

“Trade and Environmental Policies: A Case of Regulatory Chill?”*

*** Based on I. Sheldon, “Trade and Environmental Policy:
A Race to the Bottom?” *Journal of Agricultural
Economics*, 57(2006): 365-392.**

Trade and Environmental Policies

- **WTO increasingly under attack from environmental groups**
- **WTO seen essentially as “mercantilist”**
- **Groups claim benefits of freer trade outweighed by damage to environment**
- **Is the WTO compatible with domestic environmental regulation?**

Regulatory Chill

- **Increased competitive pressures result in either *regulatory chill* or a *race to the bottom* in domestic environmental standards**
- **In absence of trade policy, governments will harmonize down environmental standards**
- **Requires use of trade policies, i.e., ability to deny market access if trading partners do not meet minimum environmental standards**
- **Is the WTO capable of dealing with regulatory chill?**

Plan of lecture

- **Overall focus is economics of regulatory chill in environmental standards:**
 - **Traditional analysis of optimal policy**
 - **Pollution havens**
 - **Tariff substitution**
 - **Border tax adjustments**
- **Key conclusion: extension of existing WTO rules would minimize incentives for regulatory chill**

Traditional analysis of optimal policy

- **Small country: first-best is environmental tax**
- **Large country: first-best is environmental tax and optimal tariff**
- **Environmental policies can differ across countries in a first-best solution**
- **Nothing to support regulatory chill arguments *a priori* – even in second-best or large country case**

Problems with traditional analysis

- **Analysis rests on key assumptions of immobile factors, perfect competition, and no retaliation**
- **With capital flight, FDI can be targeted at countries with weaker environmental policies, i.e., pollution haven effects**
- **Tariff substitution effects, i.e., with freer trade, governments will weaken environmental policy as a substitute for trade policy**

Pollution Havens

- **“Just between you and me, shouldn’t the World Bank be encouraging more migration of dirty industries to the less developed countries...” (Larry Summers, 1991, World Bank internal memo)**
- **Key question: which countries attract dirty industries with freer trade?**
- **Competing hypotheses:
pollution havens vs. factor endowments
(Copeland and Taylor, 2004)**

Pollution havens vs. factor endowments

- Can be examined in a 2x2x2 Heckscher-Ohlin model
- Regions are North and South (*), goods are X (dirty/capital-intensive) and Y (clean/labor-intensive), and pollution policies are τ (τ^*)
- Assume identical regions except that $\tau > \tau^*$ - trade generates pollution haven in the South (Figure 1)
- Assume $K/L > K/L^*$, and $\tau = \tau^*$ - trade causes pollution to fall in South (Figure 2)
- Assume $K/L > K/L^*$, and $\tau > \tau^*$, trade pattern depends on which effect is stronger

