



# Exports and governance: the role of private voluntary certification

---

Dela-Dem D. Fiankor, I. Martínez-Zarzoso, and B. Brümmer

International Conference of Agricultural Economics 2018

April 21, 2023

Research Training Group “GlobalFood”  
University of Goettingen

# Motivation

---

## 1 Institutions and bilateral trade

- Domestic institutions influence trade (e.g., Anderson and Marcouiller, 2002; de Groot et al., 2004; Olper and Raimondi, 2009; Bojnec and Fertô, 2009; Huchet-Bourdon and Cheptea, 2011)
- Institutional similarities increase trade, *vice versa* (e.g., Álvarez et al., 2018; Martínez-Zarzoso and Márquez-Ramos, 2018)

## 2 How do countries overcome these differences?

## Novelty

---

*“Institutional Distance”*

(Huchet-Bourdon and Cheptea, 2011; Álvarez et al., 2018)

+

*“Standards as catalysts/barriers to trade”*

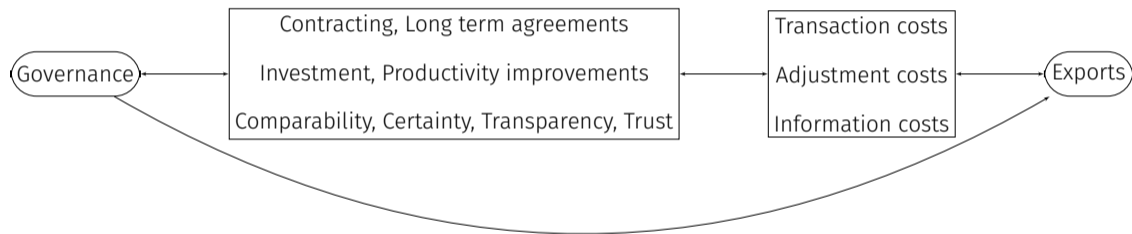
(Anders and Caswell, 2009; Swinnen, 2016)

↓

- Novel perspective of how voluntary standards counter the trade inhibiting effects of governance distance
- Indirect trade effects of standards from an institutional distance perspective
- Formally assess institutional distance and trade at product level

# Exports and governance

Figure 1: Exports and governance: transmission channels



Source: Adapted from Martínez-Zarzoso and Márquez-Ramos (2018)

## Voluntary standards as private governance institutions

---

- “Northern” retailers  $\iff$  “Southern” Producers
- Public food safety regulations differ between partners
  - Private standards act as surrogate governance institutions
  - Put firms on a common ground, e.g., management practices, cultural practices ..
  - Direct comparison of producers regardless of location
  - Reduces *ex-ante/ex-post* transaction costs

# Data

---

- Context - B2B relationships in the agrifood sector
- Non-EU/EFTA exports to the EU/EFTA
  - Major export destination for many DCs (Scoppola et al., 2018)
  - Strict food safety regulations (Kareem et al., 2018)

## Governance Distance

---

- World Governance Indicators (Kaufmann et al., 2011)
- “Governance Distance”<sup>1</sup>

$$GovDist_{ijt} = \sum_{w=1}^6 (WGI_{j_{wt}} - WGI_{i_{wt}})^2 / 6V_{wt} \quad (1)$$

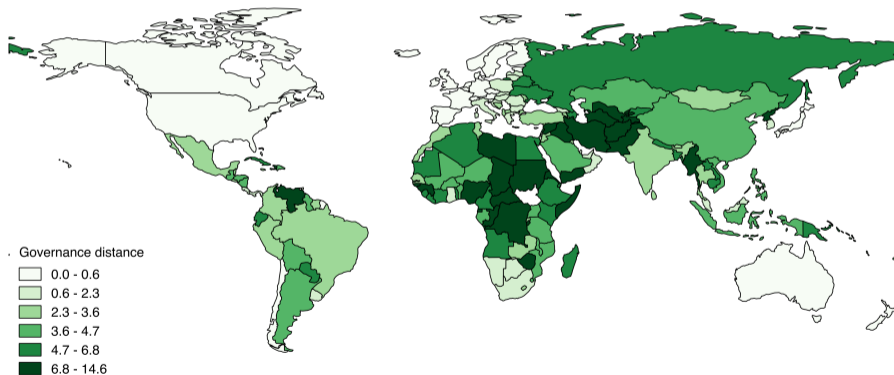
- Minimised when  $WGI_{j_{wt}} = WGI_{i_{wt}}$
- Sample average: 0.014 (NLD - CAN) to 17.69 (FIN - SOM)

---

<sup>1</sup>Kogut and Singh (1988); Abdi and Aulakh (2012); Dimitrova et al. (2017)

# Governance Distance

Figure 2: Bilateral Governance distance (destination = Germany)



Source: World Bank WGI dataset, own map



# GlobalGAP standards

- Foremost global private agrifood pre-farmgate process standard
- *De jure* voluntary, *de facto* mandatory
- Certification requirements
  - Traceability, record keeping, authorised seeds and chemicals, IPM ...



