

Food standards and trade: An empirical perspective

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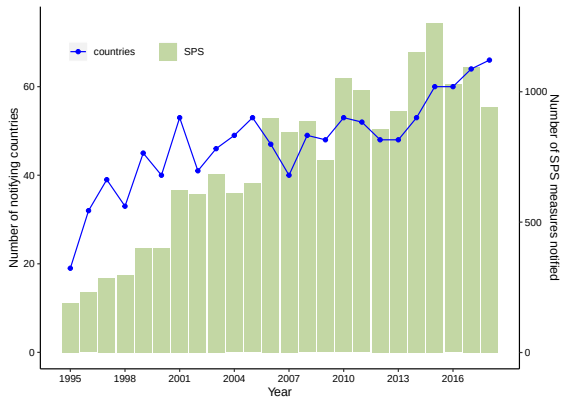
Workshop on “International Trade on Organic Products” - Tropentag 2026

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- More countries introducing more standards

Fig. 1: Standards are proliferating

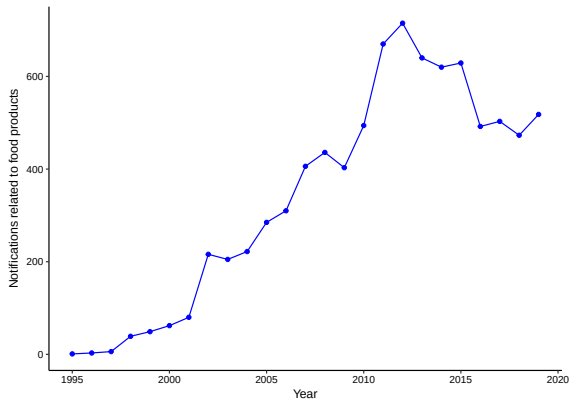


(a) Source: UNCTAD data

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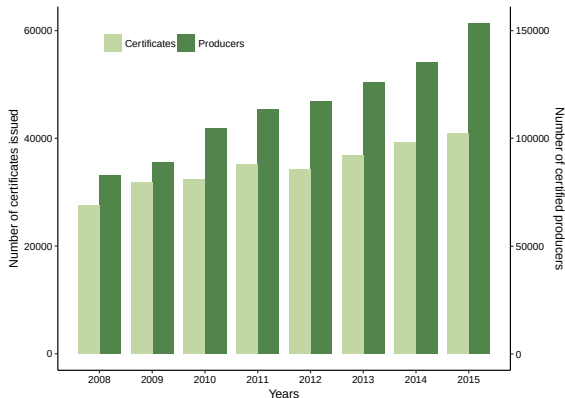


(b) Count of EU border rejections (Source: EU RASFF)

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- More producers are seeking VSS certification for market access

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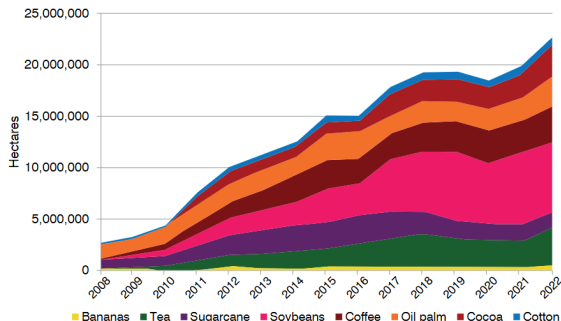


(c) Diffusion of GlobalGAP certification (GlobalGAP)

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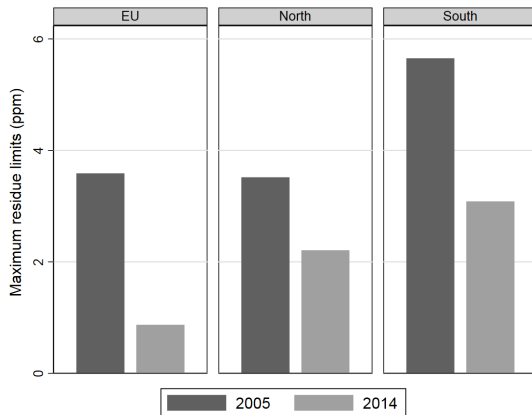
Note: The data in this table were not adjusted for multiple certifications, so the minimum possible is reported. The total VSS-compliant area corresponds to the standard with the largest compliant area operating within a given sector by country.

