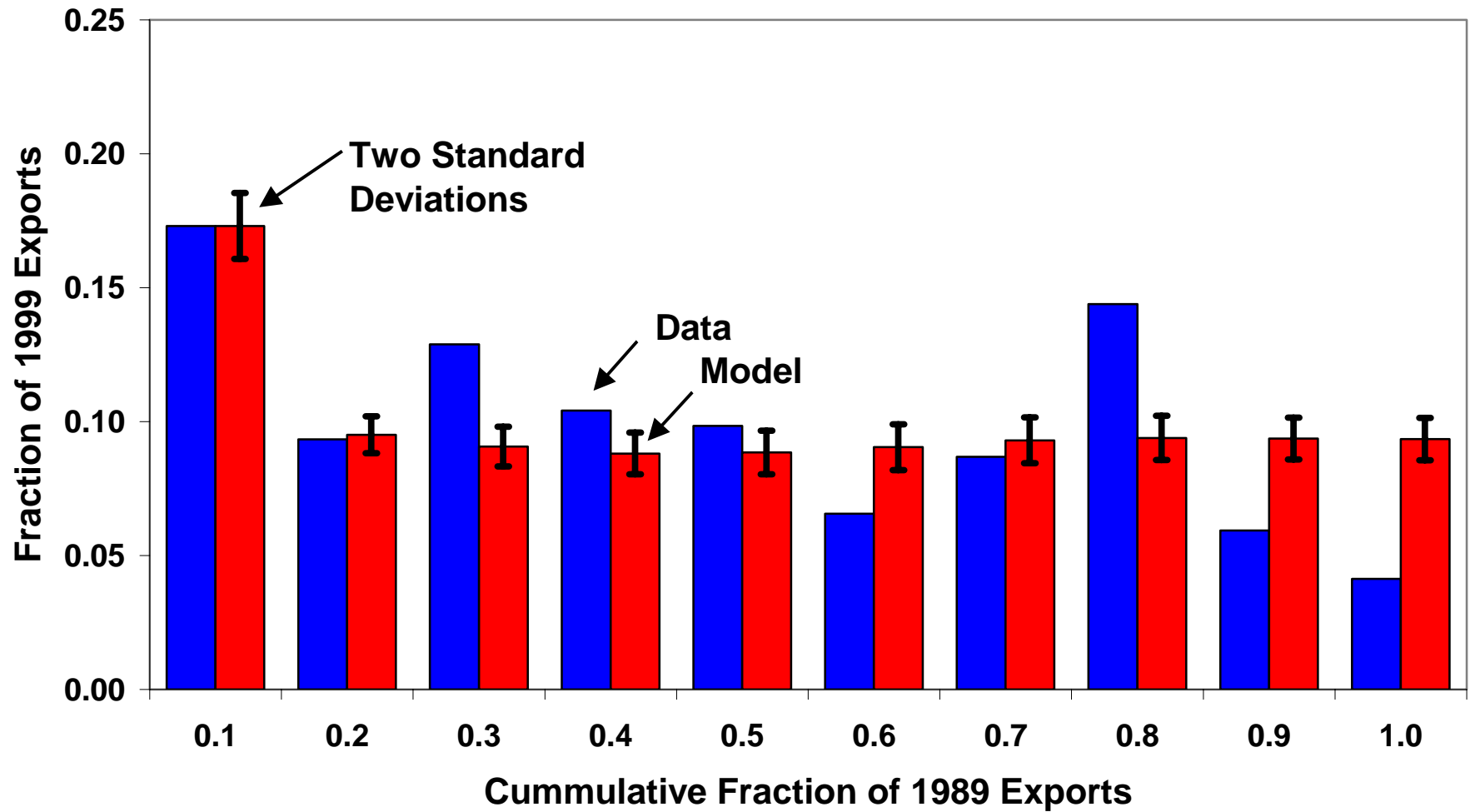
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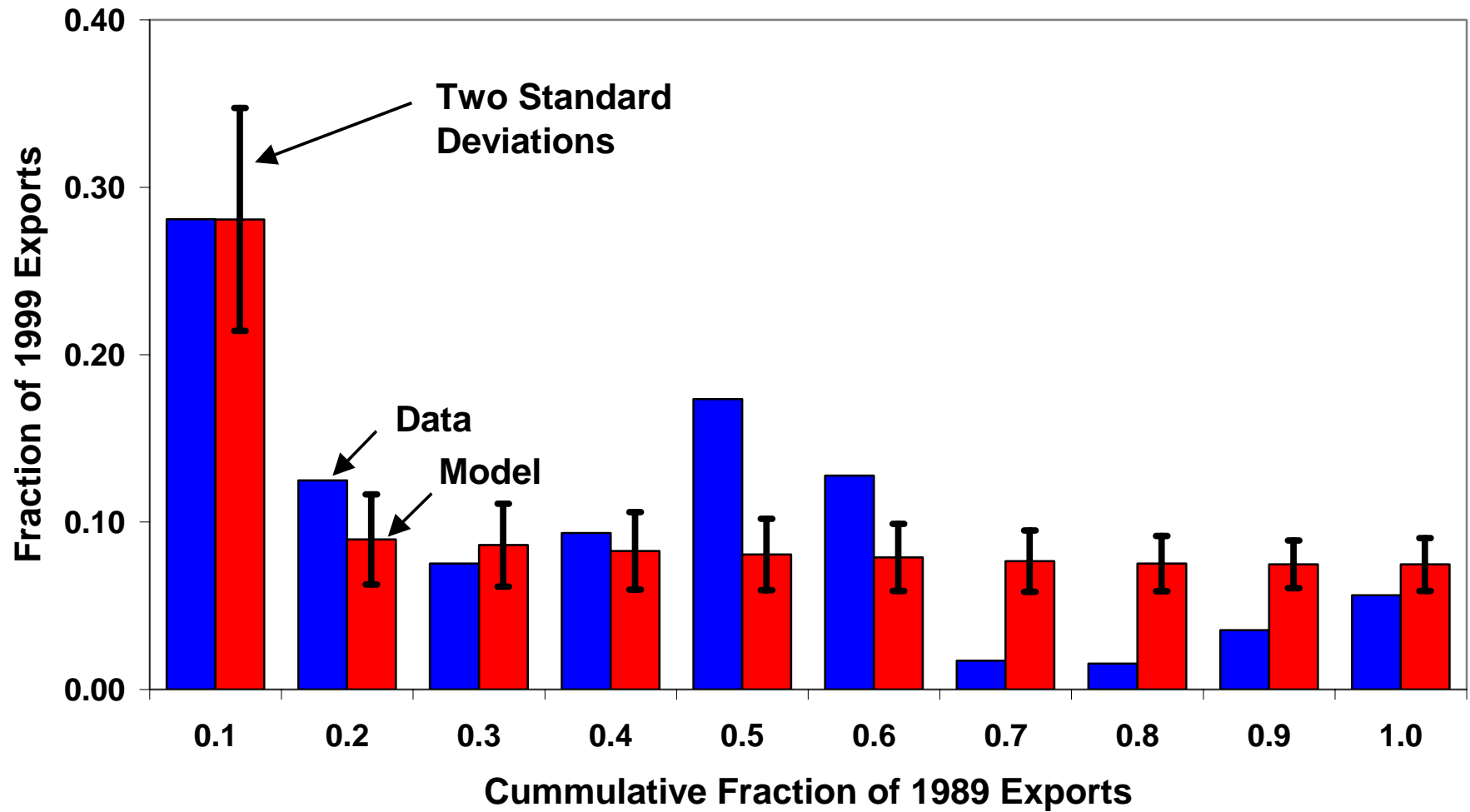
