

# New Results from Process Standards Data

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# The Good, the Bad and the Ambiguous: Standards and Trade in Agricultural Goods with the EU

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# Some Personal Experience ...



## What can we learn from that?

- Countries have differing product / process specifications which help to characterize the technical and economic environment of a country
- Some sort of product adaptation may be required to operate goods in a different country
- Precise information about the technical environment is required to properly adapt the product to the foreign market



*“The use of product standards ... as a means of **denying market access** to foreign suppliers is the **most important issue** in international merchandise trade policy today.*

Robert G. Hawkins

## The Prevailing View

- **The Good:** Internationally harmonized standards remove trade-barriers
- **The Bad:** Country-specific standards create trade barriers
- **The Asymmetric:** Country-specific standards of large countries are less of a barrier, since adaptation costs are a fixed cost.

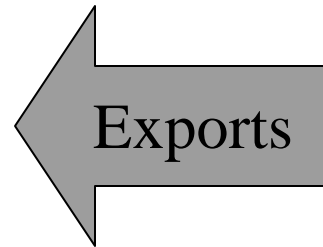
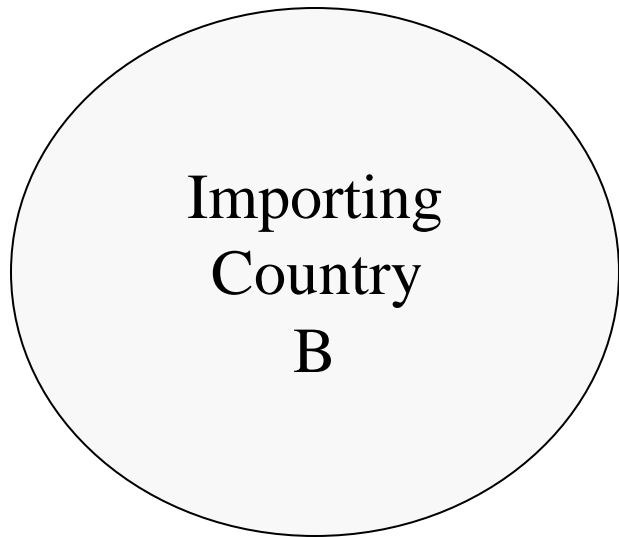
# Types of Standards

Importer Standards

Specific	Shared
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Exporter Standards

Shared	Specific
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# My Previous Findings (Moenius 2002)

- Created a **data-set** of 14 countries, 16 years, 471 SITC industries for shared as well as country-specific standards
- Estimated effect of standards on trade-flows with large sample **gravity-regression**
- Found that:
  - **Shared** standards **promote** trade
  - **Importer** standards **hinder** trade for **simple** goods
  - **Importer** standards **promote** trade for **complex** goods



# Explanation

- Shared Standards **remove** barriers
- Importer standards ...
  - ...**are a barrier** relative to **shared** standards
  - ...**can reduce barrier** relative to **no** standards:
    - Lower search costs
    - Lower product adaptation costs through exact knowledge of specification
    - Lower variety, fewer specifications to adapt to
- **Trade-off:** Second effect dominates for complex goods

## Question:

The US blames the EU for **blocking market access** with standards and vice versa.

- Is that (statistically measurably) true in general?
- Specifically, is it true for agricultural goods?
- And if yes, is this true for all standards, all agricultural products and at all times?

## My Approach:

- Large sample gravity equation
- Data on bilaterally shared and country-specific standards for 471 industries (80 agriculture), 15 countries for 1980-1995
- Estimate results for bilateral trade relationships between US, some EU and some non-EU countries.

