

# Trade in a Green-Growth Development Strategy: Global Scale Issues and Challenges

Jaime de Melo  
UNIVERSITY of Geneva and FERDI

Conference: «Green Growth: Addressing the Knowledge Gaps»,  
Mexico, Jan. 12-13, 2012

# Four Roles for Trade in Climate Change Mitigation

2

1. Portfolio of green technologies carbon-free necessary Will require huge R&D effort (private and public). For which open WTS is needed to diffuse technological progress
  2. Enforcement mechanism for IEAs on GPGs, e.g. Montreal Protocol= Entice participation (deter 'free-riding')
  3. Trade measures to correct for carbon leakage (aka 'pollution haven' effect resulting from loss of competitiveness of exports). (border tax adjustments)
  4. Large differences in abatement costs: separate where abatement takes place from who pays the costs (carbon-credit trading system as in e.g. ETS).
- ...but green growth is more than climate..

# Outline

3

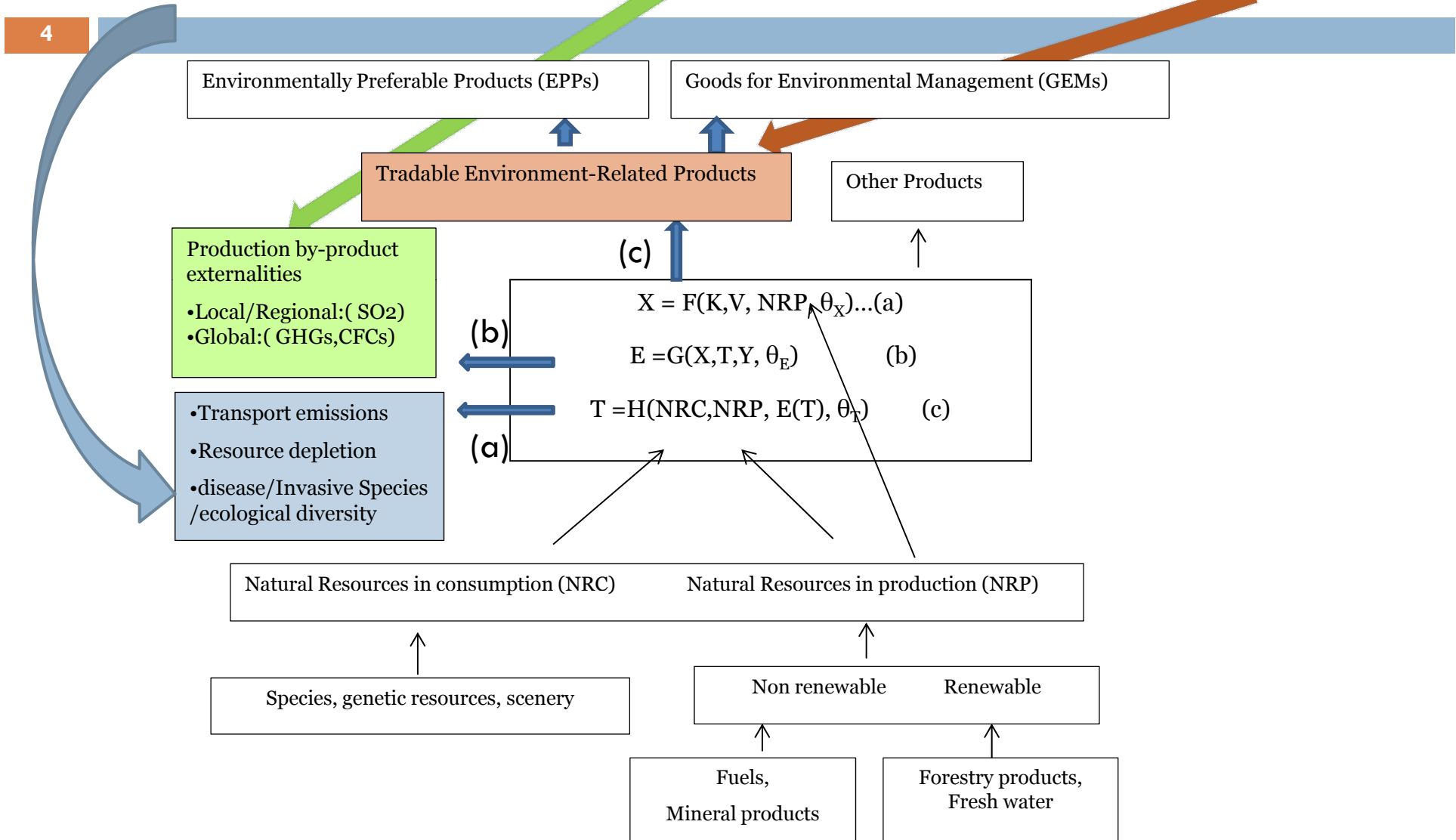
- Channels of Interaction
  - ▣ Direct Trade-Related Linkages
  - ▣ By-product externalities
  - ▣ Pattern of Production
- Climate: Pollution-Havens, Trade Leakages and BTAs
  - ▣ Pollution Havens?
  - ▣ Climate Change Mitigation, Leakages and BTAs
- Implementation Difficulties: Political Economy Considerations
  - ▣ Selecting a BTA: Steel Case
  - ▣ Failure at Doha on fisheries
  - ▣ Failure at Doha on Environmental Goods and Services (EGS)
- Concluding Remarks