Figure 1: Pollution Haven

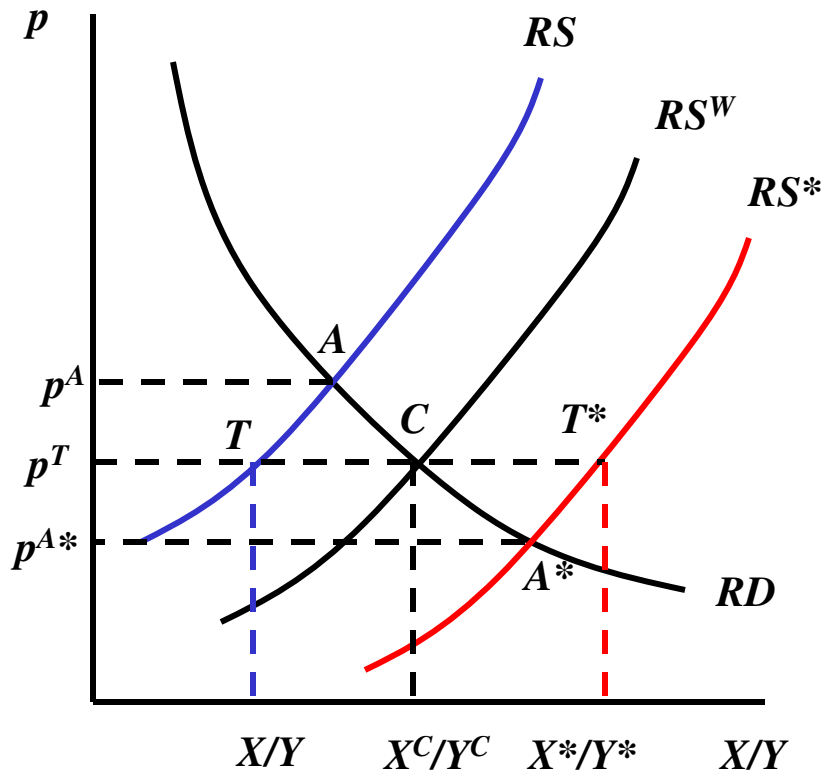
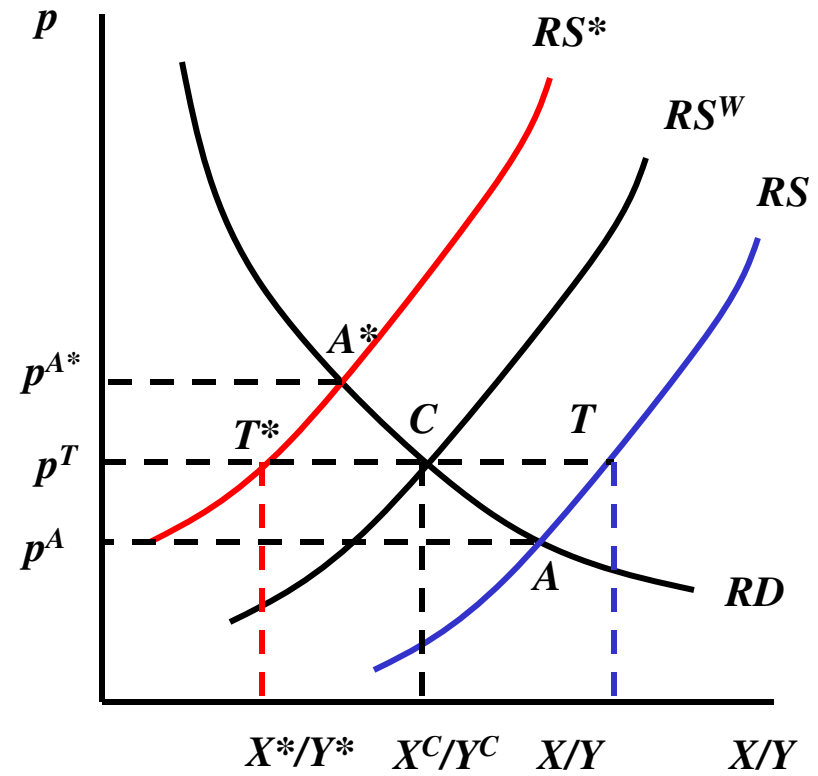