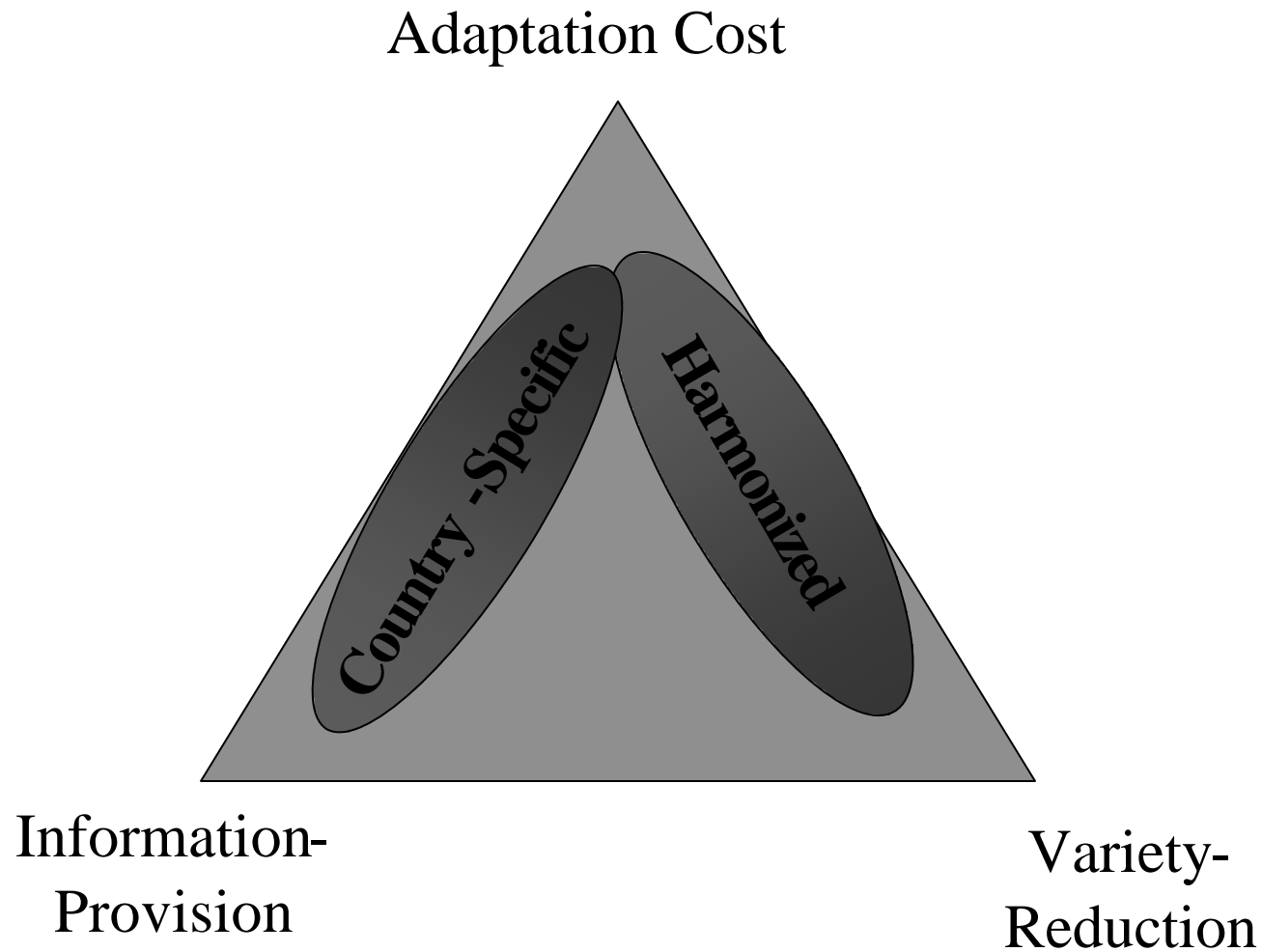
# My Answers

- On average, same as in my previous work: country-specific standards **hinder** trade in **simple goods** and promote trade in complex goods, but strength of the effect varies by country and industry.
- On average, **EU standards** seem to **hinder** trade in agricultural products.
- This **effect varies** widely by agricultural industry: even in some agricultural products, it seems that the effects are rather positive.
- There is a tendency towards **stronger barrier effects of EU agricultural standards** during the sample period

## My Explanation:

- **The Good:** Standards of any kind, if reliably enforced, reveal **information** about the technical and economic environment of a country → costless, public good
- **The Bad:** Country-specific standards create **trade barriers:** product adaptation costs, costs of process changes, testing costs → born by private parties
- **The Ambiguous: Harmonization** reduces product adaptation costs but also may reduce variety. Informational value may be small → overall effect may be **negative**

# The Trade-Offs



# My Contribution:



- **Econometric analysis** of the effects of standards in agricultural industries on Trade-Flows
- Identify which of the three effects dominate for **80 agricultural industries** over time
- Identify which of the three effects dominates for **EU-standards**

# Outline of the Presentation



- Introduction
- Theoretical Framework
- Empirical Specification
- Estimation Results
- Summary



