

Pesticides standards and international trade: reviewing the evidence

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Introduction

- ▶ The steady decline in tariffs, until recently, has resulted in an increased preference for the use of non-tariff measures, including sanitary and phytosanitary (SPS) standards and technical barriers to trade (TBT)
- ▶ While imposed for legitimate reasons – alleviating information asymmetries, mitigating consumption risks and promoting environmental sustainability – these measures can also serve as instruments of disguised protectionism (Mahé, 1997; Swinnen and Vandemoortele, 2011, 2012; Grundke and Moser, 2019)
- ▶ Maximum residue levels (MRLs) in pesticides are commonly-used agricultural product standards that denote the maximum amount of pesticide residue that is legally permitted to remain on treated crops

Differences in standards can deter trade

- ▶ Differences in pesticides standards between exporting and importing countries impose trade costs on exporting firms (Fernandes et al. 2019; Traoré and Tamini, 2022)
- ▶ Regulatory heterogeneity increases the fixed product adaptation costs that exporting firms pay for market access, discouraging entry, and reducing both the range of exported product varieties and export destinations (Schmidt and Steingress, 2022)
- ▶ Existing literature provides much evidence (De Frahan and Vancauteran, 2006; Achterbosch et al. 2009; Winchester et al. 2012; Drogue and DeMaria, 2012; Melo et al. 2014; Xiong and Beghin, 2014; Ferro et al. 2015; Curzi et al. 2018; Fernandes et al. 2019; Fiankor et al. 2021a,b; Hejazi et al. 2022; Shingal and Ehrich, 2024).

Stricter standards can also enhance trade

- ▶ Having to comply with more stringent regulation can also be associated with a demand-enhancing effect via quality-upgrading (Xiong and Beghin, 2014; Traoré and Tamini, 2022)
- ▶ Evidence exists but is much more limited (Ishaq et al. 2016; Xiong and Beghin, 2013; Shingal et al. 2021; Traoré and Tamini, 2022)

Gains from harmonizing heterogeneous standards

- ▶ By unifying product characteristics across countries, harmonization eliminates costs, and also induces firms to upgrade their products, thereby driving trade (Schmidt and Steingress, 2022)
- ▶ The positive impact of MRL harmonization on trade is getting increasingly documented in existing work (De Frahan and Vancauteran, 2006; Achterbosch et al. 2009; Shingal and Ehrich, 2024; Fiankor and Shingal, 2025)

Role of institutional quality

- ▶ Countries with stronger regulatory quality, certification systems, and supporting institutions are more likely to successfully comply with foreign standards and sustain agricultural exports (Otsuki et al. 2001; Wilson and Otsuki, 2004)
- ▶ Exporting firms need to demonstrate conformity and compliance with importing country standards and better institutional quality in exporting countries can make it both easier and less costly for firms to do so
- ▶ In fact, the relative stringency of exporting country regulation has been found to be strongly correlated with institutional quality in exporting countries (Shingal et al. 2021)