Ricardian rents, environmental policy and the 'double-dividend' hypothesis

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(based on joint work with Mark Jacobsen)

Berlin, May 22 2014

Motivation

- Carbon taxes can be imposed on goods whose production is intensive in exhaustible resources, with owners of these factors earning rents.

- Unless rents are fully exhausted, the tax system is not optimal to begin with, even from a non-environmental perspective

Key Questions

- What are the implications of (untaxed) fixed factors and ricardian rents:
  - for the magnitude and sign of the first and second dividends?
  - the second-best optimal environmental tax relative to the Pigouvian (first-best) tax
  - for the costs of other policy instruments (e.g.non-auctioned pollution emissions permits) and alternative recycling schemes (e.g lump sum versus rebating income taxes)

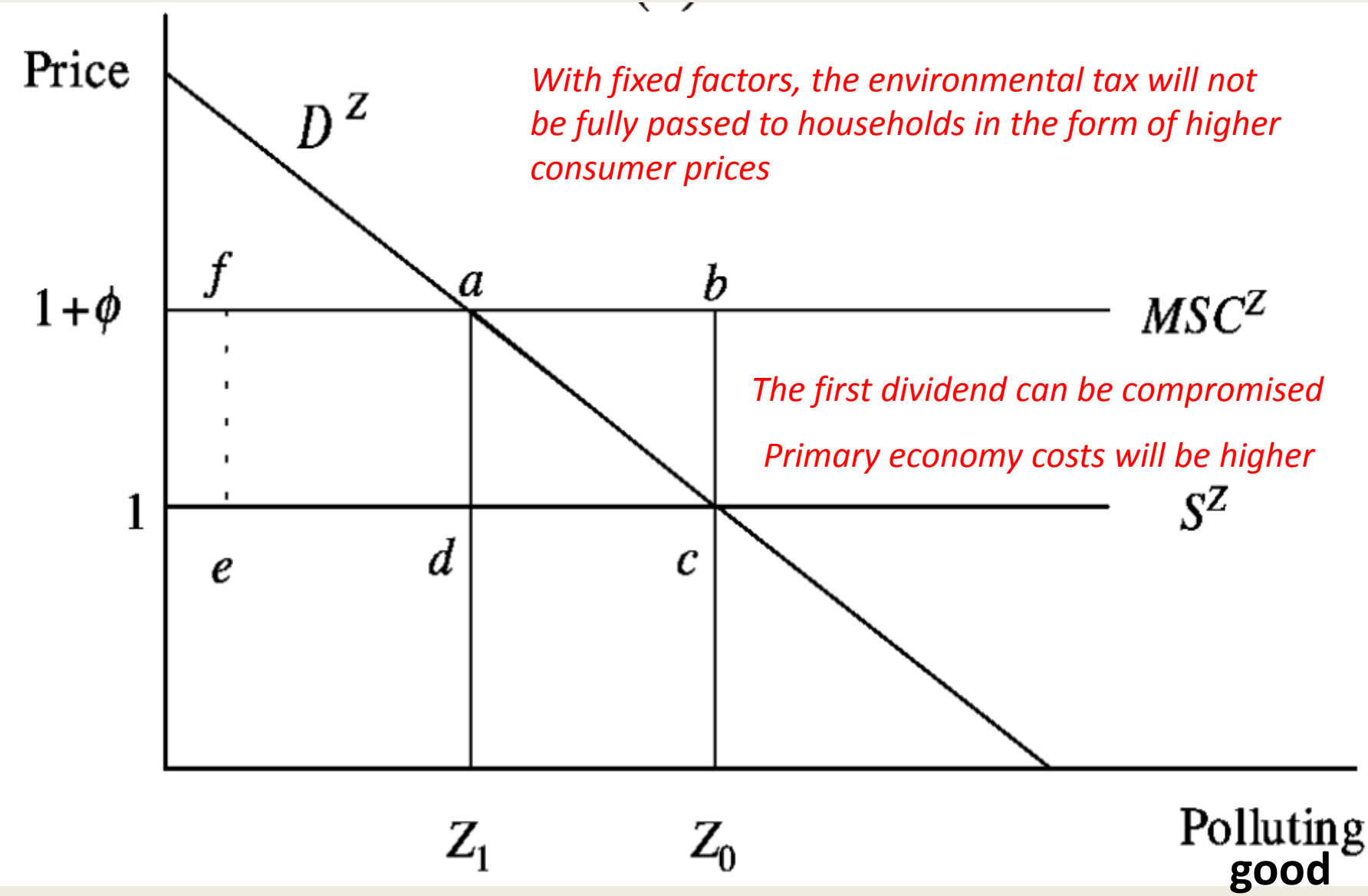
Basic Framework

- Representative Household
- 2 goods – polluting and non-polluting goods; leisure
- Disutility from emissions separable