## Some Definitions:



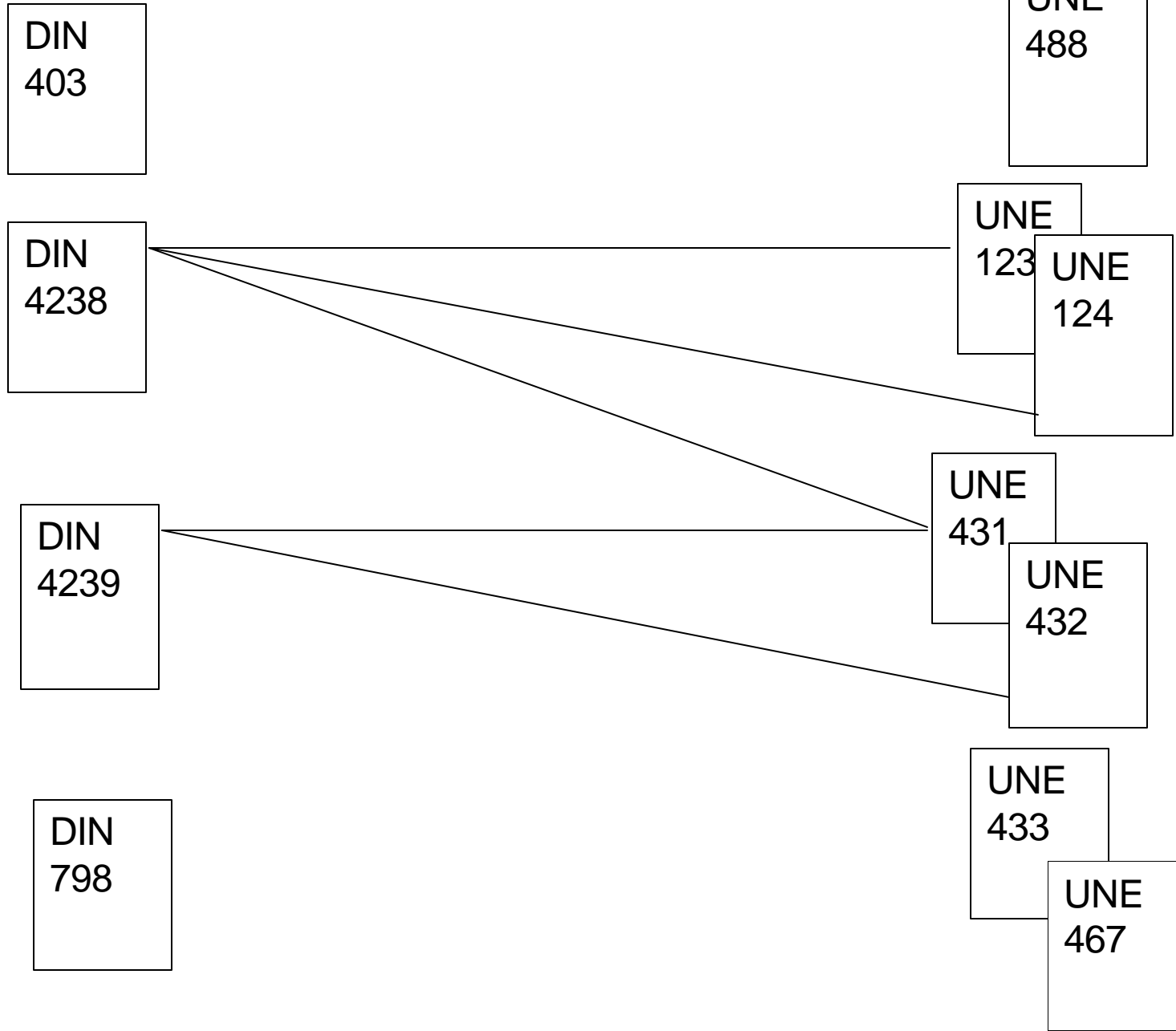
Standards are

- Product and process specifications
- They harmonize the treatment of intermediates or attributes of final goods
- Three types: de facto, de jure and institutional standards
- Here: **institutional standards** only (TRs not included)

My measure of shared standards:

- **Links** between documents

# Links between Documents:



# Previous Research-Overview:



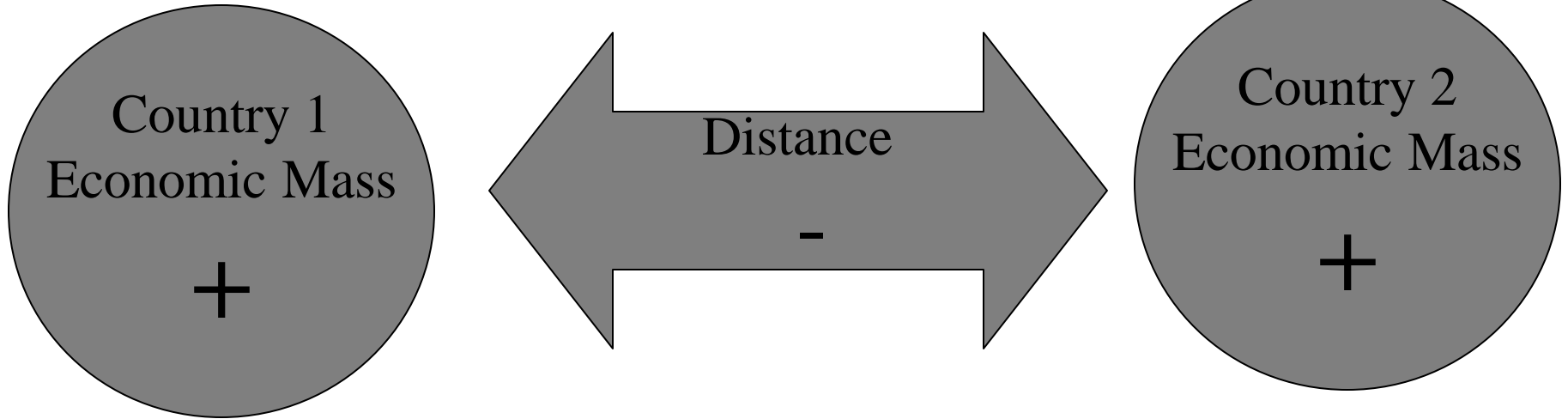
- Literature on standardization and trade has been growing over the last few years, largely sponsored by the **World Bank** and the **DIN-Institute**.
- General Literature on Non-Tariff-Barriers (NTBs) helpful
- The theoretical literature provides **no clear prediction**

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# The Gravity Model:



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(-)

(+, -)

$$\text{Bilateral Trade Volumes} = f(\text{Economic Masses}, \text{Distance}, \text{Other Factors})$$

Economic Masses, Distance: country-pair specific

Other Factors

country-pair-specific

industry-specific

} Fixed Effects

# Import Equations:

- $$\ln(IM_{ijkt}) = a + b_1 \ln(SST_{ijkt}) + b_2 \ln(CSTE_{jkt}) + b_3 \ln(CSTI_{ikt}) + F_{ijt} + e_{ijkt}$$

$IM_{ijkt}$  dollar value of imports into country  $i$  from country  $j$   
 $SST$  shared standards  
 $CSTE$  country-specific standards of exporting country  
 $CSTI$  country-specific standards of importing country

- $$\ln(IM_{ijkt}) = a + b_1 \ln(SST_{ijkt}) + b_2 \ln(CSTE_{jkt}) + b_3 \ln(CSTI_{ikt}) + D_{kt} + F_{ij(2k)t} + e_{ijkt}$$

$D$  dummy-variable  
 $2k$  2 - digit SITC

# Data-Description:



- Sources:
  - Trade data: World Trade Database
  - Standards Data: filtered from PERINORM (DIN, AFNOR, BSI)
  - (National accounts and exchange rates: IMF)
- Specifics
  - 471 SITC industries
  - Countries: Japan, Austria, Australia, Belgium, Switzerland, Germany, Spain, France, UK, Netherlands, Norway, Poland, Turkey, US
  - Annual: 1980-1995

# Country-Groups



Group	Countries (Comments)
US	(Incomplete Data-Set)
EU	Belgium, Germany, France, UK, Netherlands
Non-EU	Japan, Austria ('95), Australia, Switzerland, Spain ('86), Norway, Poland ('04), Turkey