(d) Diffusion of VSS certification (Kemper et al., 2024)

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MRLs by country group (Fiankor et al., 2021a)

Food standards are increasing in number and stringency

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- Trend spans multiple products
- Standards are becoming more stringent over time
- Standards vary widely across countries

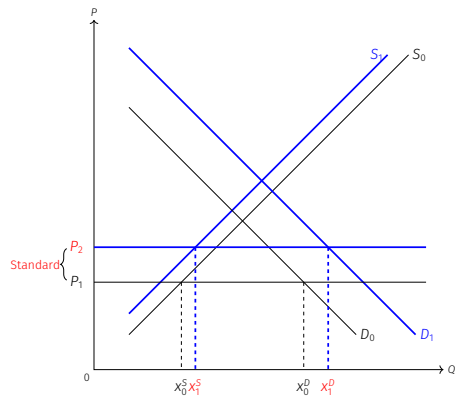
Fig. 1: Standards are proliferating

Active substances	Product	Switzerland	EU	Japan	USA	Canada	China	Codex
Carbaryl	Mandarins	0.01	0.01	7	10	10	–	15
Captan	Apples	3	10	5	25	5	15	15
Fenbutatin-oxide	Apple	2	2	5	15	3	5	5
Acetamiprid	Apples	0.8	0.8	2	1	1	0.8	0.8
Azoxystrobin	Tomatoes	3	3	3	0.2	0.2	3	3
Folpet	Avocado	0.02	0.03	30	25	25	–	–

Cross-country variations in MRLs (Fiankor et al., 2025)

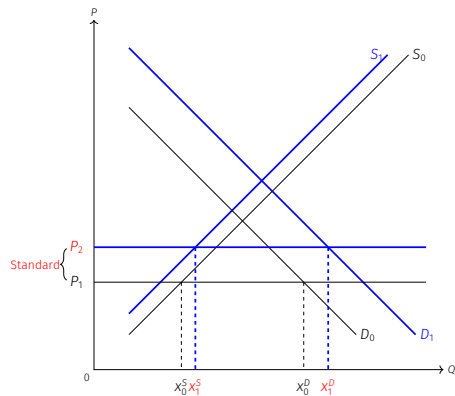
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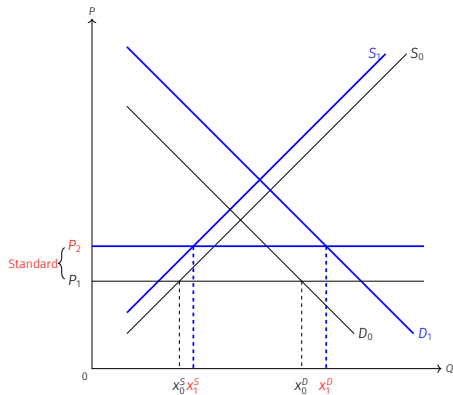
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- Standards shift both demand and supply curves

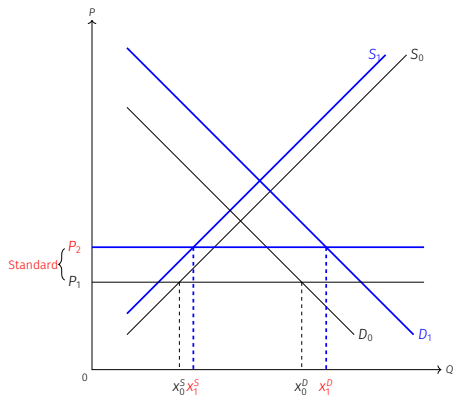


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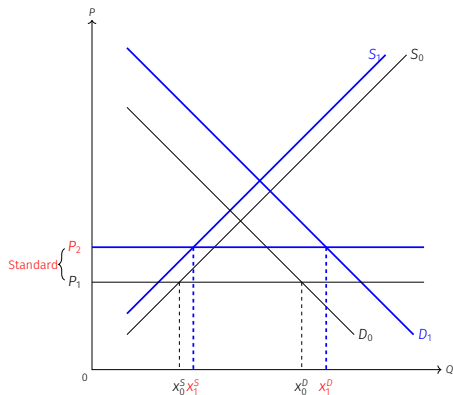