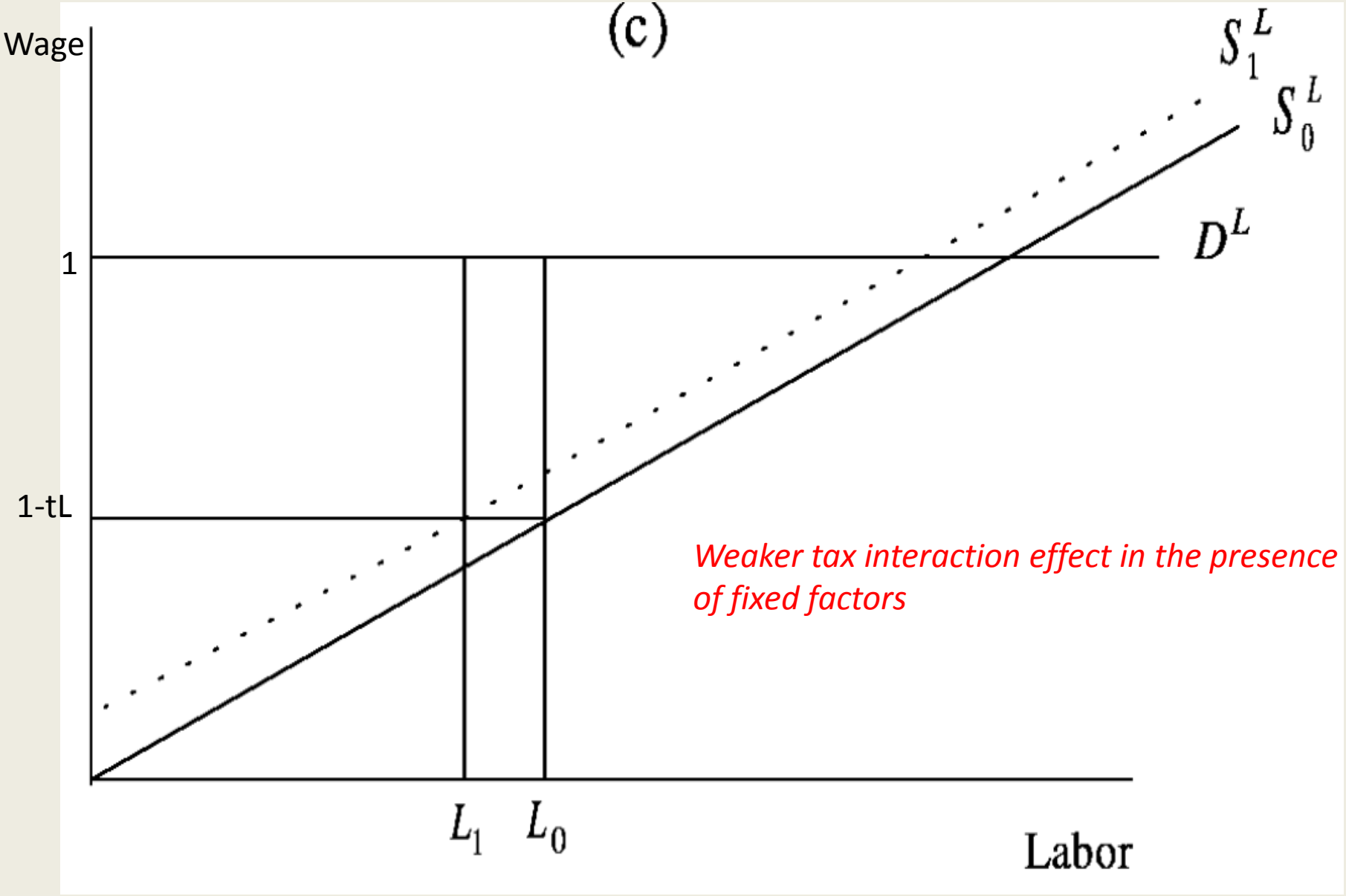
- 2 goods are produced by competitive firms using labor:
  - Labor and a fixed factor are used in the production of the polluting good
- Ricardian rents are earned by the owners of the fixed factor (partly taxed)