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# Import-Equation – by Industry (Moenius 2002)

SITC	shared	importer	exporter	R <sup>2</sup>	Observations
<b>0 Food</b>	-0.13 (-6.20)	-0.19 (-13.50)	0.27 (19.20)	0.39	102,136
<b>1 Beverages</b>	-1.35 (-16.33)	-1.24 (-20.10)	-0.21 (-3.59)	0.41	12,532
<b>2 Crude Mat.</b>	-0.014 (-0.95)	-0.026 (-2.25)	0.10 (8.75)	0.23	80,824
<b>3 Fuels</b>	0.36 (7.24)	-0.24 (-5.55)	0.43 (11.88)	0.37	16,538
<b>4 Oils, Fats</b>	-0.18 (-1.63)	0.066 (1.31)	-0.12 (-2.85)	0.36	9,964
<b>5 Chemicals</b>	0.12 (10.75)	0.19 (18.36)	0.36 (38.31)	0.55	70,096
<b>6 Man. by Mat.</b>	0.05 (6.72)	0.096 (14.07)	0.063 (9.18)	0.49	180,146
<b>7 Machinery</b>	0.15 (19.97)	0.24 (32.25)	0.25 (33.18)	0.61	133,780
<b>8 Miscellaneous</b>	0.28 (27.41)	0.084 (10.32)	0.38 (49.03)	0.57	106,020
<b>9 not elsewhere classified</b>	(none)	-0.092 (-1.41)	0.51 (10.12)	0.25	5,836

# Imports – Evaluated by Industry:



- **Simple** manufacturing industries: country-specific standards reduce imports – **trade barrier effect dominates**
- **Complex** goods: country-specific standards increase imports – **market access effect dominates**

# Caveats

- Count-data does not necessarily reflect **economic importance**
- Strong assumption:
  - Level of **protection other** than through standards within each 1-digit-industry is the same
  - standards uncorrelated with other trade-barriers (tariffs, subsidies)

# Some Country-Comparisons (Imports): **R**

<b>Country</b>	<b>Shared</b>	<b>Importer</b>	<b>Exporter</b>	<b>R<sup>2</sup></b>	<b>Observations</b>
<b>Japan</b>	0.74 (8.95)	-0.07 (-4.36)	0.18 (14.42)	0.34	68,301
<b>Germany</b>	0.29 (25.75)	0.34 (37.86)	0.03 (2.78)	0.38	81,080
<b>Netherlands</b>	0.14 (11.00)	0.18 (15.31)	0.35 (30.12)	0.40	81,831
<b>Turkey</b>	-0.087 (-4.45)	-0.40 (-29.35)	0.93 (73.99)	0.21	54,316
<b>US</b>	0.25 (3.86)	0.82 (57.22)	0.15 (11.82)	0.22	83,959

(robust t-statistics in parenthesis)