Figure 2: Factor Endowments



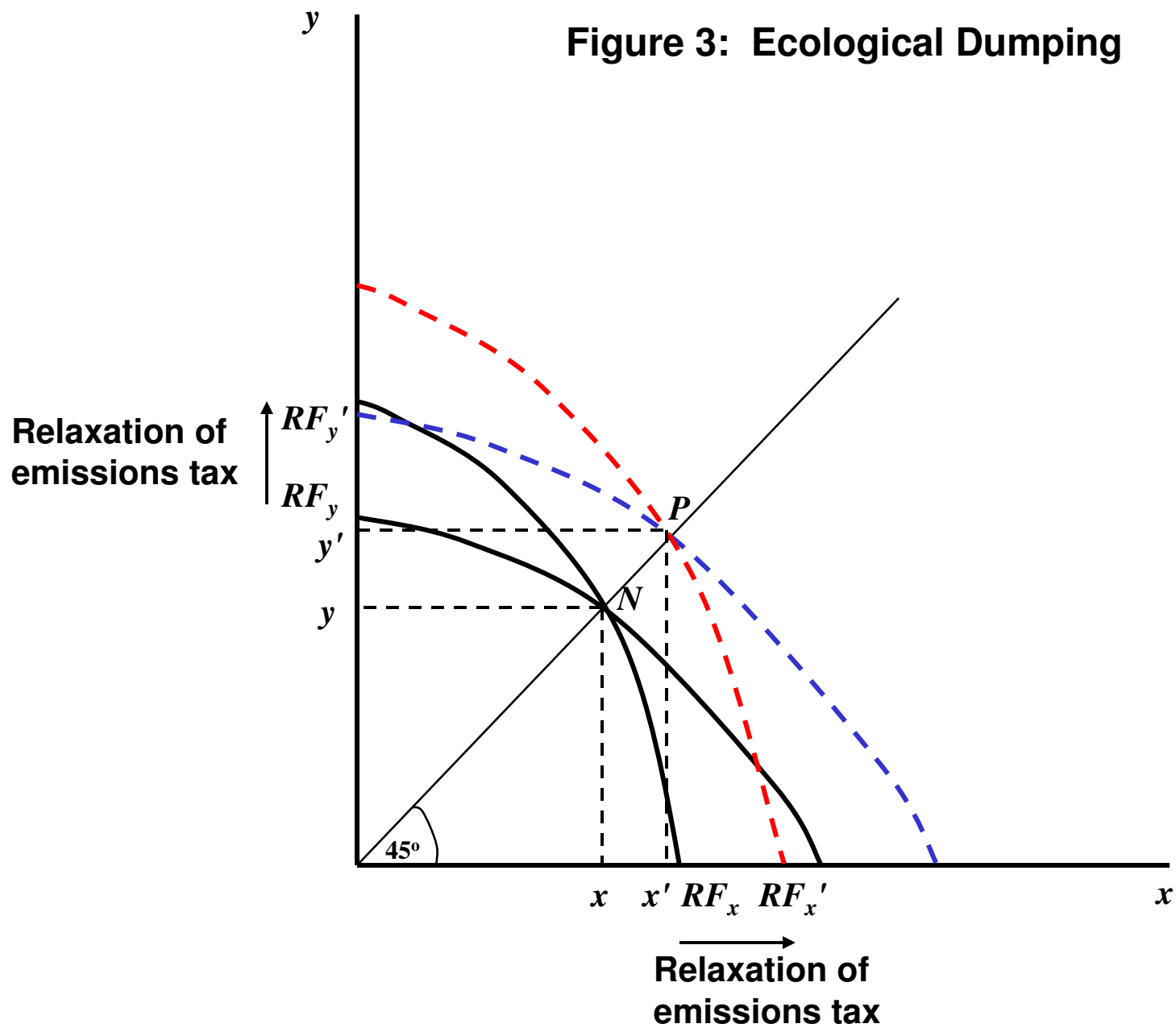
Pollution haven effects

- **Theory suggests impact of environmental policies mitigated by other factors affecting trade, i.e., a pollution haven effect**
- **Support provided by empirical literature – evidence for trade and investment flows being affected by environmental policy and other factors**
- **If freer trade creates pollution haven effects, there is an incentive for regulatory chill**

Tariff substitution: imperfect competition

- Ecological dumping may occur with imperfect competition (Ulph, 1997)
- Suppose home and foreign firm compete in world market
- No domestic consumption, but local public bads
- Each government pre-commits to an emissions tax, and firms play Nash-Cournot
- Each government has incentive to relax policy (Figure 3) – but result is not very robust