- Government levies a proportional tax on labor earnings, regulates emissions with an emissions tax, and provides a lump sum transfer to households
- Government budget balalances

The Welfare Effects of an Environmental Tax Reform: Polluting good market



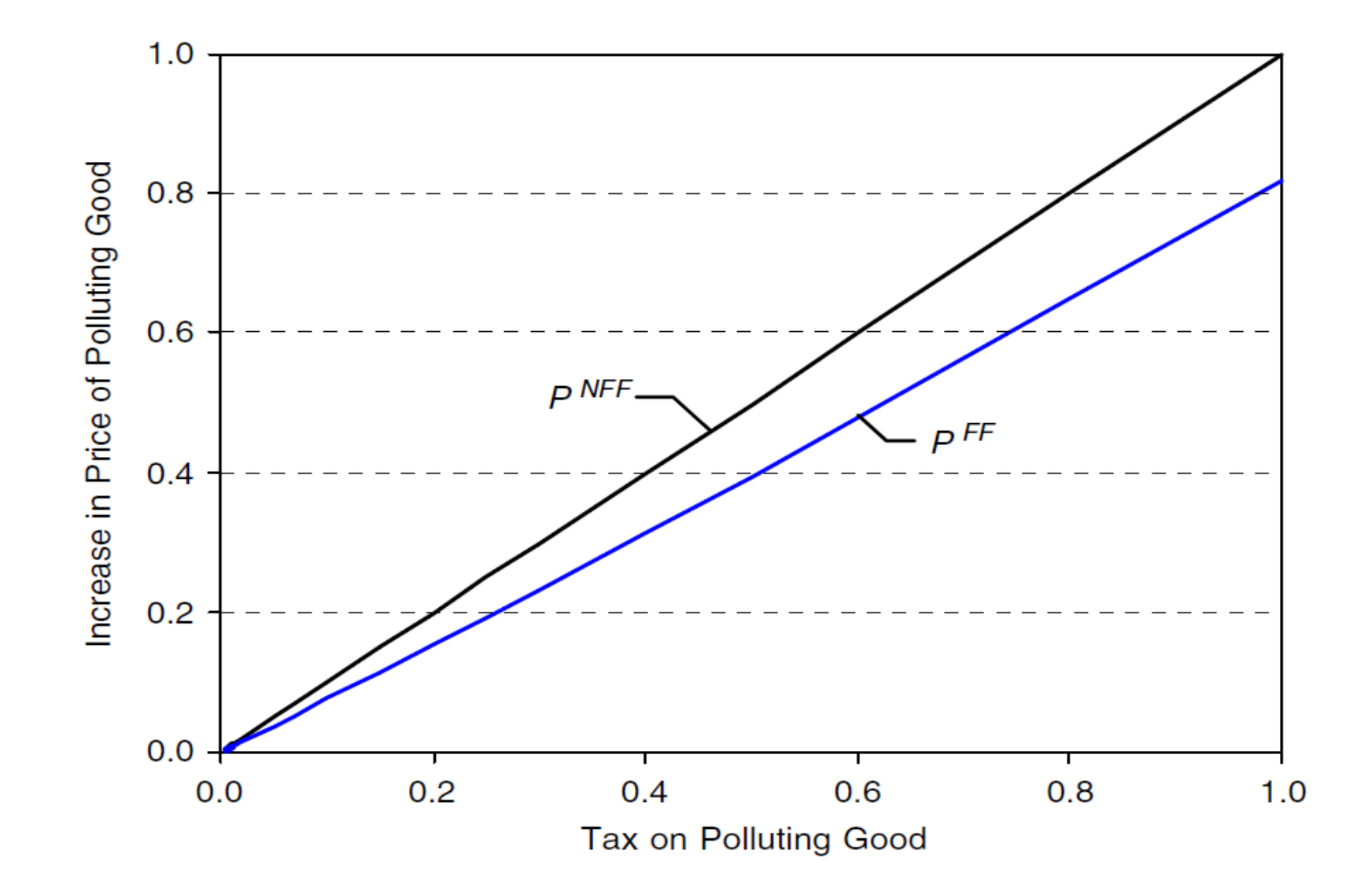
Interactions with pre-distorted markets



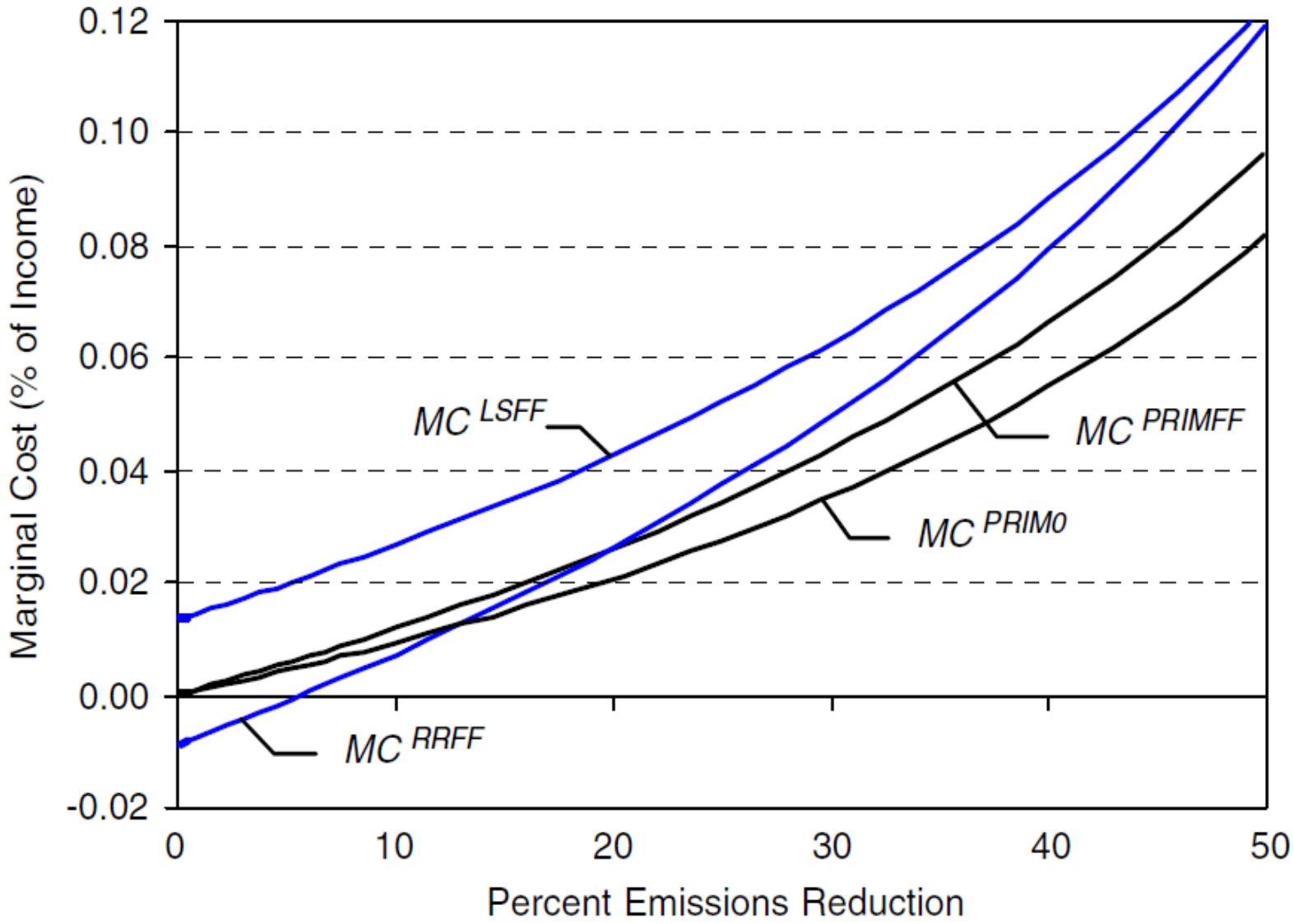
Parameter Values

- Standard Labor Supply Elasticities (0.15 and 0.4 for the uncompensated and compensated elasticities)
- Pre-existing labor tax of 40%
- Size of the polluting sector 2.7% of the economy (size of the electricity sector)
- Relative size of the fixed factor is 25%
- Pre-existing rent taxes 10% (vary between 0-40% in sensitivity analysis)