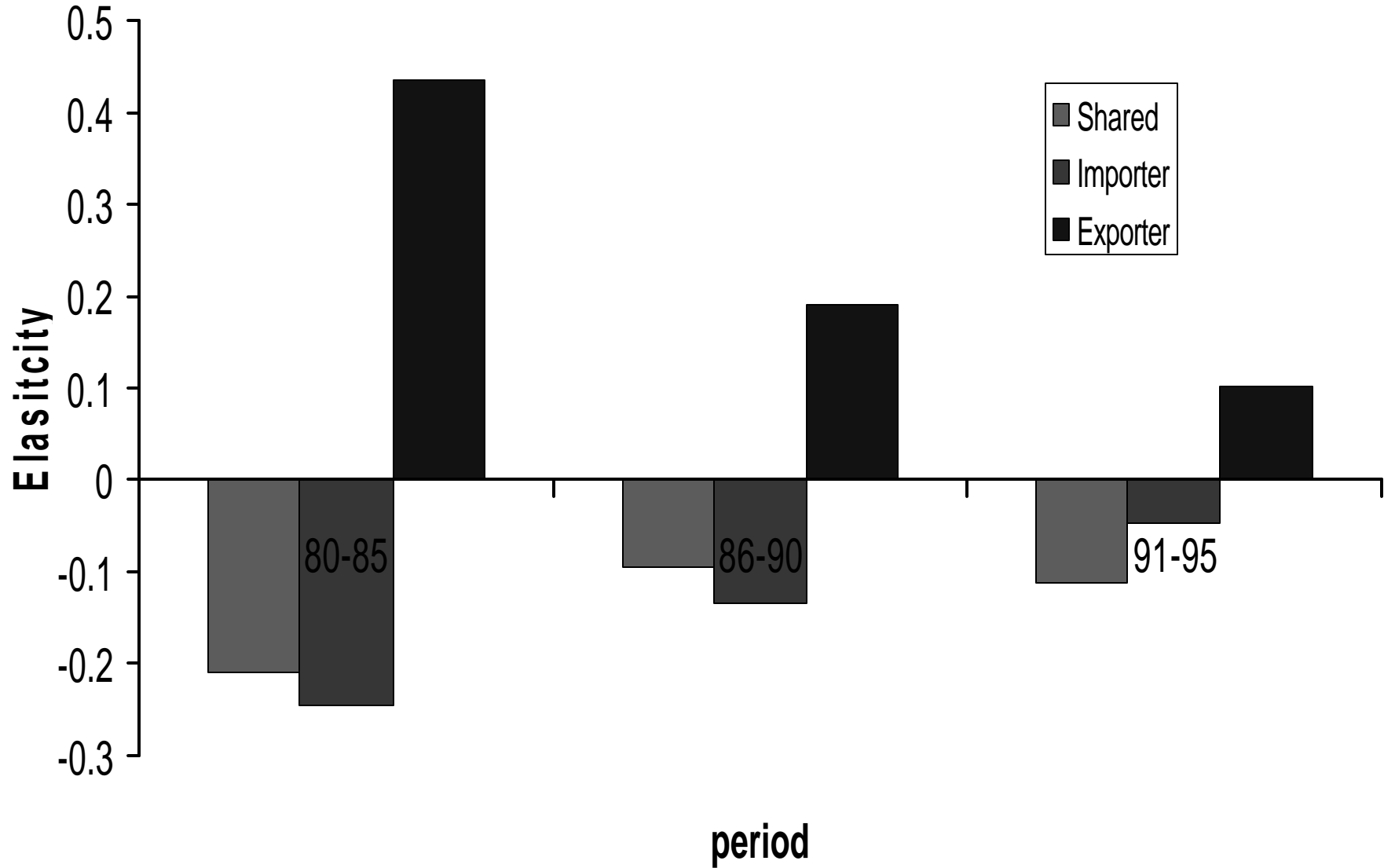
# Examples in Agriculture

- DIN 10091: Boxes for Horticulture, dimensions
- DIN 10262: Oleaginous seeds, determination of impurities
- BBA MB 27/1: Stages of development of cereals, except maize, used for tests, counseling and practice in agriculture

# Comment

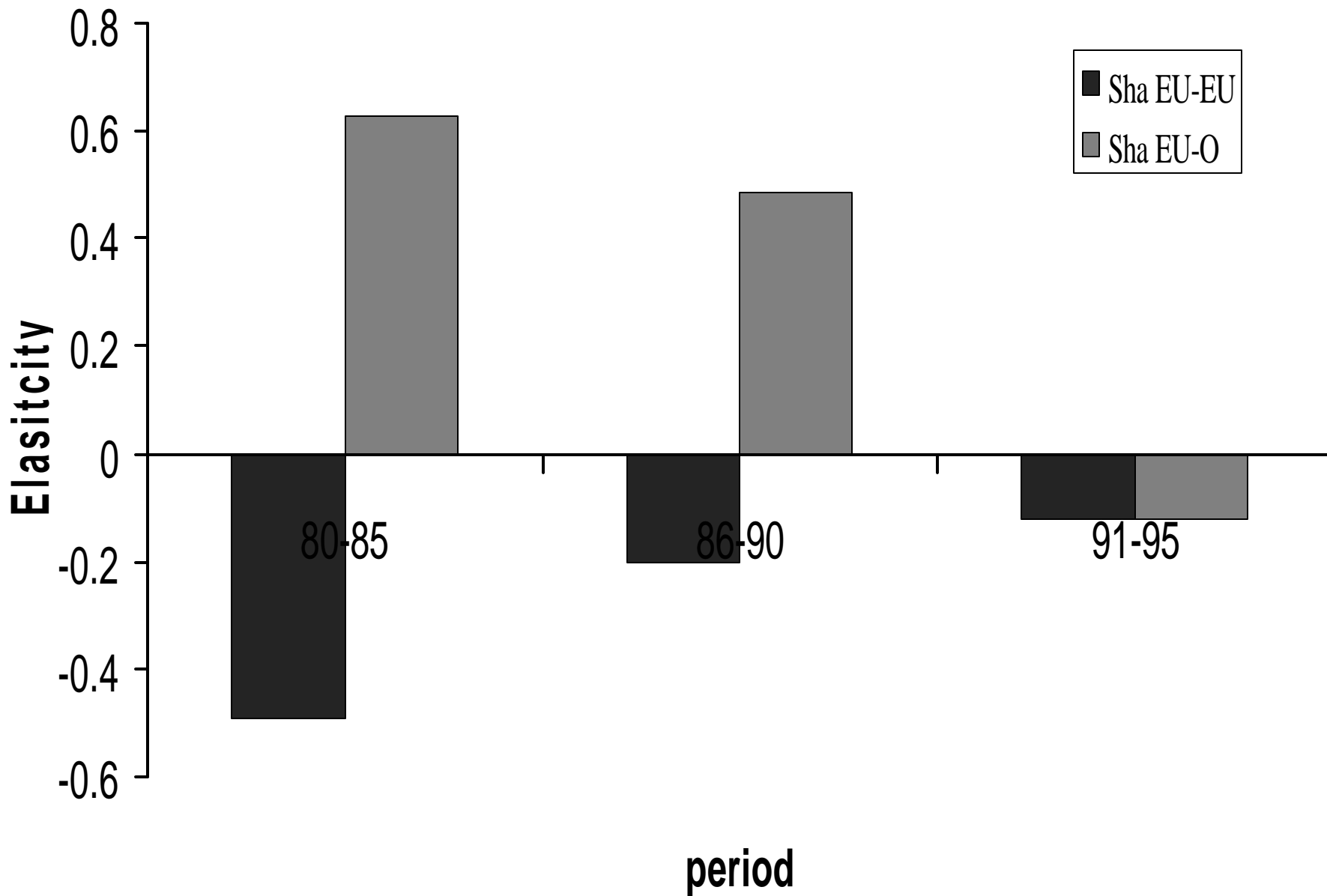
- Both **product-** as well as **process-** standards in agriculture
- Induce **additional cost**, e.g. for testing
- Provide precise **information** about conditions / specifications that need to be met for testing → precise **Market Access Information**

