

European Emission Trading System, Polluter Pays Principle, and Competition

Prof. Massimo Beccarello and Prof. Giacomo Di Foggia | University of Milano – Bicocca, Milan (IT)



01 Introduction

We evaluate the effectiveness of the European Emission Trading System in distributing pollution prevention costs. By empirically analyzing a 2016-2020 panel of European installation, our analysis reveals discrepancies in the mechanism's ability to internalize costs across sectors. Such biases increase by narrowing the research focus on industrial sectors. We find potential competitive advantages for sectors with higher extra European imports, affecting the single market competitive dimension. Such bias is only partially counterbalanced by extra European exports. Our results can aid policymakers in limiting potential distortions to Europe's level playing field. It is necessary to complement the European Emissions Trading System with mechanisms capable of pricing emissions, regardless of their origin.

02 Objective

Different degree of exposure to non-EU imports can yield a disparate impact on fair competition, we aim to shed light on this potential distortion often neglected so far. We highlight the importance of considering intra-EU dynamics in further fine-tuning the mechanism. Research questions:

- RQ1: Is the ETS effective in internalizing polluting costs? The hypothesis is that certain sectors may gain competitive advantages or lose competitiveness due to struggles of the emission accountability mechanism linked to external trade.
- RQ2: Does the system work properly across the EU? The hypothesis is that asymmetric regulation may help make the system more effective.

03 Variables & Methodology

- We defined the following variables for the purposes of this study.
- GAP encapsulates the emissions engendered by the domestic market that remain outside the ambit of the ETS.
- EXP denotes the emissions attributable to export of goods and services.
- IMP denotes the emissions attributable to import of goods and services.
- ALLOW indicates the total quantity of free allowances.
- CAR is the ratio of verified emissions to sectoral turnover: sectoral carbon intensity.
- SIZE is as the ratio of a sector's verified emissions to the country's total verified emissions: a proxy of the relative weight of each sector.

$$GAP_{it} = \alpha + \beta_1 ALLOW_{it} + \beta_2 EXP_{it} + \beta_3 IMP_{it} + \beta_4 CAR_{it} + \beta_5 SIZE_{it} + \epsilon_{it}$$