Figure 3: Ecological Dumping



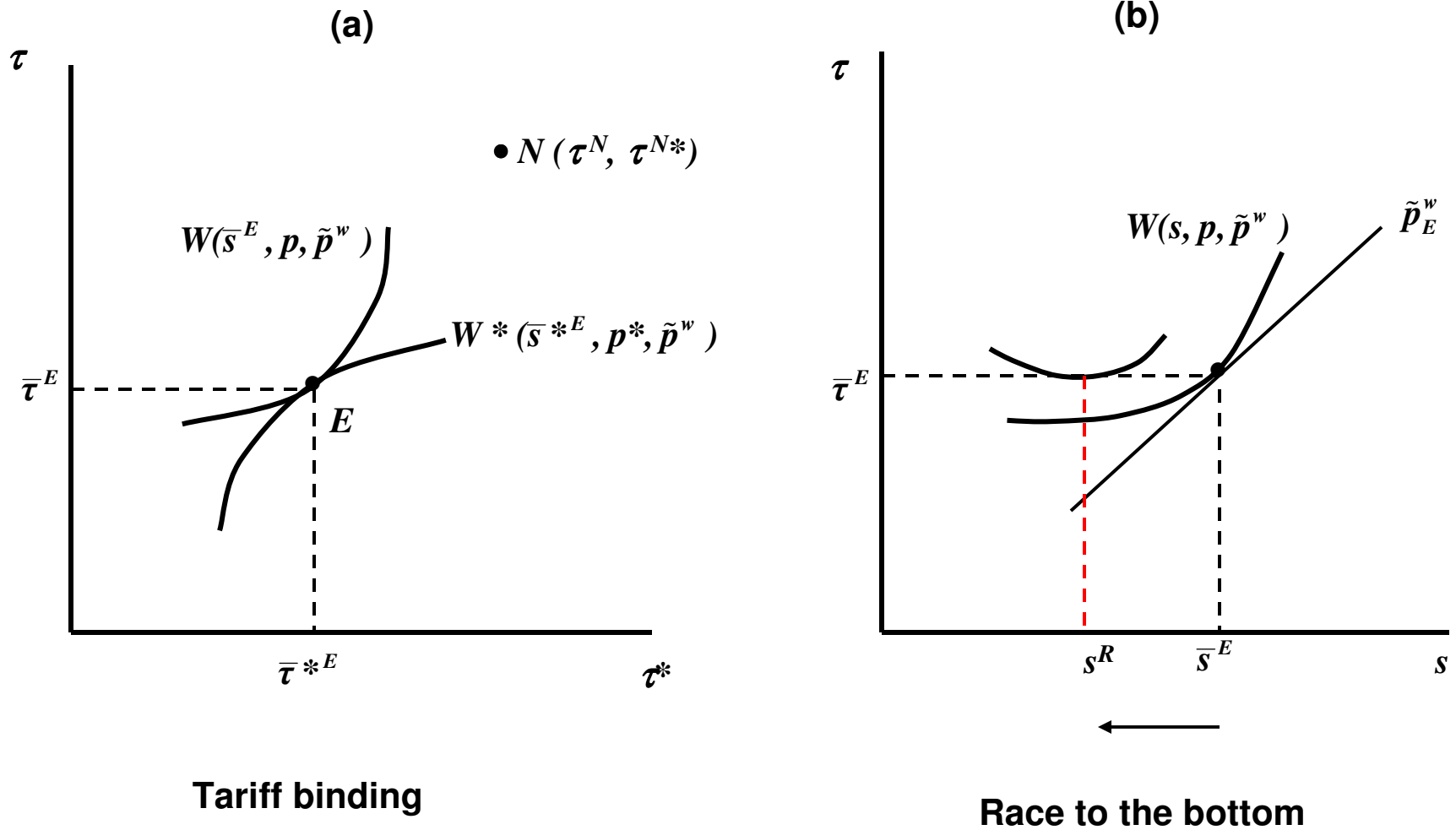
Tariff substitution: terms of trade effects