# Agriculture: All Countries

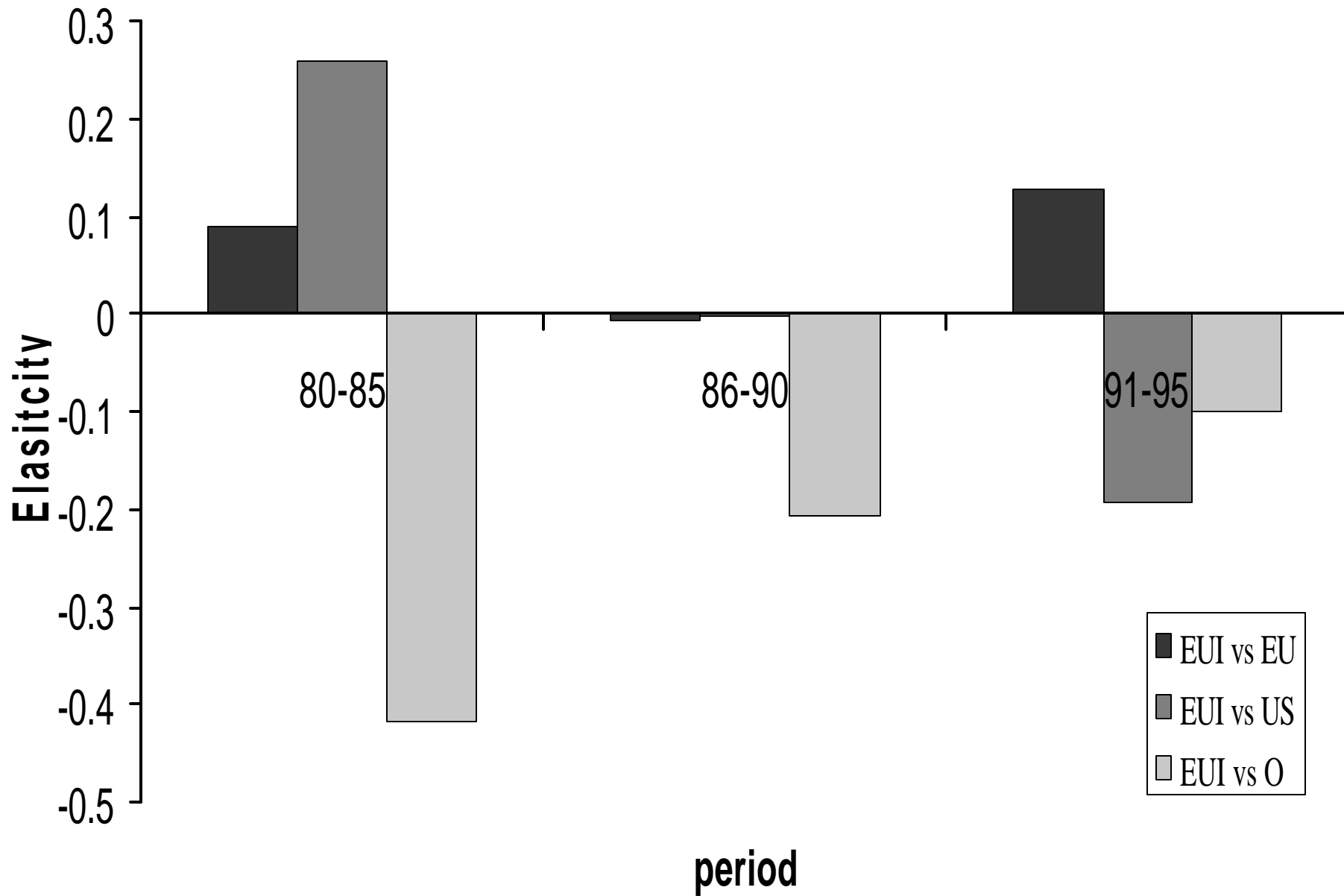




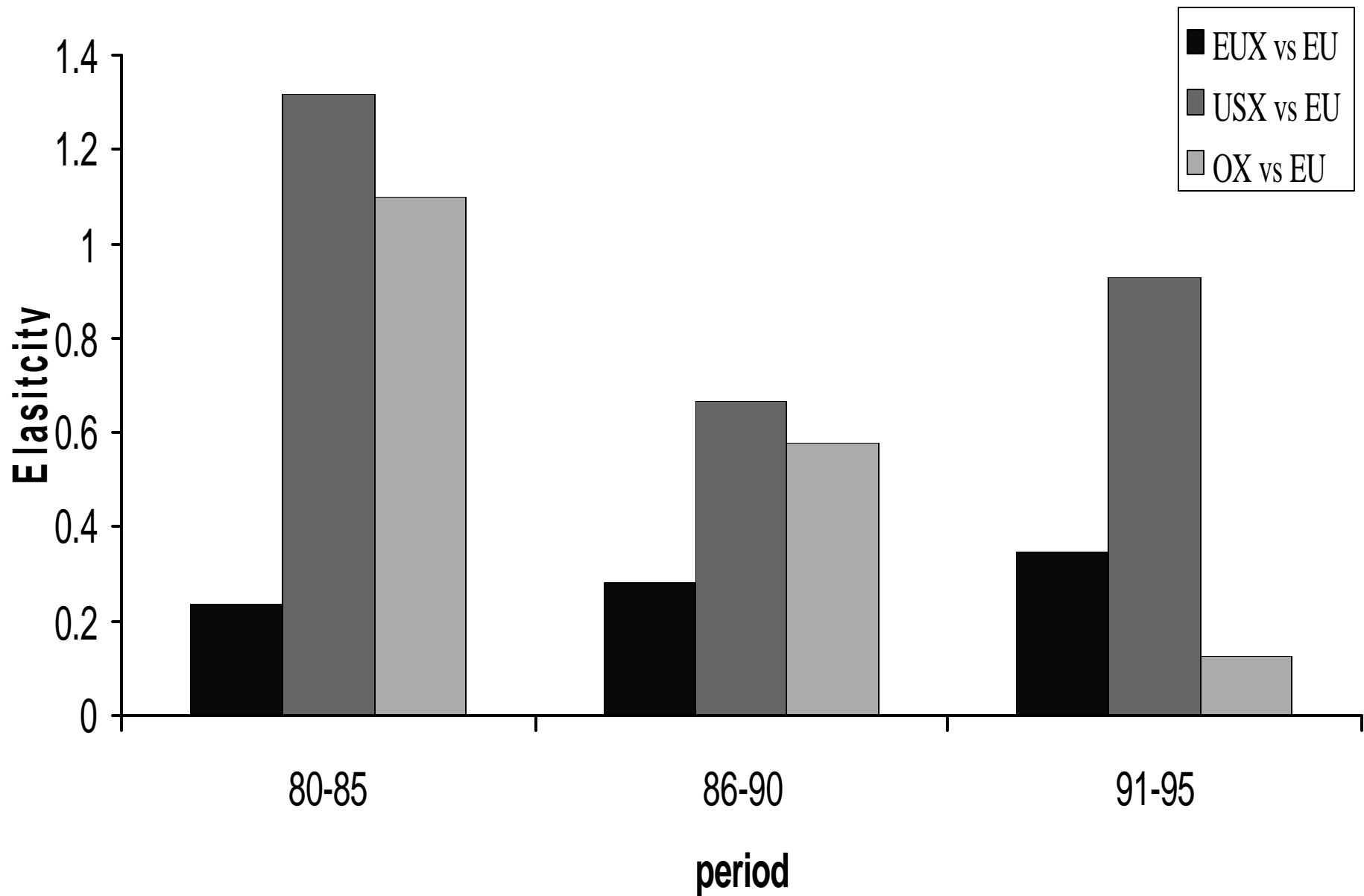
# Agriculture: EU as Importer, Shared Standards