# Channels of Interaction

(a) Direct Trade Environment Linkages

(b) by-product externalities

(c) Pattern of production



# Climate: Pollution Havens, Trade Leakages, and Border Tax Adjustments (BTAs) (i)

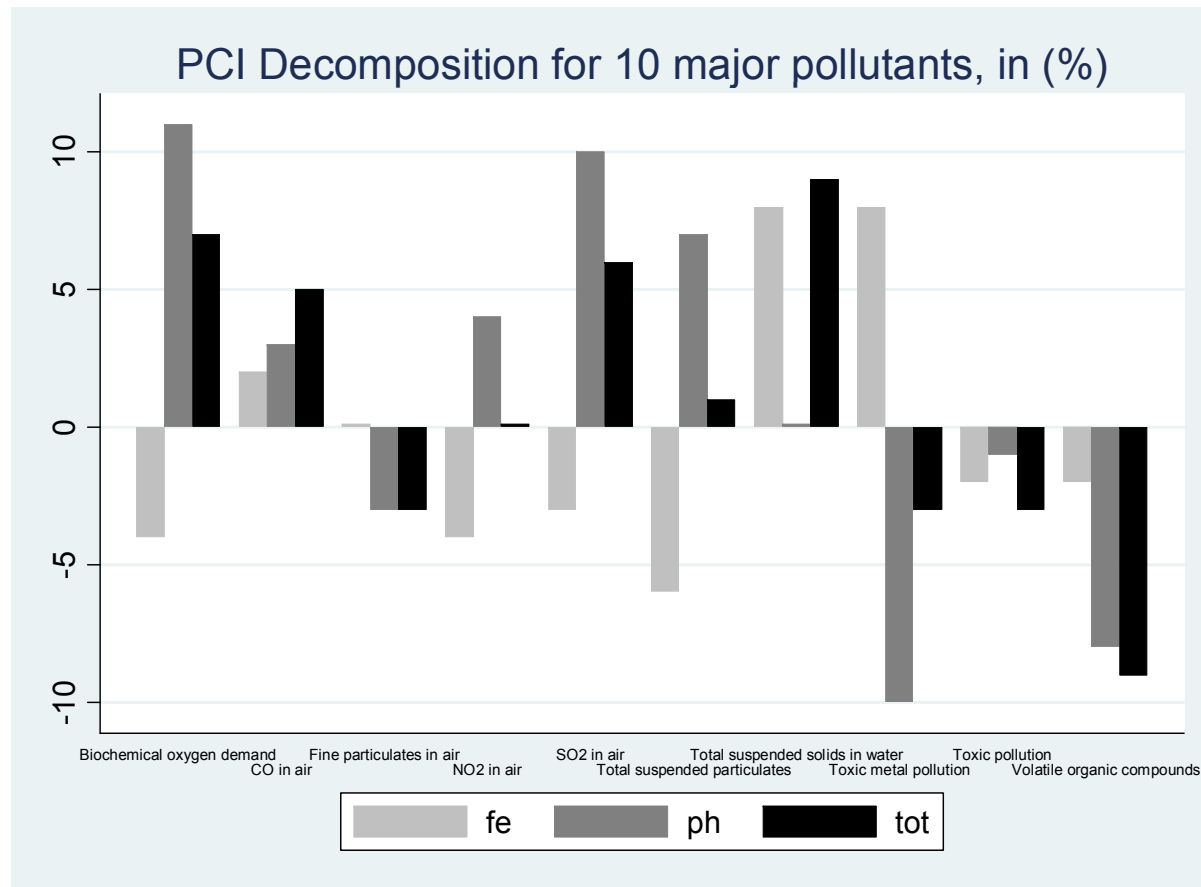
5

## □ Pollution Havens?

- Energy-intensive sectors are weight-reducing = Not footlose (not much world-wide leakage for SO<sub>2</sub> over period 1990-2000). Relevant for CO<sub>2</sub>?
- Small pollution haven effects in bilateral trade (strong composition effects as NN dominates NS trade so PCI is not much affected by environment policies)
- Factoring in FDI--mostly directed to EPZs likely to lead to cleaner exports (supporting evidence from China).
- ...but 'virtual trade in carbon' (see next slide)