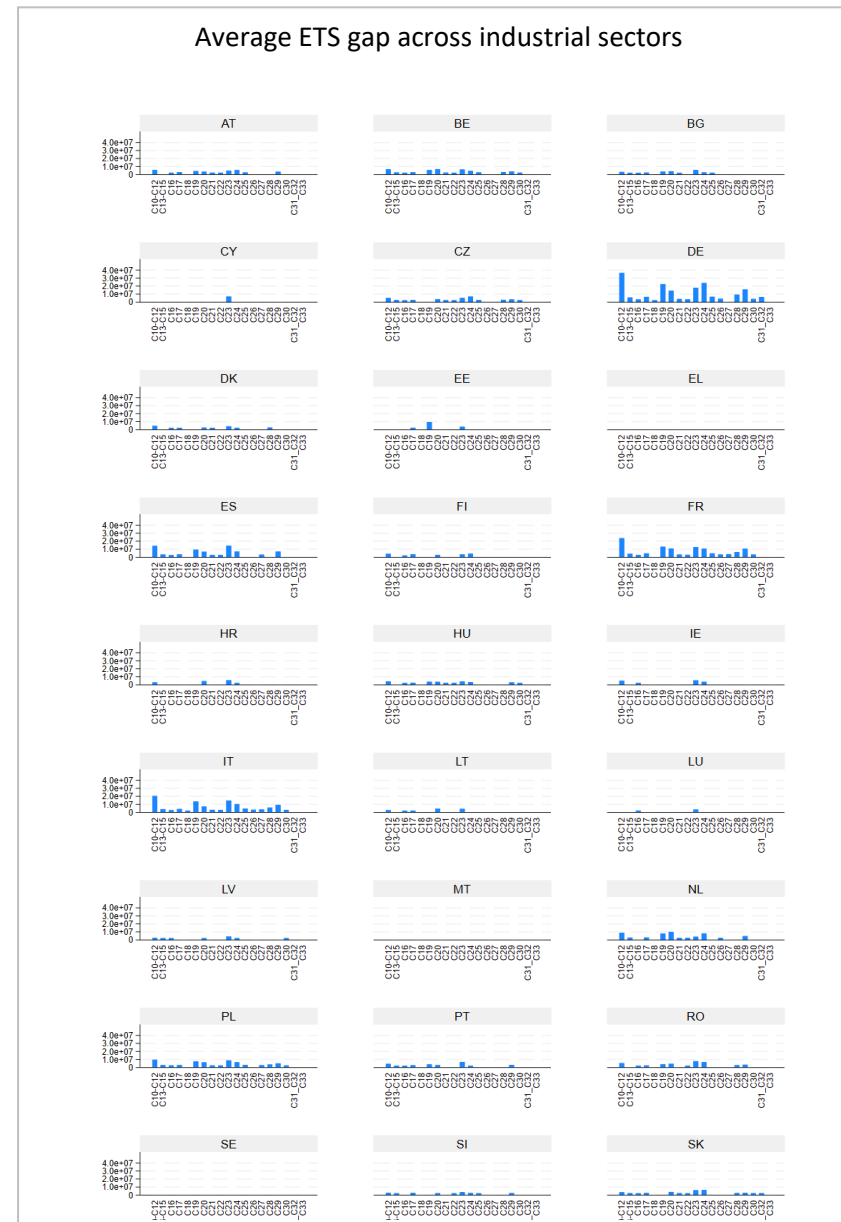
04 Analysis

All sectors	EU-6	EU-8	EU-10	EU-27
ALLOW	-0.482*** (0.127)	-0.458*** (0.118)	-0.556*** (0.107)	-0.592*** (0.0718)
EXP	0.185 (0.144)	0.138 (0.124)	0.125 (0.119)	0.0809 (0.0884)
IMP	-0.0329 (0.108)	-0.0265 (0.0966)	-0.0300 (0.0932)	-0.0236 (0.0688)
CAR	-11,890*** (1,459)	-11,640*** (1,343)	-7,353*** (989.6)	-1,210*** (212.1)
SIZE	-123,220*** (3,903)	-123,538*** (3,643)	-124,389*** (3,412)	-125,608*** (2,401)
Constant	7.381e+06 (1.091e+06)	6.745e+06 (947,744)	6.087e+06 (818,853)	3.225e+06 (408,219)

Obs.	383	447	518	1,050
N ID	99	115	134	269

Industrial	EU-6	EU-8	EU-10	EU-27
ALLOW	-0.474*** (0.0510)	-0.463*** (0.0473)	-0.500*** (0.0422)	-0.500*** (0.0422)
EXP	0.113** (0.0536)	0.0799* (0.0479)	0.0550 (0.0450)	0.0550 (0.0450)
IMP	-0.112** (0.0508)	-0.0934** (0.0472)	-0.0832* (0.0449)	-0.0832* (0.0449)
CAR	-2,319*** (772.2)	-2,370*** (697.3)	-931.7** (369.8)	-931.7** (369.8)
SIZE	-49,352*** (5,056)	-50,487*** (4,669)	-48,696*** (4,251)	-48,696*** (4,251)
Constant	2.393e+06 (579,782)	2.169e+06 (502,570)	1.914e+06 (442,448)	1.914e+06 (442,448)

Obs.	339	395	451	451
N ID	88	102	117	117



05 Discussion & conclusion

Because the ETS is the EU's primary policy tool for reducing greenhouse gas emissions, a reflection on its efficiency has been prompted, as it needs to better internalize the cost of imported extra-EU emissions to better conform to the polluter pays principle.

We have reported that a higher level of extra-EU imports apparently increases sectoral competitiveness; however, higher imports also threaten the functioning of the single market negatively impacting the level playing field. Such effects are not counterbalanced by extra-EU exports. In this context the role of extra-EU imports and free allowances has emerged. As free allowances still account significantly, they have not been properly targeted, also because of extra-EU emissions accountability complexity.

Therefore, it is important to update and make the procedure for allocating free allowances more targeted to take into account decarbonization targets and the linear reduction factor by which these free allowances will be phased out. We have also demonstrated the existence of distortions between different sectors especially in the industrial sectors. Consequently additional fine-tuning are needed to comply with the polluter pays principle.

References

- [1] Beccarello M and Di Foggia G 2023 Emissions trading system: Bridging the gap between environmental targets and fair competition Environmental. Research. Communications. 5
- [2] Beccarello M and Di Foggia G 2023 Review and Perspectives of Key Decarbonization Drivers to 2030 Energies 16 1345
- [3] Böning J, Di Nino V and Folger T 2023 Benefits and costs of the ETS in the EU, a lesson learned for the CBAM design (Frankfurt: European Central Bank)
- [4] ECA 2020 The EU's Emissions Trading System: free allocation of allowances needed better targeting (European Court of Auditors)