- **All large countries implement optimal tariffs in a terms-of-trade-driven Prisoner's Dilemma (Johnson, 1953-54)**
- **WTO is solution to this via tariff bindings (Bagwell and Staiger, 1999)**
- **With environmental standards – is there regulatory chill or a race to the bottom in such a set-up?**
- **Only if WTO allows complete sovereignty over domestic standards**

Tariff substitution: terms of trade effects

- Assume 2 countries and 2 goods, there are local public bads, and each country can influence its terms of trade
- Each country's welfare is: $W(s, p, \tilde{p}^w)$
- Countries attempt to achieve efficient market access via tariff bindings (Figure 4a) – but a race to the bottom occurs (Figure 4b)

Figure 4: Tariff Reductions and Market Access



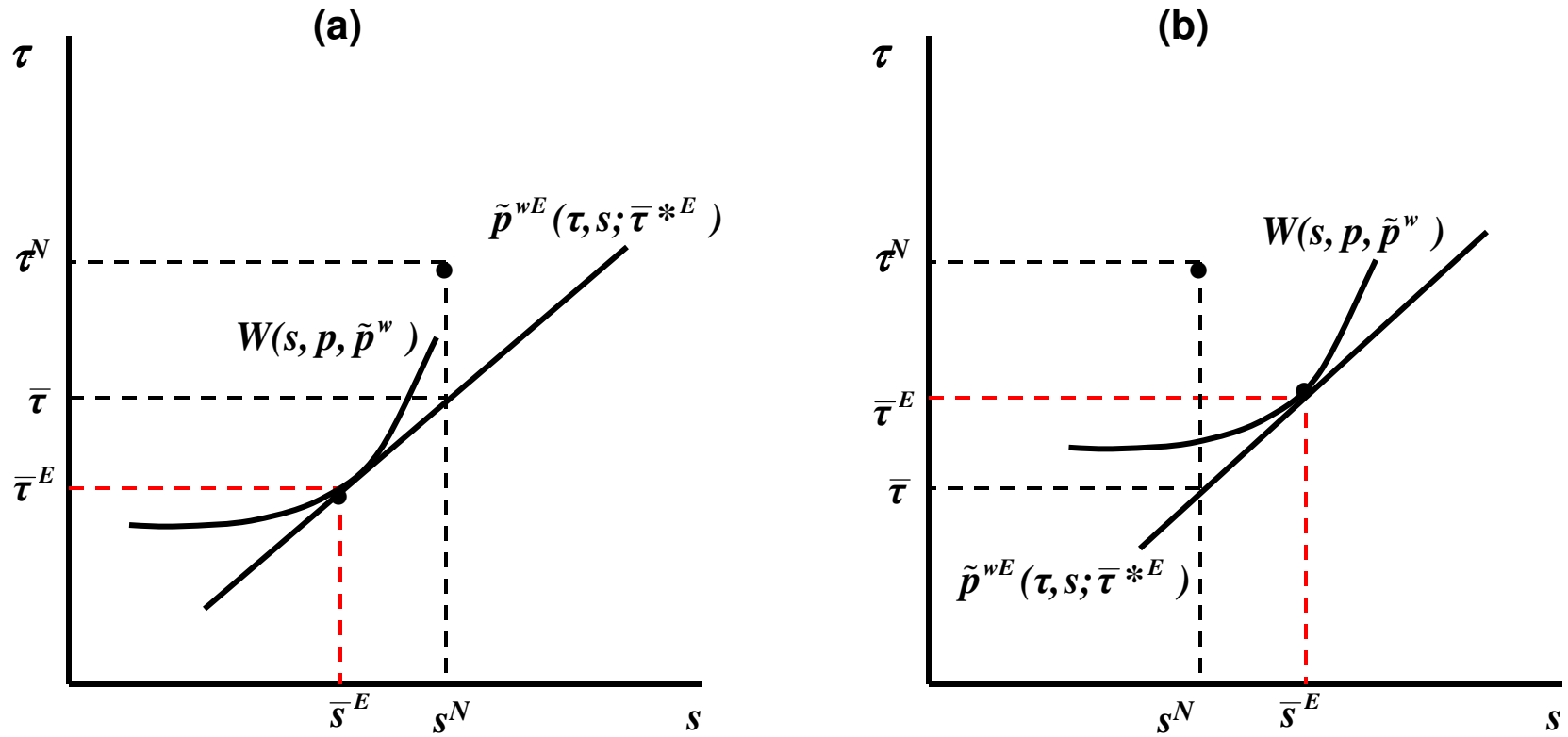
Tariff substitution: regulatory chill

- **Under WTO, countries do not have total sovereignty over environmental standards**
- **If a country's negotiated market access is reduced by standards, a non-violation complaint can be filed (GATT Article XXIII)**
- **This should prevent a race to the bottom**
- **What if a country wants to raise its standards, allowing more market access, but its tariffs are bound?**

Tariff substitution: regulatory chill

- **Assume two-stage tariff negotiation game with given initial standards:**
 - (i) bound tariffs are negotiated**
 - (ii) unilateral change in policy mix, subject to bound tariffs and market access commitments**
- **If country's preferred standard is lower, it can only reduce this by lowering its bound tariff because of the chance of a non-violation complaint (Figure 5a)**