# Pollution Content of Imports (PCI): N=48; 79 3-digit industries (Grether et al. 2010)

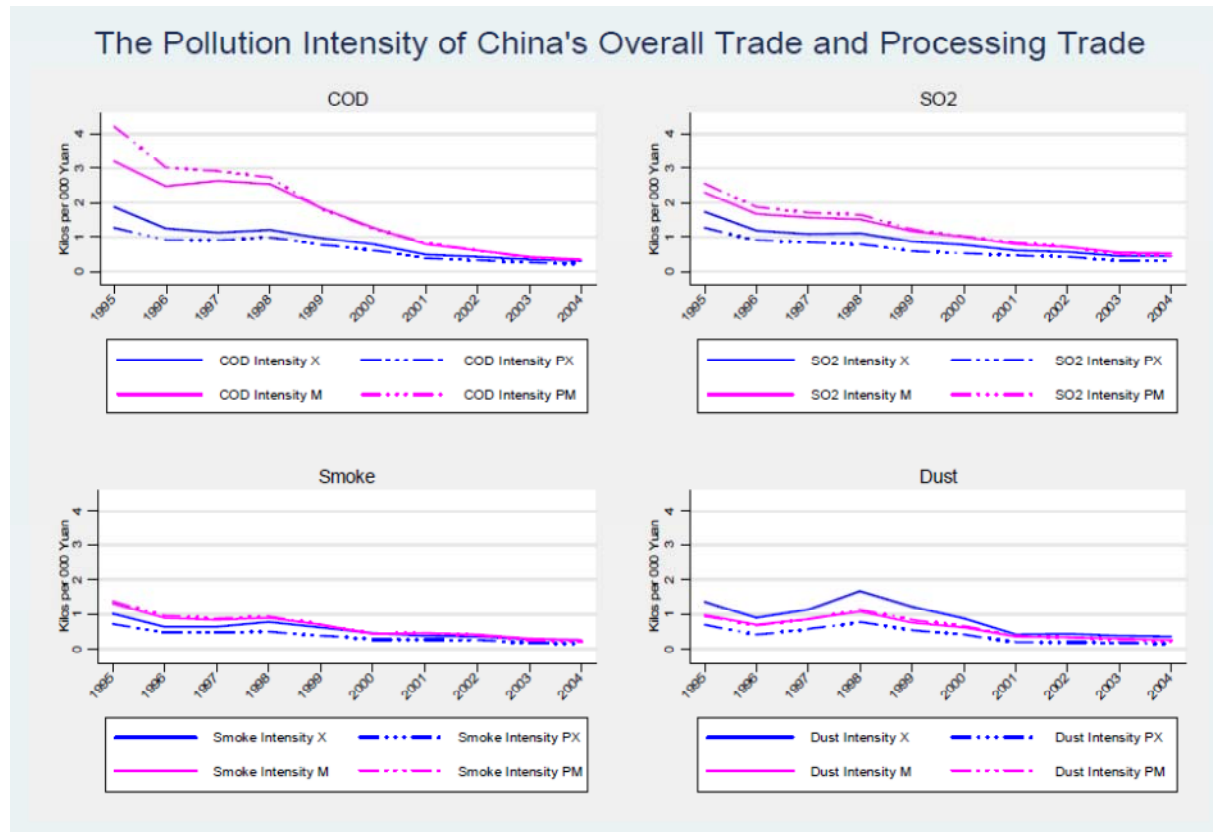
6



TOT is the sum of the FE and PH effect expressed as a percentage of the PCI attributed to the fundamental determinants of bilateral trade.

# The Declining Pollution Intensity of China's trade (Dean and Lovely (2010))

7



Processing trade (i.e. EPZ trade) is less pollution-intensive than traditional trade.