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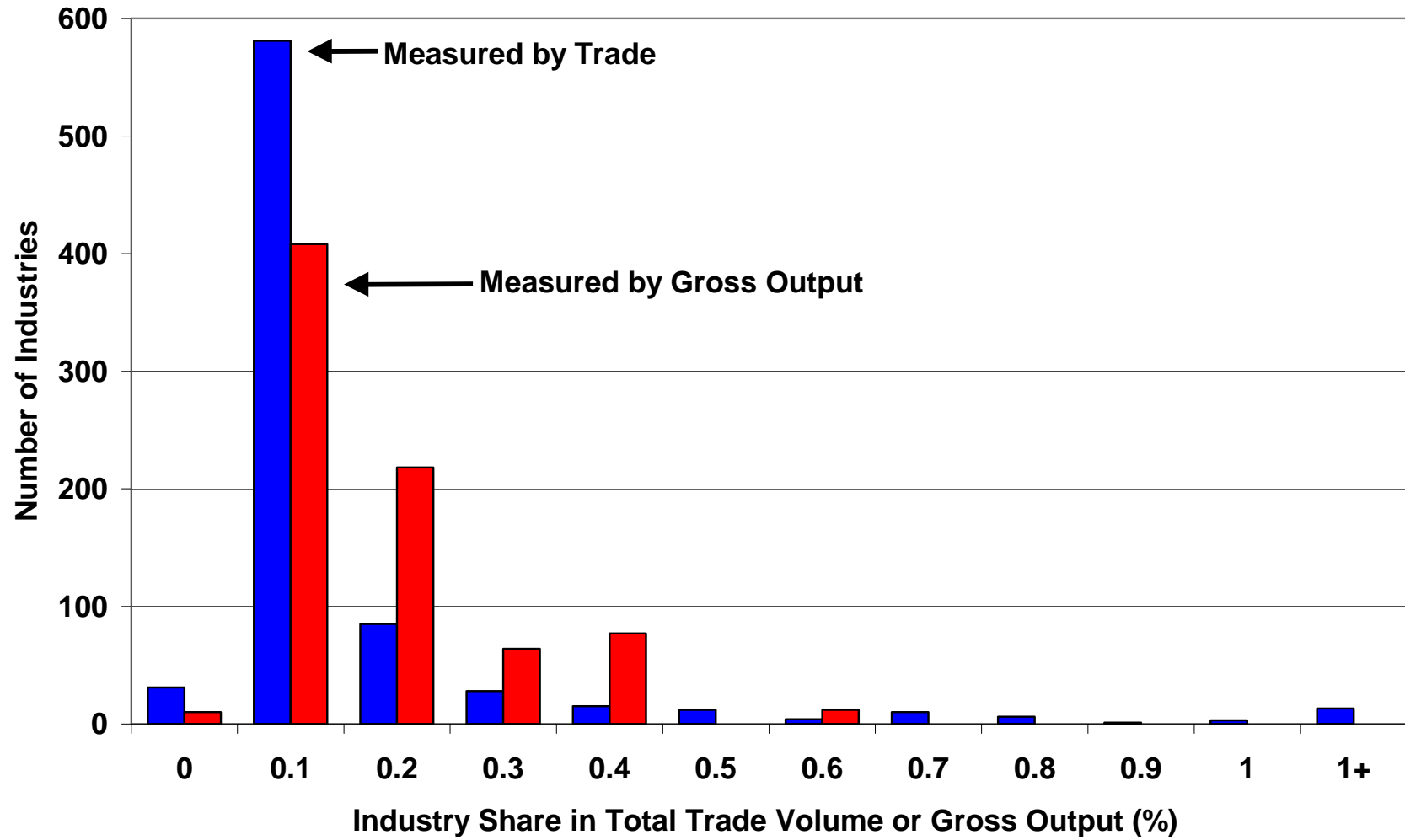
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