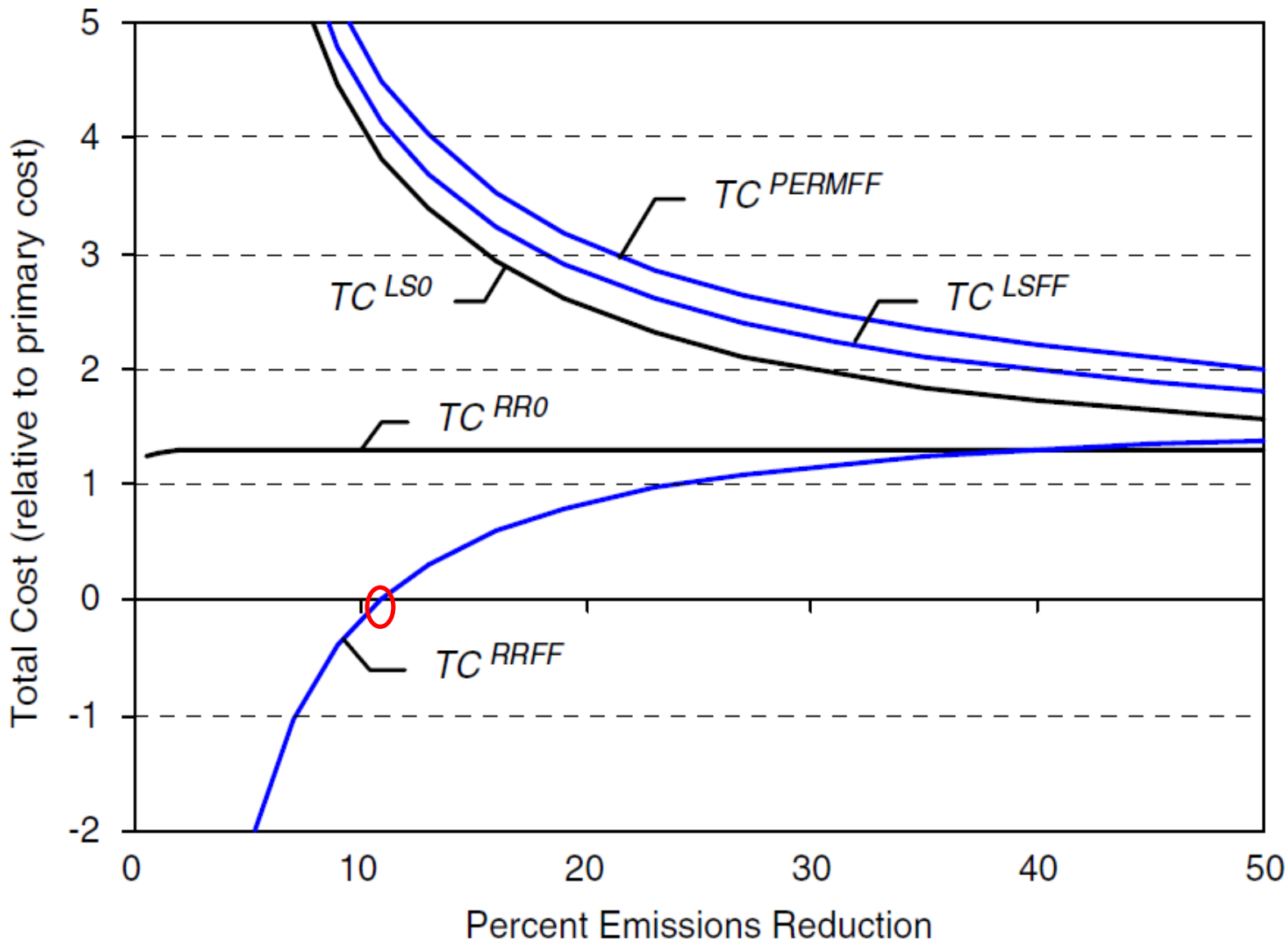
Impact of the Fixed Factor on the price of the polluting good