## Structural Gravity Model (Theory)

$$X_{ijkt} = \underbrace{\frac{Y_{ikt} E_{jt}}{Y_{kt}}}_{\text{size terms}} \underbrace{\left( \frac{T_{ijkt}}{\prod_{ikt} P_{jkt}} \right)^{1-\sigma_k}}_{\text{trade cost terms}} \quad (2)$$

$$T_{ijkt} = D_{ij}^{\beta_1} \boxed{\text{GovDist}_{ijt}^{\beta_2} \text{GlobalGAP}_{ikt}^{\beta_3} (\text{GovDist}_{ijt} \times \text{GlobalGAP}_{ikt})^{\beta_4}} \exp \sum_{n=1}^3 \beta_n \theta_{ij} \quad (3)$$

## Estimation equations

---

### *OLS specification*

$$\ln X_{ijkt} = \psi_{ikt} + \lambda_{jkt} + \beta_0 + \beta_1 \ln \text{Distance}_{ij} + \beta_n \theta_{ij} + \beta_2 \text{GovDist}_{ij,t-1} + \beta_3 \text{GovDist}_{ij,t-1} \times \text{GlobalGAP}_{ikt-1} + \varepsilon_{ijkt} \quad (4)$$

### *PPML specification*

$$X_{ijkt} = \exp \left[ \psi_{ikt} + \lambda_{jkt} + \beta_0 + \beta_1 \ln \text{Distance}_{ij} + \beta_n \theta_{ij} + \beta_2 \text{GovDist}_{ij,t-1} + \beta_3 \text{GovDist}_{ij,t-1} \times \text{GlobalGAP}_{ikt-1} \right] + \varepsilon_{ijkt} \quad (5)$$

## Benchmark results

Table 1: The effect of GlobalGAP standards on bilateral governance distance

	OLS	PPML
<i>Dependent variable</i>	(1) $\ln X_{ijkt}$	(3) $X_{ijkt}$
Log Distance <sub>ij</sub>	-1.944*** (0.245)	-1.364** (0.657)
Language <sub>ij</sub>	0.035 (0.272)	0.391* (0.233)
Colony <sub>ij</sub>	0.421 (0.273)	0.681*** (0.196)
Contiguity <sub>ij</sub>	1.041** (0.480)	1.977* (1.178)
GovDist <sub>ij,t-1</sub>	-0.466*** (0.076)	-0.217* (0.112)
Observations	6,274	23,252

Notes: Robust country-pair product clustered standard errors in parentheses. \*\*\*, \*\*, \* denote significance at 1%, 5% and 10% respectively. Importer-product-time and exporter-product-time fixed effects included in all regressions. Each regression includes an omitted constant.

## Benchmark results

Table 1: The effect of GlobalGAP standards on bilateral governance distance

<i>Dependent variable</i>	OLS		PPML	
	(1) $\ln X_{ijkt}$	(2) $\ln X_{ijkt}$	(3) $X_{ijkt}$	(4) $X_{ijkt}$
Log Distance <sub>ij</sub>	-1.944*** (0.245)	-1.976*** (0.242)	-1.364** (0.657)	-1.414** (0.663)
Language <sub>ij</sub>	0.035 (0.272)	0.034 (0.274)	0.391* (0.233)	0.396* (0.235)
Colony <sub>ij</sub>	0.421 (0.273)	0.417 (0.274)	0.681*** (0.196)	0.680*** (0.197)
Contiguity <sub>ij</sub>	1.041** (0.480)	1.050** (0.464)	1.977* (1.178)	1.882 (1.150)
GovDist <sub>ij,t-1</sub>	-0.466*** (0.076)	-0.600*** (0.081)	-0.217* (0.112)	-0.450*** (0.122)
GovDist <sub>ij,t-1</sub> × GlobalGAP <sub>ikt-1</sub>		0.288*** (0.080)		0.263** (0.117)
Observations	6,274	6,274	23,252	23,252

Notes: Robust country-pair product clustered standard errors in parentheses. \*\*\*, \*\*, \* denote significance at 1%, 5% and 10% respectively. Importer-product-time and exporter-product-time fixed effects included in all regressions. Each regression includes an omitted constant.