- **If country's preferred standard is higher, it can only raise it by increasing its bound tariff – which it cannot do under WTO rules (Figure 5b)**

Figure 5: Tariffs and Non-Violation Complaints



Border tax adjustments

- **Bagwell and Staiger (2001) suggest allowing renegotiation of bound tariffs to avoid regulatory chill**
- **Basic principle already allowed through border tax adjustments for environmental excise taxes (GATT Articles III and XVI) – national treatment**
- **Rules extended to case of environmental taxes imposed on intermediate goods where domestic final good competes with an imported final good (Davie, 1995), e.g., CFC taxes in US**

Border tax adjustments

- **Poterba and Rotemberg (1995) examine case of perfect competition at intermediate and final goods stages**
- **Import tax on final good equal to environmental tax times extent to which intermediate good enters final good cost function is neutral in terms of maintaining market access**
- **McCorrison and Sheldon (2005) show result is sensitive to assumption of perfect competition**

Border tax adjustments

- **Use model of successive oligopoly with one-to-one fixed proportions technology**
- **Three-stage game:**
 - (i) Government commits to environmental tax and border tax**
 - (ii)/(iii) Nash equilibria upstream and downstream**
- **Final goods strategic substitutes or strategic complements (Bulow *et al.*, 1985)**

Border tax adjustments

- **Maintained market access not defined explicitly in WTO rules - two possible rules:**

