The Welfare Effects of Opening to Foreign Direct Investment in Polluting Sectors

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Selected Poster prepared for presentation at the 2015 Agricultural & Applied Economics Association and Western Agricultural Economics Association Joint Annual Meeting, San Francisco, CA, July 26-28

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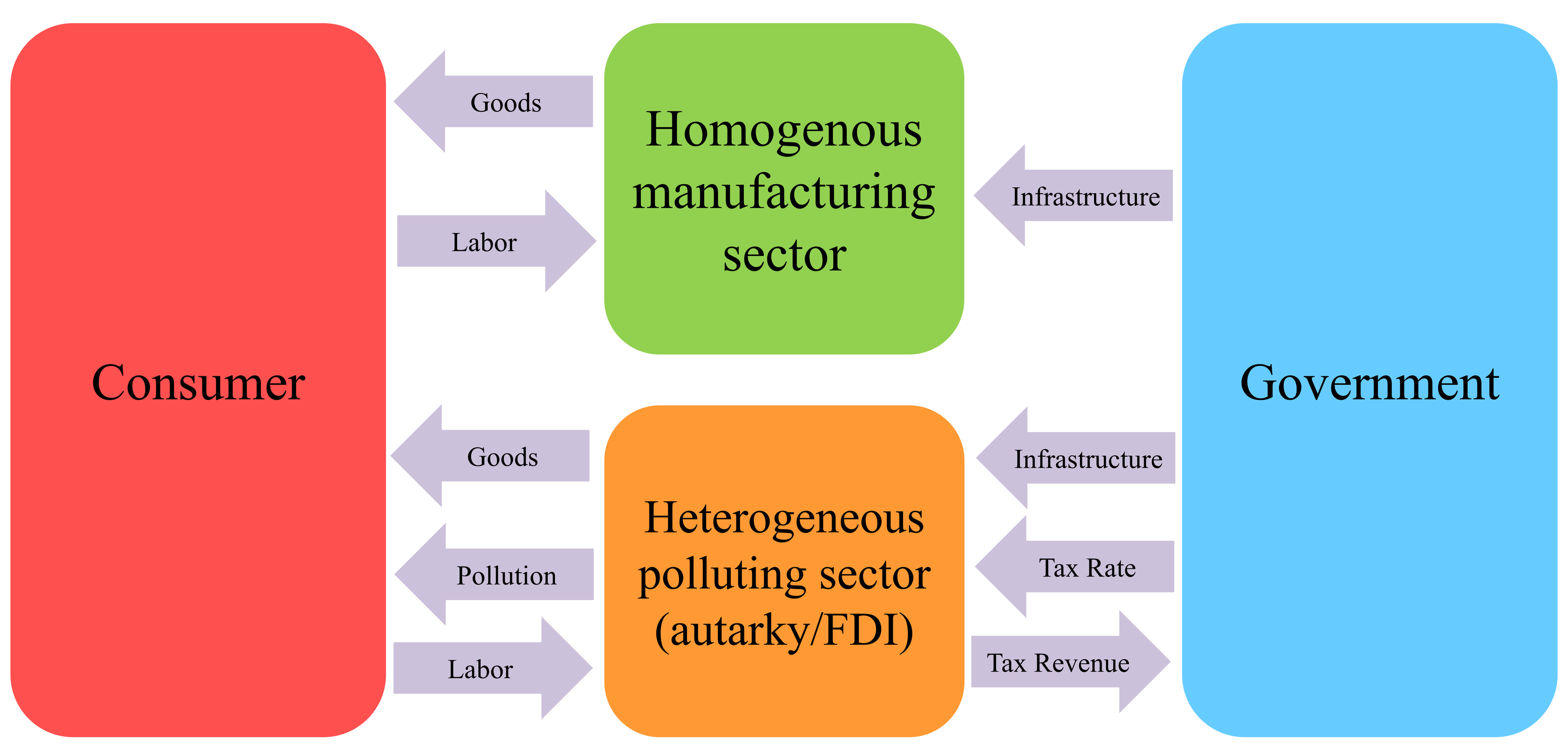
Introduction

- The pollution haven hypothesis states that polluting industries will relocate to jurisdictions with relatively lax environmental regulations holding the other characteristics of all jurisdictions constant.
- The question is whether the welfare of the jurisdiction experiencing an influx of FDI in the polluting sector is increasing or decreasing given that they can endogenously choose their environmental regulation level.