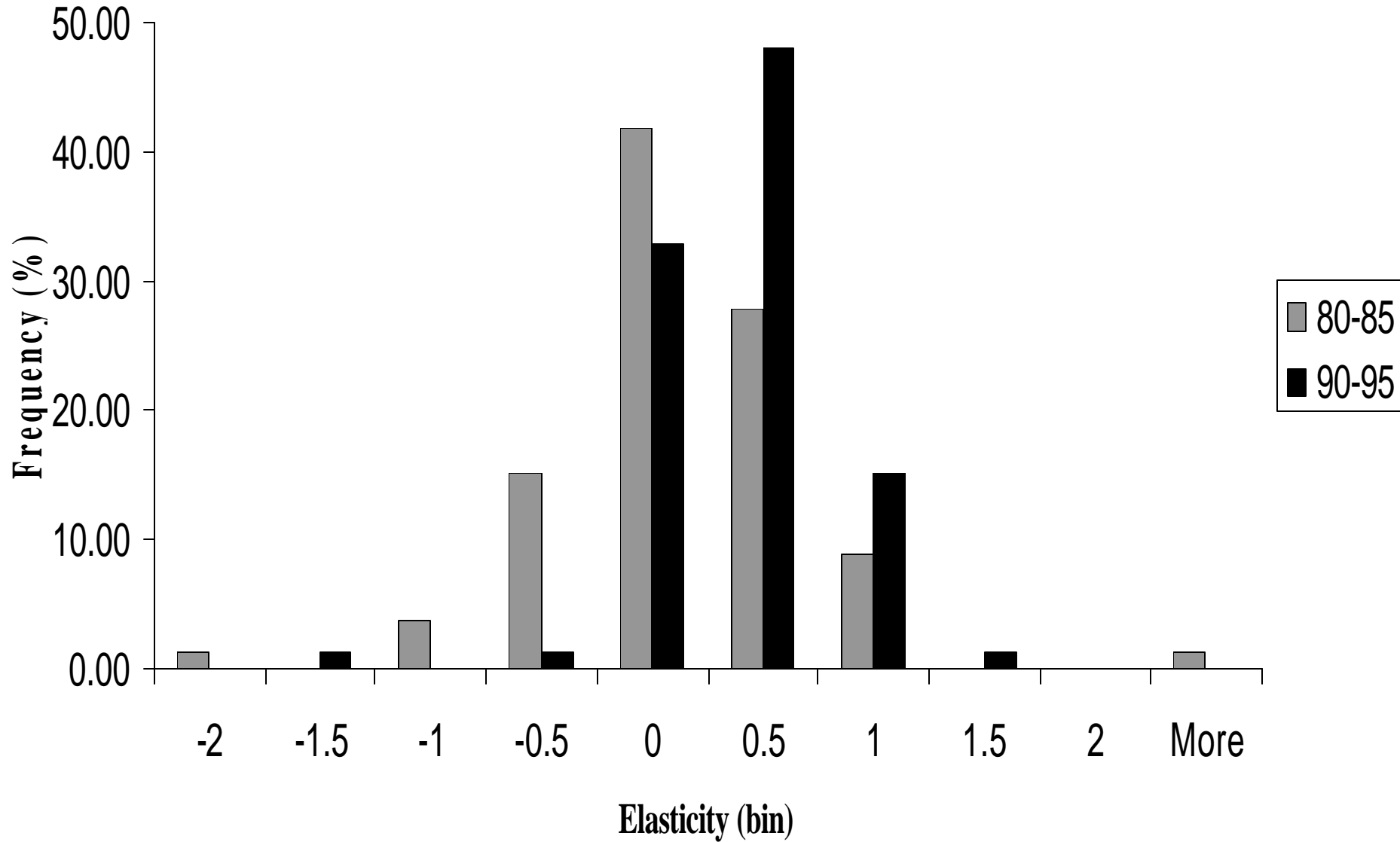
# Agriculture: EU as Importer, EU Standards