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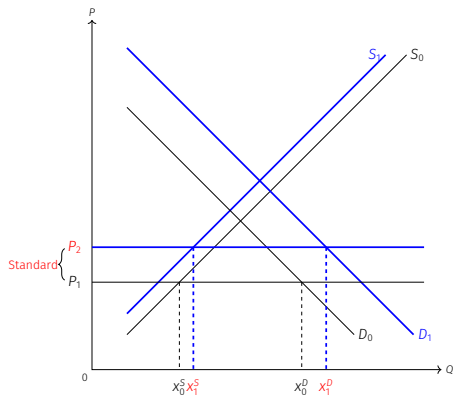
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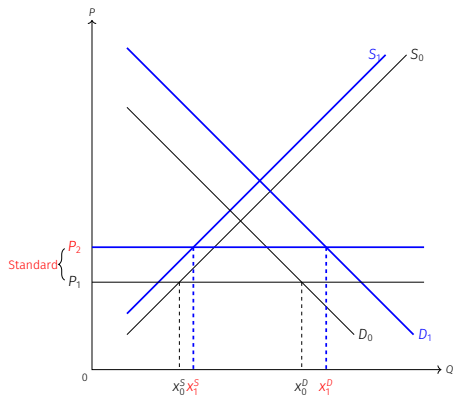
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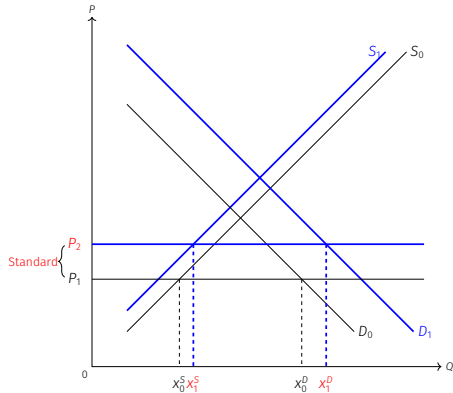
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 - Variable: Per-Unit, Ongoing Compliance

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- Affects all margins of trade adjustment
 - Extensive and Intensive margin

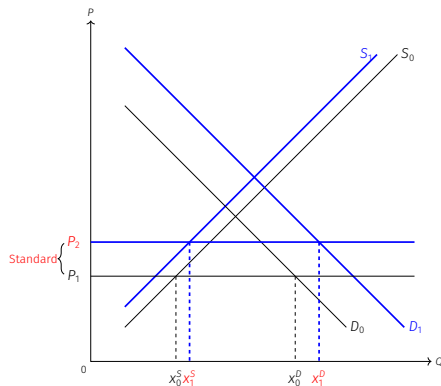
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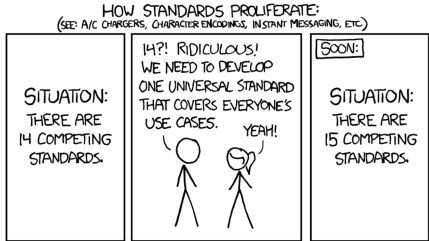
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 - Extensive and Intensive margin
- The result is the “standards-as-catalysts or -barriers to trade” debate.

Standards reshape industry structure

- Market Exclusion & Monopoly Power:
 - High production costs induce exit for low-quality firms.
 - Surviving exporters facing reduced competition may pass extra costs onto consumers as higher prices.
- Quality Upgrading & Price Competition:
 - Mandatory compliance forces low-quality firms to upgrade.
 - Narrowing quality gaps between firms increases price competition, reducing quality-adjusted prices.



What is the policy goal?



- Regulatory convergence → efficiency gains
- Here we show the benefit of regulatory convergence

Homogeneity increases imports at lower prices (Fiankor and Shingal, 2025)

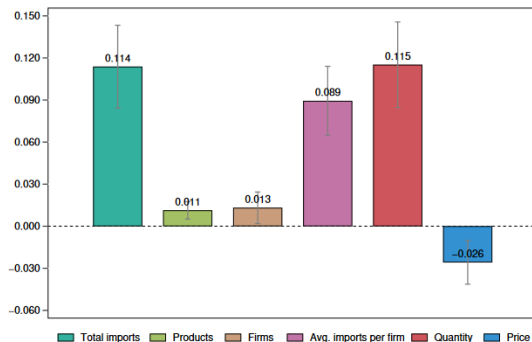
Table 1: The effect of pesticide regulatory homogeneity on product-level import margins

Dependent variable (log)	Total	Extensive margin		Intensive margin		
	Imports	Products	Firms	Average imports	Quantity	Prices
	X_{pkt}	N_{pkt}	F_{pkt}	$\bar{X}_{fpkt}$	Q_{fpkt}	UV_{fpkt}
	(1)	(2)	(3)	(4)	(5)	(6)
SAME _{kpt}	0.097*** (0.015)	0.014*** (0.003)	0.006 (0.005)	0.077*** (0.013)	0.094*** (0.017)	−0.016** (0.008)
Log (1 + Tariff _{kt})	−0.373*** (0.009)	0.182*** (0.004)	0.090*** (0.007)	−0.645*** (0.007)	−0.161*** (0.007)	−0.484*** (0.008)
FE (μ_{pk}, γ_t)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	155,000	155,000	155,000	155,000	155,000	155,000