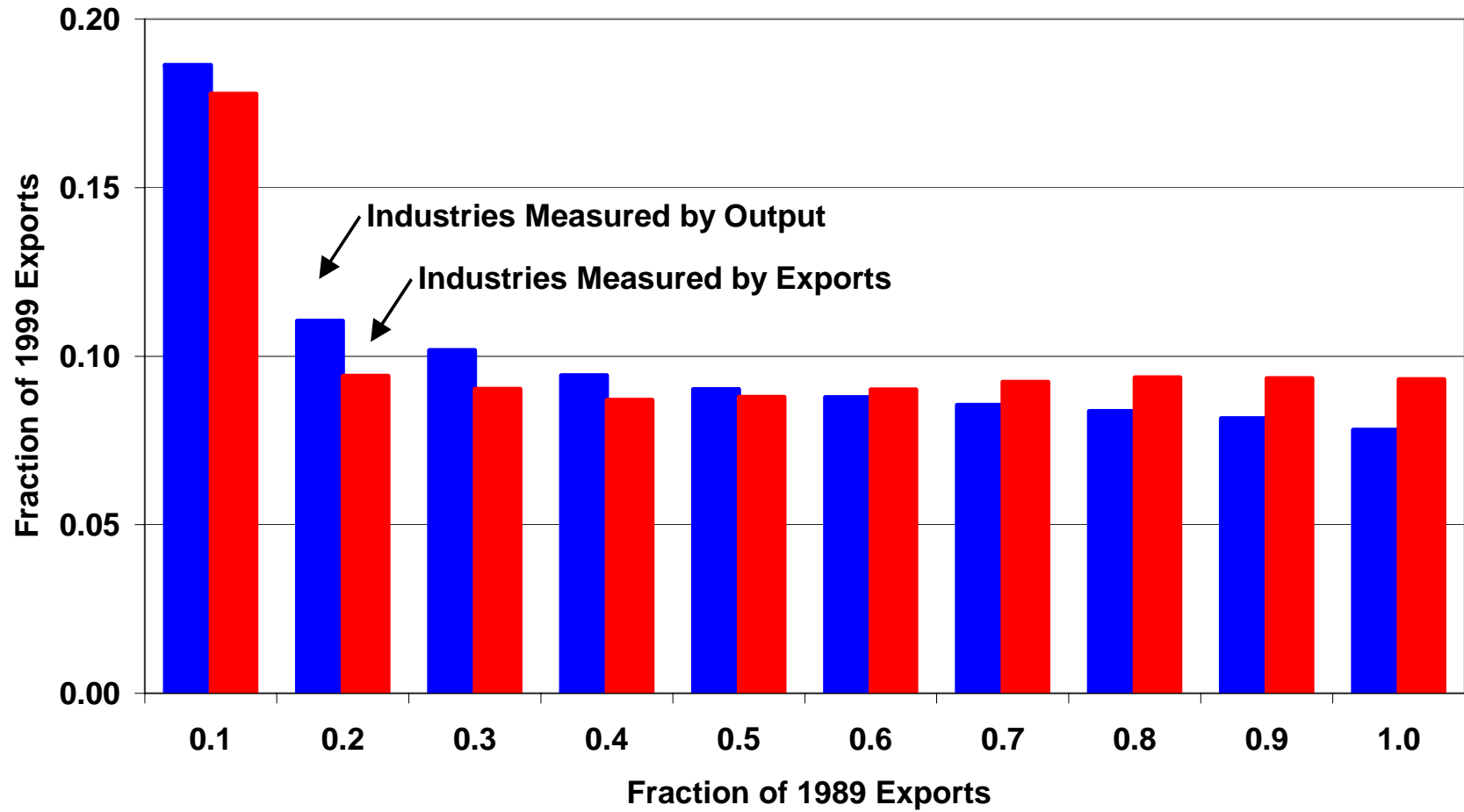
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## Industry Size Measured by