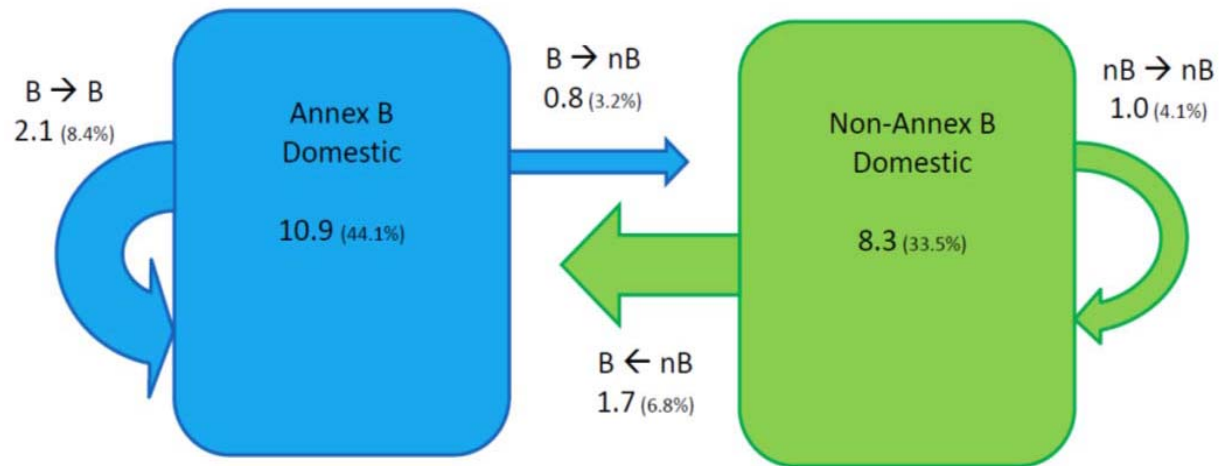
# 'Virtual Trade' in Carbon

(Peters et al. 2011)

8

## Kyoto Carbon Cycle (1990-2008) <sup>TSTRD</sup>

Cumulative Gt CO<sub>2</sub>/year (% global)



Annex B  
Production: 13.7 (55.6%)  
Consumption: 14.7 (59.3%)

Global  
24.7

non-Annex B  
Production: 11.0 (44.4%)  
Consumption: 10.1 (40.7%)



# Leakage and Border Tax Adjustments: Simulation Estimates (I)

Multi-regional General equilibrium (MR-GE) estimates

9

- All results are largely driven by strong Terms-of-trade (TOT) effects.
  1. Participation decision : Linkage via trade (i.e. TOT improvements from reduced consumption) increases participation decision but damage from +5 deg. has to be about 5 times larger than Stern estimates. BRICs would need compensation of \$150 billion per year to cover estimated abatement costs.
  2. Leakage. BTAs can reduce leakage rate by half (inefficiency because of strong TOT improvement from BTA leading to leakage). EX:
    - Individual cut of emissions by US or EU Leakage rate = 35%
    - Joint reduction by EU and US, Leakage rate = 20%

# Leakage and Border Tax Adjustments: Simulation Estimates (II)

Multi-regional General equilibrium (MR-GE) estimates

10

- Effects of tariff on CO<sub>2</sub> content. First-order effects of a \$50/ton CO<sub>2</sub> tax on all regions:
  - =10% export tax on China; EU=1.2%; US=3.1%
- Trade effects of emission reductions of industrial countries=17% via
  - ▣ Applying CO<sub>2</sub> tax = developing countries exports □ = 2%;
  - ▣ BTA based on carbon-content of imports = developing countries exports □ by 15%

# Implementation Difficulties: Political Economy Considerations

Which Border tax adjustments (BTA) Steel case (Moore, 2010)

**Table 4: Satisfying Policy Constraints**

Constraint	Baseline Scenario	Scenario 1: Firm-specific tax	Scenario 2: Average foreign emissions	Scenario 3: Average domestic emissions	Scenario 4: "Best available" U.S. technology	Scenario 5: "Worst available" U.S. technology with foreign firm submissions
1.a Domestic firm buy-in	N	Y	?	N	N	?
1.b Foreign firm buy-in	Y	N	N	N	Y	?
2. Incentives for foreign firm CO2 reduction	N	Y	N	N	N	Y
3. Adherence to WTO rules	Y	Y	N	N	N	Y
4. Administrative tractability	Y	N	N	Y	Y	Y

Notes: Y=Plausibly does satisfy constraint; N=Does not plausibly satisfy constraints; ?=unclear

None among BTA adjustments meets all the constraints for being implementable

# The Doha «no-Mandate-effects» (I)

12

- The subsidy problem (fossil fuels, water....and fisheries "Non-actionable). Huge problem for a green growth development strategy.
- Can this be fixed at WTO? Or should it be in another international organization (World Climate organization?)
- Doha Art. 28. mandate on fisheries «..participants shall also aim to clarify and improve WTO disciplines on fisheries subsidies...»
- No agreement partly due to S&DT....yet fish are «more visible» than climate...