## Benchmark results

---

Putting the findings into perspective (using the PPML estimate):

- One s.d. increase in  $\text{GovDist}_{ijt-1}$  (=2.75), decreases trade by 60% (i.e.,  $2.746 \times 0.217 = 0.595$ )
- Corresponds to a change in  $\text{GovDist}_{ijt-1}$  from
  - Austria – USA (=0.12)  $\implies$  Austria – Turkey (=2.86)
  - Germany – Australia (=0.03)  $\implies$  Germany – Albania (=3.09)
  - Sweden – Ghana (=3.33)  $\implies$  Sweden – Guatemala (=6.18)
- Non-certified countries: trade reducing effect = 124%
- Certified countries: trade reducing effect = 51%

## Robustness checks

---

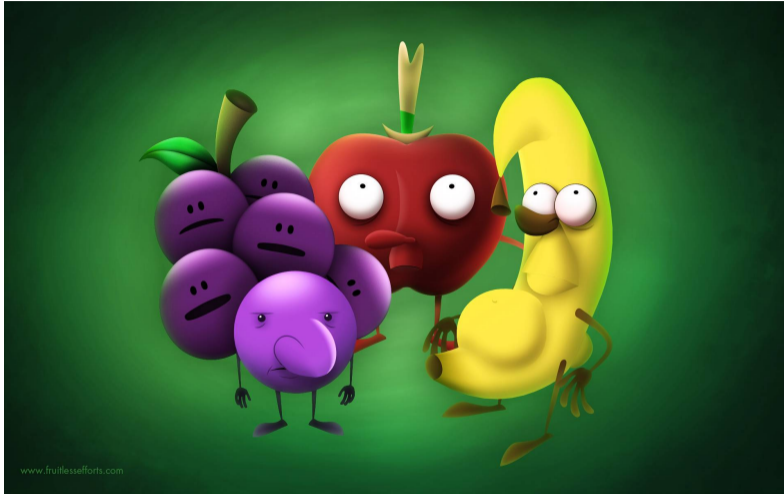
- Individual components of  $\text{GovDist}_{ijt}$
- Bilateral trade between all countries results
- All fruits and vegetables results
- Number of GlobalGAP certified producers per country results
- Choice of institutional quality measure
  - Legatum Prosperity Index
  - Economic Freedom of the World index

# Conclusion

---

- Institutions matter for trade  $\implies$  Trade cost implications
- In the presence of large institutional distances, private standards act as surrogate institutions
- Certifications in themselves are not enough, but viable alternative





*Thank You!!*

# References i

- Abdi, M., Aulakh, P. S., 2012. Do country-level institutional frameworks and interfirm governance arrangements substitute or complement in international business relationships? *J. Int. Bus. Stud.* 43(5), 477–497.
- Álvarez, I. C., Barbero, J., Rodríguez-Pose, A., Zofío, J. L., 2018. Does institutional quality matter for trade? Institutional conditions in a sectoral trade framework. *World Dev.* 103, 72–87.
- Anders, S. M., Caswell, J. A., 2009. Standards as barriers versus standards as catalysts: assessing the impact of HACCP implementation on US seafood imports. *Am. J. Agric. Econ.* 91(2), 310–321.
- Anderson, J. E., Marcouiller, D., 2002. Insecurity and the pattern of trade: An empirical investigation. *Rev. Econ. Stat.* 84(2), 342–352.
- Bojnec, Š., Fertő, I., 2009. The institutional determinants of bilateral agricultural and food trade. *APSTRACT* 4(3-4), 53–57.
- de Groot, H. L., Linders, G.-J., Rietveld, P., Subramanian, U., 2004. The institutional determinants of bilateral trade patterns. *Kyklos* 57(1), 103–123.
- Dimitrova, B. V., Korschun, D., Yotov, Y. V., 2017. When and how country reputation stimulates export volume. *Int. Mark. Rev.* 34(3), 377–402.
- Huchet-Bourdon, M., Cheptea, A., 2011. Informal barriers and agricultural trade: does monetary integration matter? *Agr. Econ.* 42(4), 519–530.
- Kareem, F. O., Martínez-Zarzoso, I., Brümmer, B., 2018. Protecting health or protecting imports? Evidence from EU non-tariff measures. *Int. Rev. Econ. Finance* 53, 185–202.
- Kaufmann, D., Kraay, A., Mastruzzi, M., 2011. The worldwide governance indicators: methodology and analytical issues. *Hague J. Rule Law* 3(2), 220–246.
- Kogut, B., Singh, H., 1988. The effect of national culture on the choice of entry mode. *J. Int. Bus. Stud.* 19(3), 411–432.
- Martínez-Zarzoso, I., Márquez-Ramos, L., 2018. Exports and governance: is the Middle East and North Africa region different? *World Econ.* 0(0), 1–32.
- Olper, A., Raimondi, V., 2009. Patterns and determinants of international trade costs in the food industry. *J. Agric. Econ.* 60(2), 273–297.
- Scoppola, M., Raimondi, V., Olper, A., 2018. The impact of EU trade preferences on the extensive and intensive margins of agricultural and food products. *Ag. Econ.* 49(2), 251–263.
- Swinnen, J., 2016. Economics and politics of food standards, trade, and development. *Ag. Econ.* 47(S1), 7–19.

## Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Contiguity	0.007	0.084			41940
Language	0.054	0.226			41940
Colony	0.03	0.17			41940
GlobalGAP dummy	0.305	0.461			41940
$VA_{ijt}$	3.223	3.03	0	16.123	41220
$PS_{ijt}$	2.704	3.272	0	21.694	41070
$RL_{ijt}$	3.675	3.183	0	21.041	41220
$CC_{ijt}$	3.568	3.474	0	17.684	41220
$GE_{ijt}$	3.42	3.191	0	23.708	41220
$RQ_{ijt}$	3.331	3.205	0	20.771	41220
$GovDist_{ijt}$	3.317	2.746	0.002	18.622	41070
GlobalGAP producers	63	393	0	6523	41940
$X_{ijkt}$ (in 1000 USD)	1279.745	13217.83	0	640772.50	41940
Bilateral distance	6798.496	3782.482	134.644	19537.12	41760
$Production_{jkt}$ (MT)	1090.45	3531.24	0.002	42613	41940

## Appendix

Table 2: Robustness check: bilateral trade between all countries [main text](#)

	OLS		PPML	
	(1)	(2)	(3)	(4)
Log Distance <sub>ij</sub>	-1.284***	-1.280***	-1.477***	-1.476***
Language <sub>ij</sub>	0.466***	0.471***	0.324**	0.323**
Colony <sub>ij</sub>	0.691***	0.681***	0.681***	0.678***
Contiguity <sub>ij</sub>	0.898***	0.907***	-0.099	-0.099
RTA <sub>ij</sub>	0.546***	0.511***	0.791***	0.787***
Log (1 + Tariff <sub>ijkt</sub> )	-0.423***	-0.428***	-0.304***	-0.302***
GovDist <sub>ij</sub> <sub>t-1</sub>	-0.067***	-0.163***	-0.127***	-0.172***
GovDist <sub>ij</sub> <sub>t-1</sub> × GlobalGAP <sub>ikt</sub> <sub>t-1</sub>		0.151***		0.050
Observations	24,742	24,742	164,951	164,951

# Appendix

Table 3: Robustness checks [main text](#)

	All fruits and vegetables		Number of producers	
	OLS	PPML	OLS	PPML
	(1)	(2)	(3)	(4)
Log Distance <sub>ij</sub>	-1.872*** (0.155)	-1.257*** (0.162)	-1.843*** (0.240)	-1.145* (0.641)
Language <sub>ij</sub>	0.735*** (0.151)	-0.035 (0.256)	0.075 (0.269)	0.447* (0.231)
Colony <sub>ij</sub>	0.727*** (0.171)	0.798*** (0.205)	0.414 (0.268)	0.654*** (0.197)
Contiguity <sub>ij</sub>	0.894*** (0.286)	-0.228 (0.478)	0.972** (0.444)	2.094* (1.126)
GovDist <sub>ij,t-1</sub>	-0.326*** (0.048)	-0.195*** (0.065)	-0.673*** (0.081)	-0.359*** (0.121)
GovDist <sub>ij,t-1</sub> × GlobalGAP <sub>ikt-1</sub>	0.186*** (0.040)	0.171*** (0.059)	0.098*** (0.014)	0.030 (0.019)
Observations	16,299	32,190	6,274	23,252