Trade Volume and Gross Output

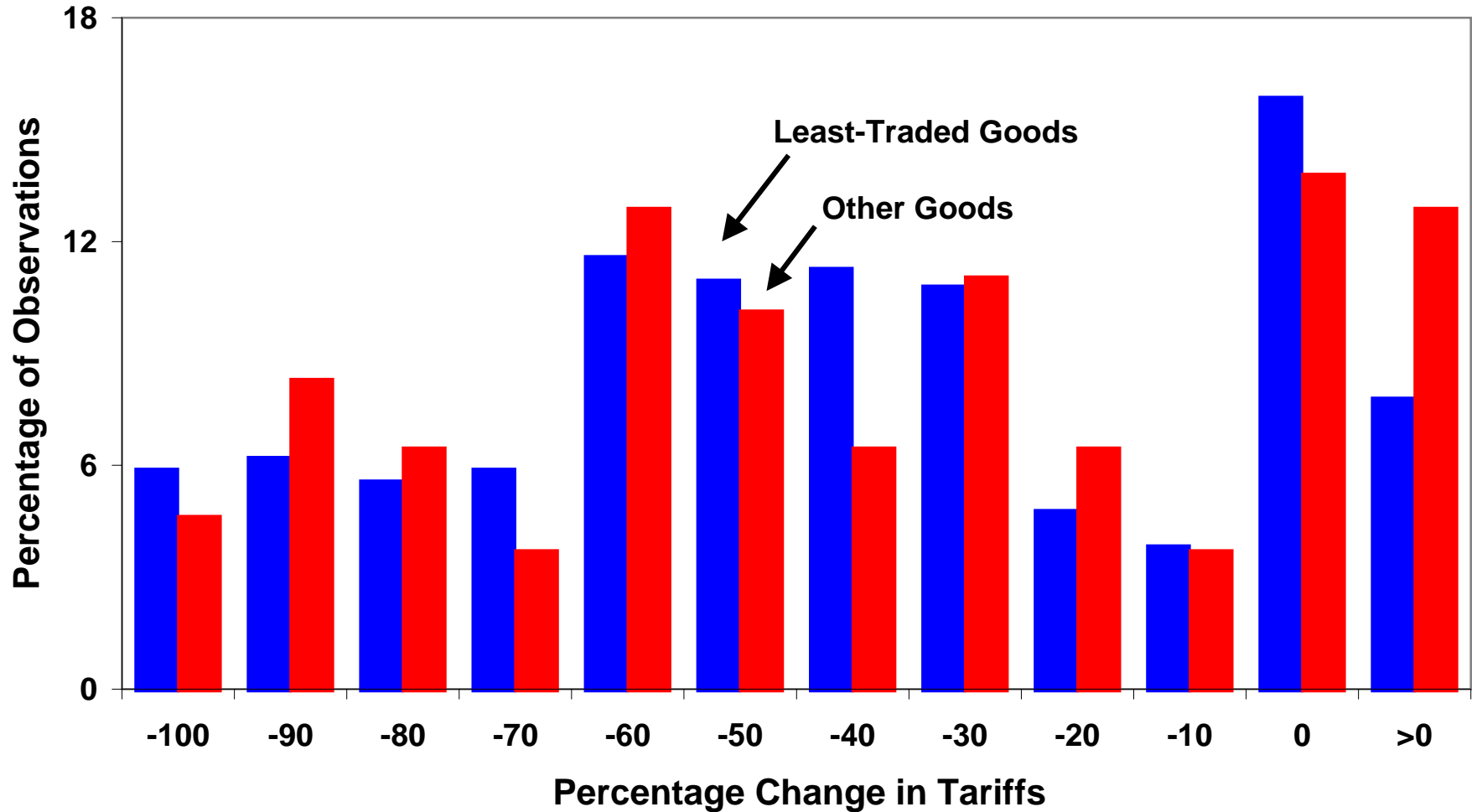


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# Distribution of Tariff Changes

## U.S. Tariffs on Canadian Goods: Before and After FTA



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