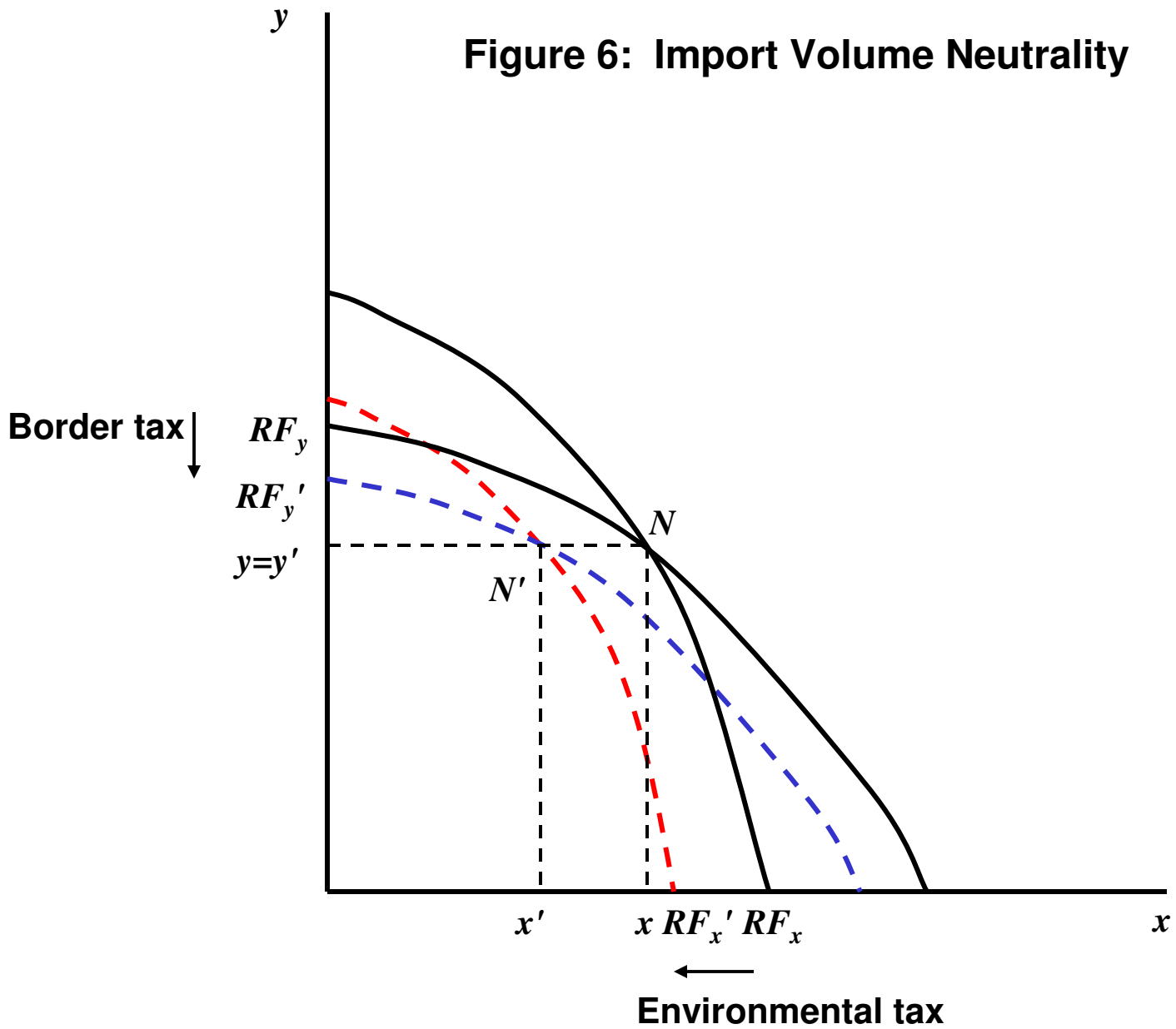
- ★ **Import-volume neutrality**

Type and size of border tax adjustment depends on:

- **nature of competition**
- **incidence of upstream environmental taxes on downstream firm's cost function**

Domestic firm's rents fall, those of foreign firm rise (Figure 6)