# The Doha «no-Mandate-effects» (II)

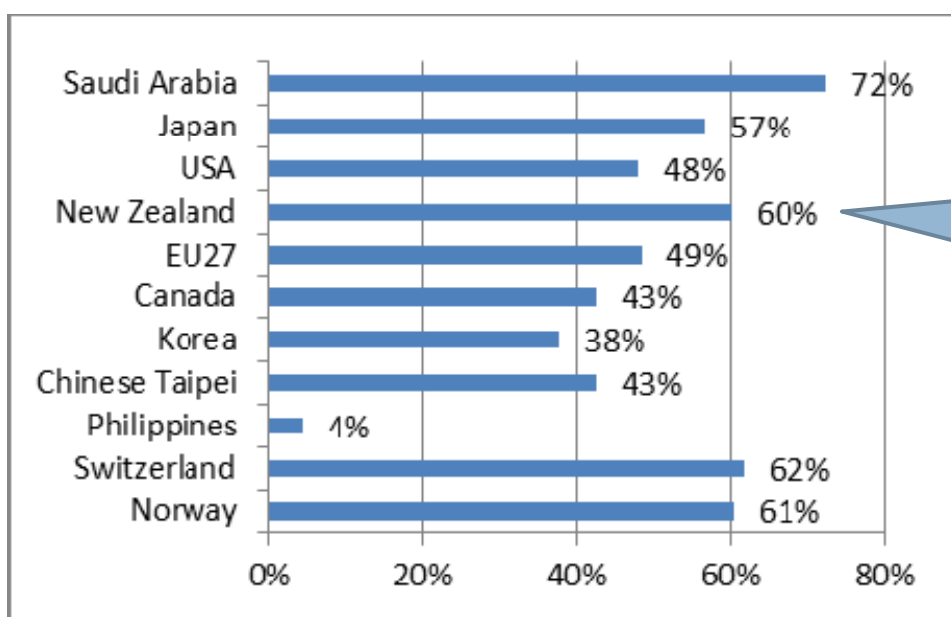
13

- Art. 31. Countries mandated to identify Environmental Goods and Services (EGS) and negotiate reduction in protection for EGS
- Problems identifying EGS.
  - ▣ Multiple-end use for GEMs
  - ▣ Relativism, attribute disclosure, 'like products' for EPPs
- By 2008 13 lists with 411 HS-6 codes: very little overlap.
  - ▣ Compromise: negotiate on a core list (26 products).
  - ▣ Over 2002-2008 period, no country has reduced its tariffs more on core-list products more than on other products
  - ▣ Countries usually proposed goods with a  $RCA > 1$ ; but not goods with high-tariffs

# Correlates of EGs submissions

14

% of goods proposed under the 2008 CTESS program with Revealed Comparative Advantage ( $RCA > 1$ )(in 2007)



Among the goods submitted by New Zealand (ie the 164 goods of the Friends' list), 60% are goods for which it had a  $RCA > 1$  in 2007

Source: Ballineau and de Melo (2011). Probit estimates for a sample of 3800 submitted goods confirm that the probability of submitting a good to the EGS list is higher for goods with an  $RCA > 1$  **and lower for goods with a high MFN tariff.**

# Conclusions (I)

15

- Potential CO<sub>2</sub> leakage effects probably exaggerated (for political economy reasons)...but BTAs looming on horizon when we will get serious about climate
- So far no evidence of 'mandate effect' at WTO on environment: Countries did not act on articles 28 (fisheries) nor on 31 (EGS) Doha mandate
- lack of cooperation (exacerbated by CBDR+ S&DT)
- Private sector initiatives more promising?

# Conclusions (II)

16

- Global Policy Making architecture (IMF, World Bank, WTO) needs overhaul to reflect world with stronger physical linkages.
- A regional approach (i.e. bottom-up approach) more likely to give results (GATT with leeway more successful than WTO with SU)? EX: Environmental directives under Maastricht.
- MFN + NT best compromise to face the threat of carbon tariffs and BTAs. Border tax adjustments have lower discriminatory capacity than contingent protection (developing countries want MFN, developed want NT).
- Subsidy rules at the WTO need to be modified.