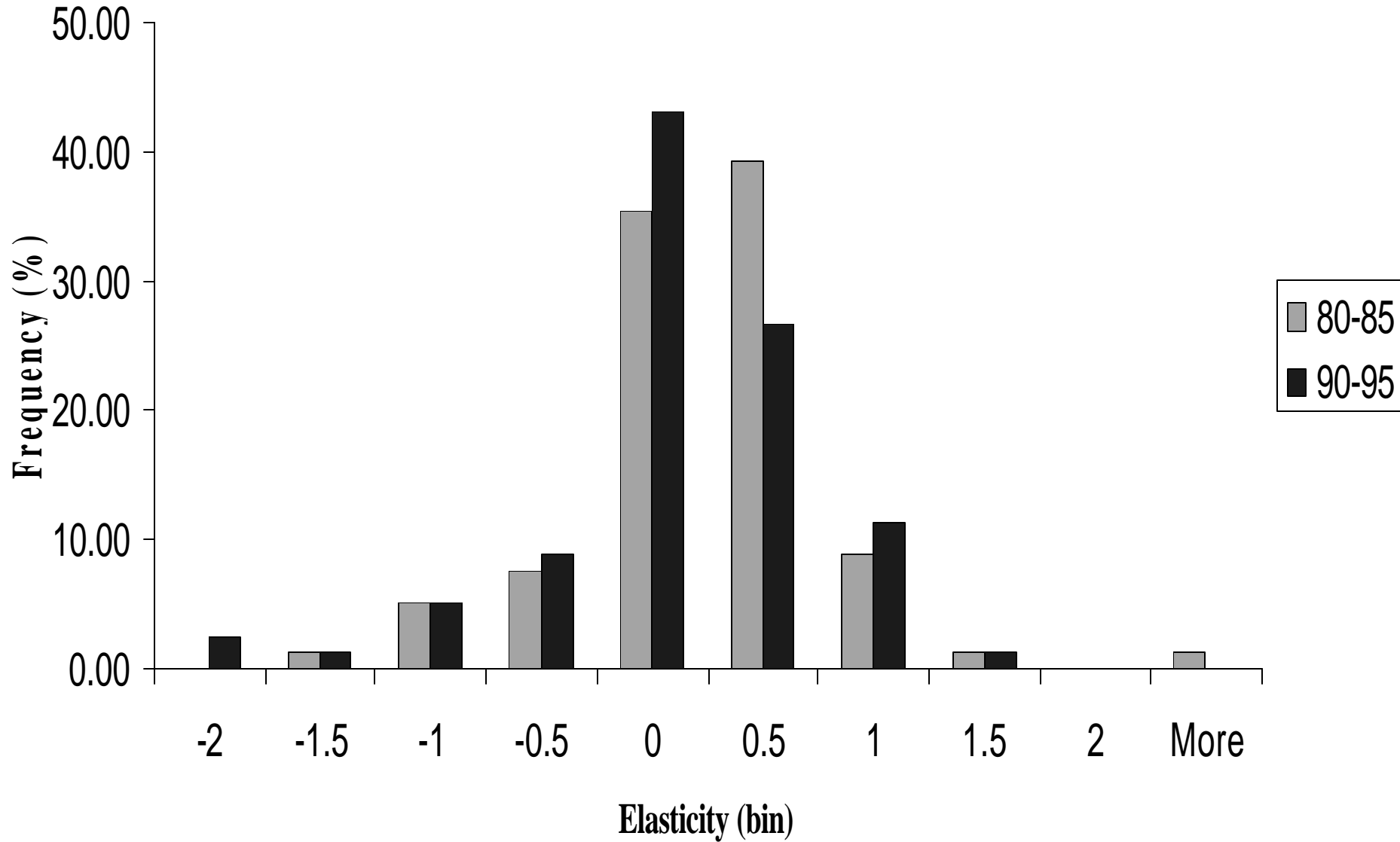
# Agriculture: EU as Importer, Exporter Standards



# All Countries: Effect of Importer Standards



# EU: Effect of Importer Standards



# Distribution Across Industries

		All Countries			EU		
		80-85	86-90	91-95	80-85	86-90	91-95
shared	Aver.	-0.12	-0.10	-0.03	0.22	-0.10	-0.10
	SD	0.85	0.64	0.52	0.88	0.78	0.72
Imp	Aver.	-0.11	0.01	0.10	-0.01	-0.18	-0.15
	SD	0.66	0.44	0.41	0.68	0.56	0.59
Exp	Aver.	0.42	-0.01	-0.05	0.60	0.08	-0.09
	SD	0.63	0.59	0.59	0.77	0.66	0.72

# Observations

- Overall effect of standards in agriculture seems to decrease. However, this is due to **offsetting directions of effects** for different country-groups
- **EU standards** seem to grow **more restrictive** over time
- Important role of **exporter standards**

# Interpretation

- As countries integrate, additional benefits of harmonization *decrease*: the loss of variety effect outweighs the no adaptation cost effect
- As countries integrate, *insider-standards* (country-specific) **gain** power while *outsider-standards* lose power



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## Summary:



- Standards provide information and harmonization services, can impose adaptation costs across countries and reduce variety. Essential to recognize *trade-offs* between the different forces
- Some evidence that harmonization (in agriculture) leads to *insider-outsider* distinction
- Some evidence that **barrier effect of EU standards** *increased* for outsiders

# Policy Implications



- Country-specific **importer** standards *not always a barrier to trade*, **harmonization** *not always beneficial*
- **Don't cure symptoms**: Issue is market access, not standards – information and variety key
- Food is a sensitive issue. Let the interested **parties choose** what to harmonize ... and don't forget the consumers 😊