Figure 6: Import Volume Neutrality



Border tax adjustments

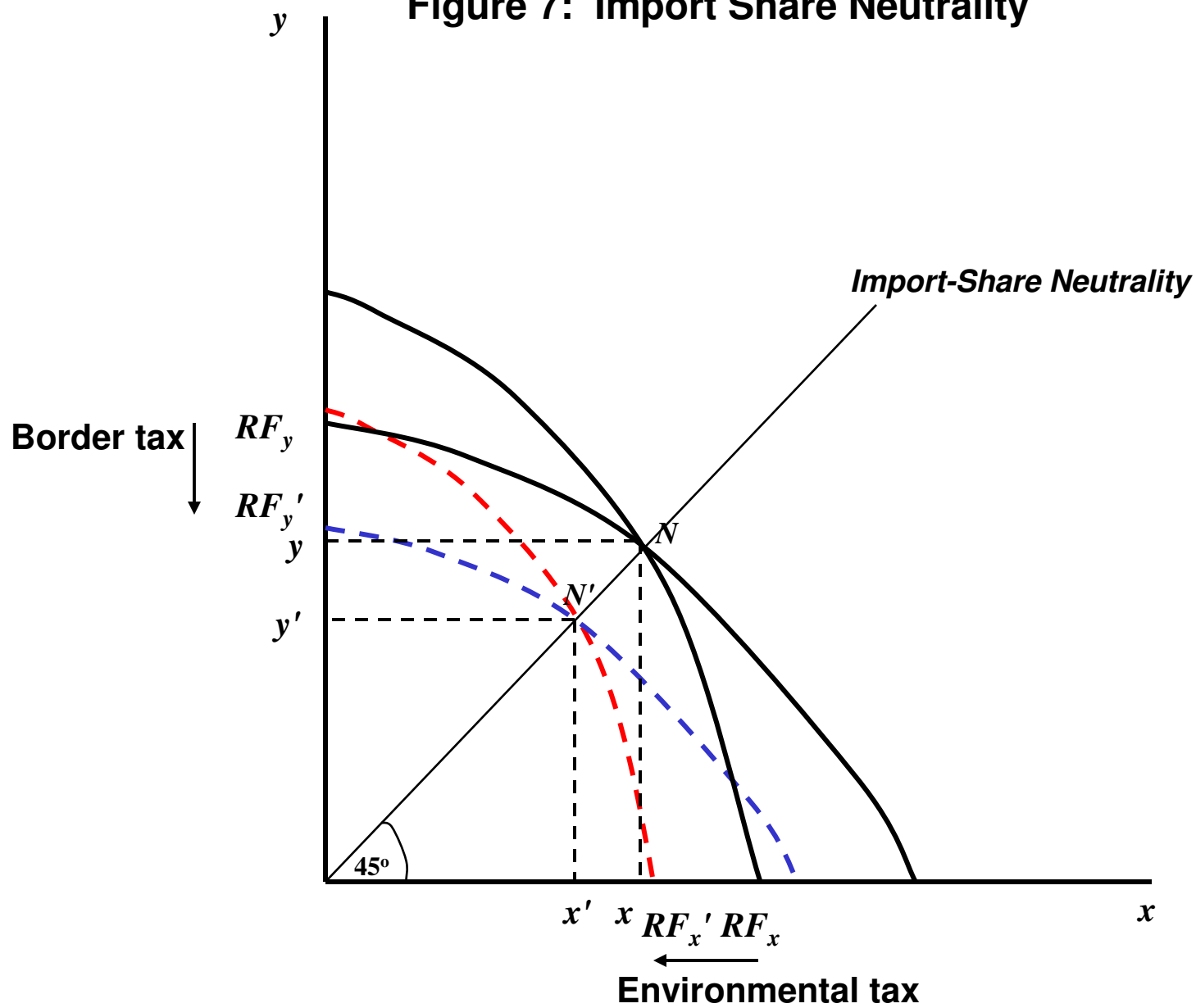
☆ Import-share neutrality

Size of border tax adjustment depends on nature of competition

Rents of both domestic and foreign firm increase (Figure 7)

- **While objective is to set border taxes so as not to be unwittingly protectionist, there are rent-shifting effects that affect way firms will lobby for policy**

Figure 7: Import Share Neutrality



Regulatory Chill?

- **Not under standard analysis of optimal policy**
- **Assumes mobile factors, perfect competition, and no retaliation**
- **Evidence supports pollution haven effects**
- **Ecological dumping not robust, but regulatory chill/race to the bottom may occur under terms of trade arguments**
- **Solution to latter may lie in existing WTO rules – non-violation complaints and border tax adjustments**