

# Accepted Manuscript

## The Dynamic Impact of Unilateral Environmental Policies

David Hémous

PII: S0022-1996(16)30105-2  
DOI: doi: [10.1016/j.jinteco.2016.09.001](https://doi.org/10.1016/j.jinteco.2016.09.001)  
Reference: INEC 2978

To appear in: *Journal of International Economics*

Received date: 15 June 2014  
Revised date: 12 September 2016  
Accepted date: 13 September 2016



Please cite this article as: Hémous, David, The Dynamic Impact of Unilateral Environmental Policies, *Journal of International Economics* (2016), doi: [10.1016/j.jinteco.2016.09.001](https://doi.org/10.1016/j.jinteco.2016.09.001)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# The Dynamic Impact of Unilateral Environmental Policies

David Hémous\*

*University of Zurich, INSEAD and CEPR*

---

## Abstract

This paper builds a two-country, two-sector (polluting, nonpolluting) trade model with directed technical change, examining whether unilateral environmental policies can ensure sustainable growth. The emission rate of the polluting sector depends on its relative use of a clean and a dirty input. A unilateral policy combining clean research subsidies and a trade tax can ensure sustainable growth, while unilateral carbon taxes alone increase innovation in the polluting sector abroad and generally cannot ensure sustainable growth. Relative to autarky and exogenous technical change respectively, trade and directed technical change accelerate environmental degradation either under laissez-faire or with unilateral carbon taxes, yet both help reduce environmental degradation under the appropriate unilateral policy. I characterize the optimal unilateral policy analytically and numerically using calibrated simulations. Knowledge spillovers have the potential to reduce the otherwise large welfare costs of restricting policy to one country.

## Keywords:

climate change, environment, directed technical change, innovation, trade, unilateral policy

*JEL:* F18, F42, F43, O32, O33, O41, Q54, Q55

---

Previous versions were circulated under the titles "Environmental Policy and Directed Technical Change in a Global Economy: Is There a Case for Carbon Tariffs?" and "Environmental Policy and Directed Technical Change in a Global Economy: The Dynamic Impact of Unilateral Environmental Policies."

\*University of Zurich, Schnberggasse, 1, 8050 Zurich, Switzerland. +41 44 634 61 18

*Email address:* david.hemous@econ.uzh.ch (David Hémous)

*URL:* <http://www.econ.uzh.ch/en/people/faculty/hemous.html> (David Hémous)

Download English Version:

<https://daneshyari.com/en/article/5100965>

Download Persian Version:

<https://daneshyari.com/article/5100965>

[Daneshyari.com](https://daneshyari.com)