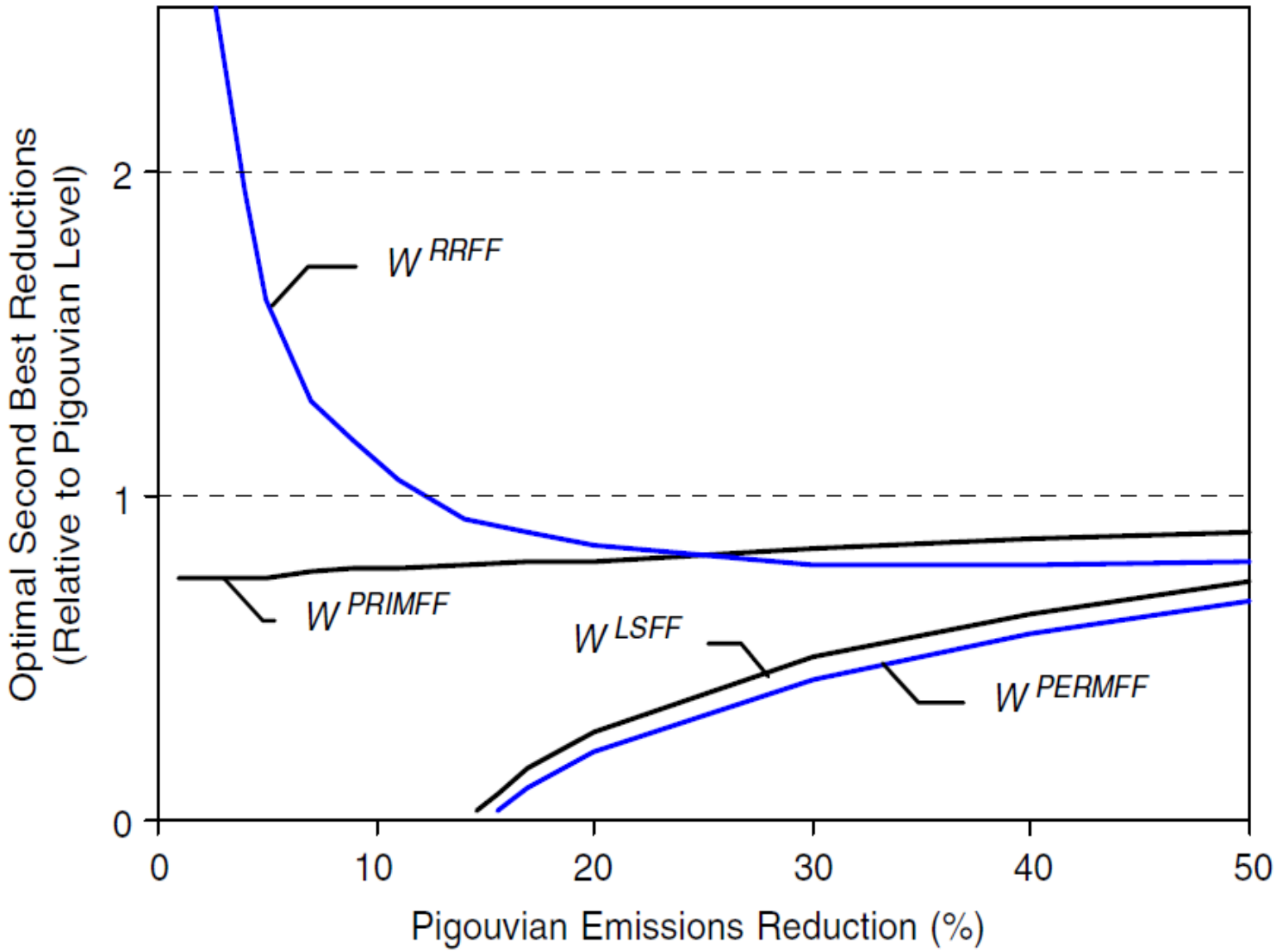
Marginal Costs



Total Costs


5
4
3
2
1
0
-1
-2
0
10
20
30
40
50
Total Cost (relative to primary cost)
Percent Emissions Reduction
TC PERMFF
TC LS0
TC LSFF
TC RR0
TC RRFF

Optimal Second Best Policies



Concluding Remarks

- Highlighted the trade-offs between primary costs, first and second dividend from environmental policies
- In the presence of (partially) untaxed ricardian rents, the overall costs of an environmental tax swap can be negative and produce a strong double dividend
- Provide another rational for carbon taxes, even in the absence of ‘clear’ evidence about the benefits from emissions reductions.