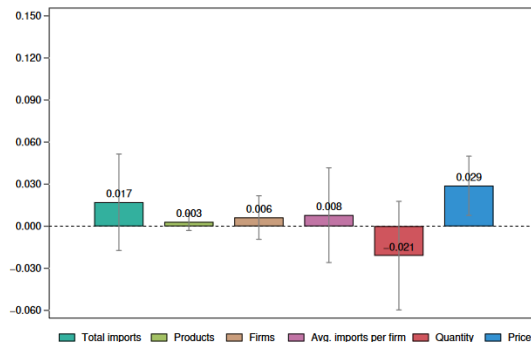
Notes: ***, ** and * denote significance at 1%, 5%, and 10% respectively. Intercepts included but not reported. Standard errors are clustered at the product-chemical-year level. X_{pkt} is total Swiss imports—summed across all firms, and HS8-digit products—of product k on which active element p is applied in year t . F_{pkt} is the number of firms importing in year t , N_{pkt} is the number of products imported in year t and $\bar{X}_{fpkt}$ is the import value per product per firm in year t . The coefficients in columns (2) to (4) sum up to those in column (1). The coefficients in columns (5) and (6) also sum up to those in column (4).

... more so for smaller firms

Fig. 2: The effect of regulatory homogeneity on import margins by firm size



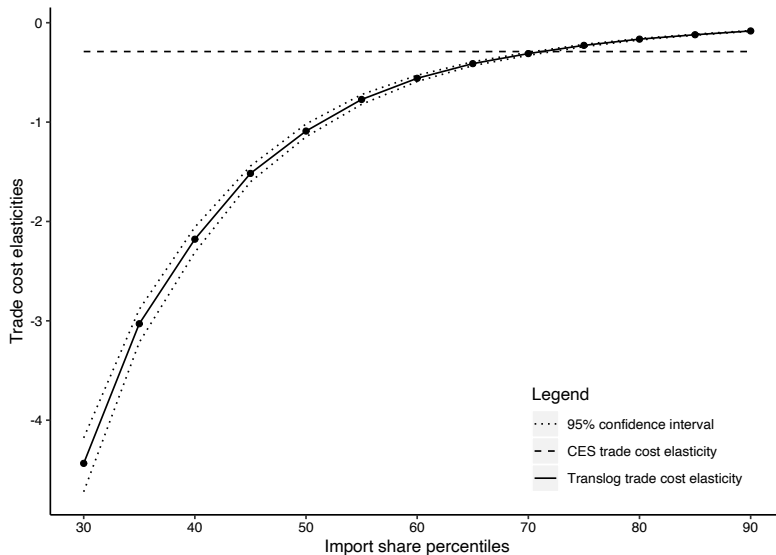
(a) Small firms



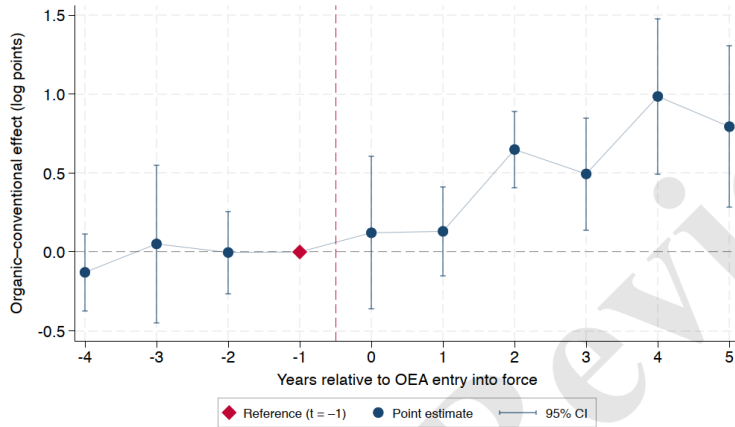
(b) Large firms

Notes: we define two sets of size-based firm structures based on the number of employees engaged within a firm. (i) Small firms are firms with ≤ 249 employees and (iii) large firms are firms with ≥ 250 employees.

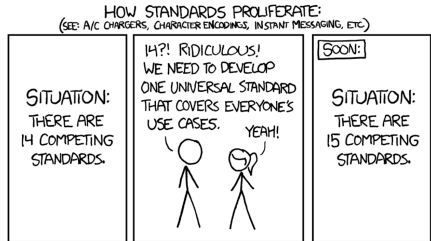
... but also for smaller trading countries (Fiankor et al., 2021b)



The case of US Organic Equivalency Arrangements (Amponsem et al., 2026)



Key takeaways



- Regulatory convergence → efficiency gains
- Builds resilience into supply chains
- Produces inclusive value chains
- Open question is whose standard becomes the “standard”?

Thank You!

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 <https://www.uni-goettingen.de/de/690613.html>

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