Objective

- The objective of this study is to develop and simulate a model that shows how policies to attract FDI in polluting sectors can affect economic welfare.

Two Sector General Equilibrium Model



- Welfare under autarky = **producer surplus** + consumer surplus − pollution damage +tax revenue
- Welfare with FDI = **wage benefit** + consumer surpus − pollution damage + tax revenue

Optimal Env'tal Tax and Infrastructure

- Optimal environmental tax under autarky equals marginal environmental damage.
- Optimal environmental tax with FDI equals marginal environmental damage minus reduction in wage benefit and total revenues weighted by a change in polluting output from the tax.
- The overall environmental tax rate may be lower or even negative with FDI compared to autarky.
- Optimal infrastructure level occurs when marginal welfare equals infrastructure price.
- At low infrastructure price, infrastructure level is higher with FDI than autarky.

Env'tal Regulations and Infrastructure

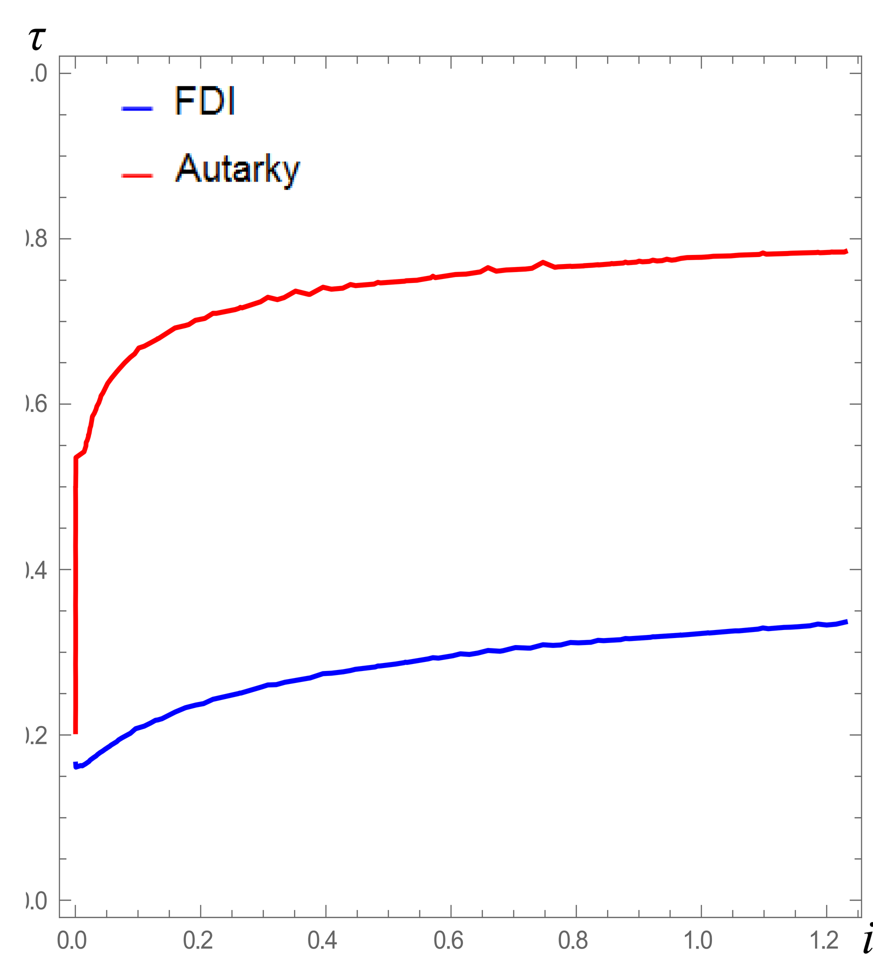


Figure 1: Optimal environmental tax over infrastructures when damage is high

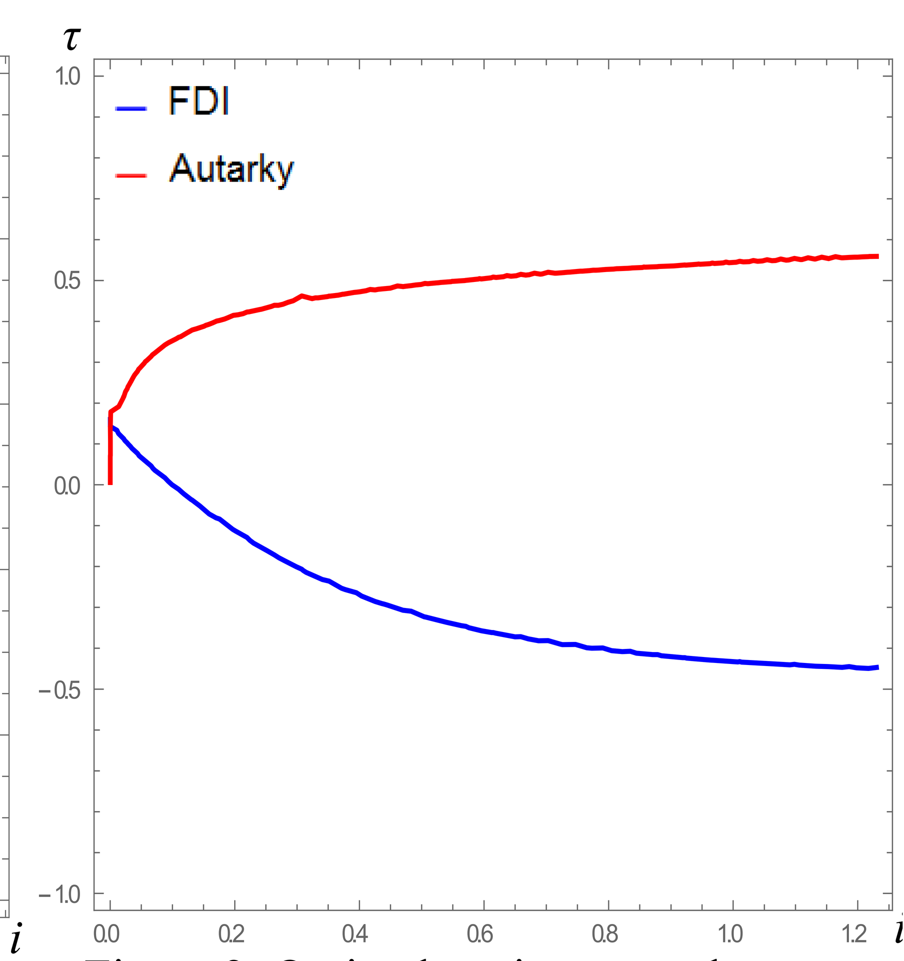


Figure 2: Optimal environmental tax over infrastructures when damage is low

- Under autarky, a higher infrastructure quality leads to higher environmental regulation.
- With FDI, there are two countervailing effects that determine the impact of infrastructure on environmental regulations.

  (1) Effect from pollution damage. (2) Effect from wage benefit.
- If damages are low enough, the tax can become subsidy.

Welfare Effects

- Welfare unambiguously increases with infrastructure with FDI and autarky.
- At low levels of infrastructure, welfare is initially higher under autarky as opposed to the case with FDI.
- A crossing point exists between the two curves.
- After a particular infrastructure level, the welfare with FDI is higher than welfare under autarky.

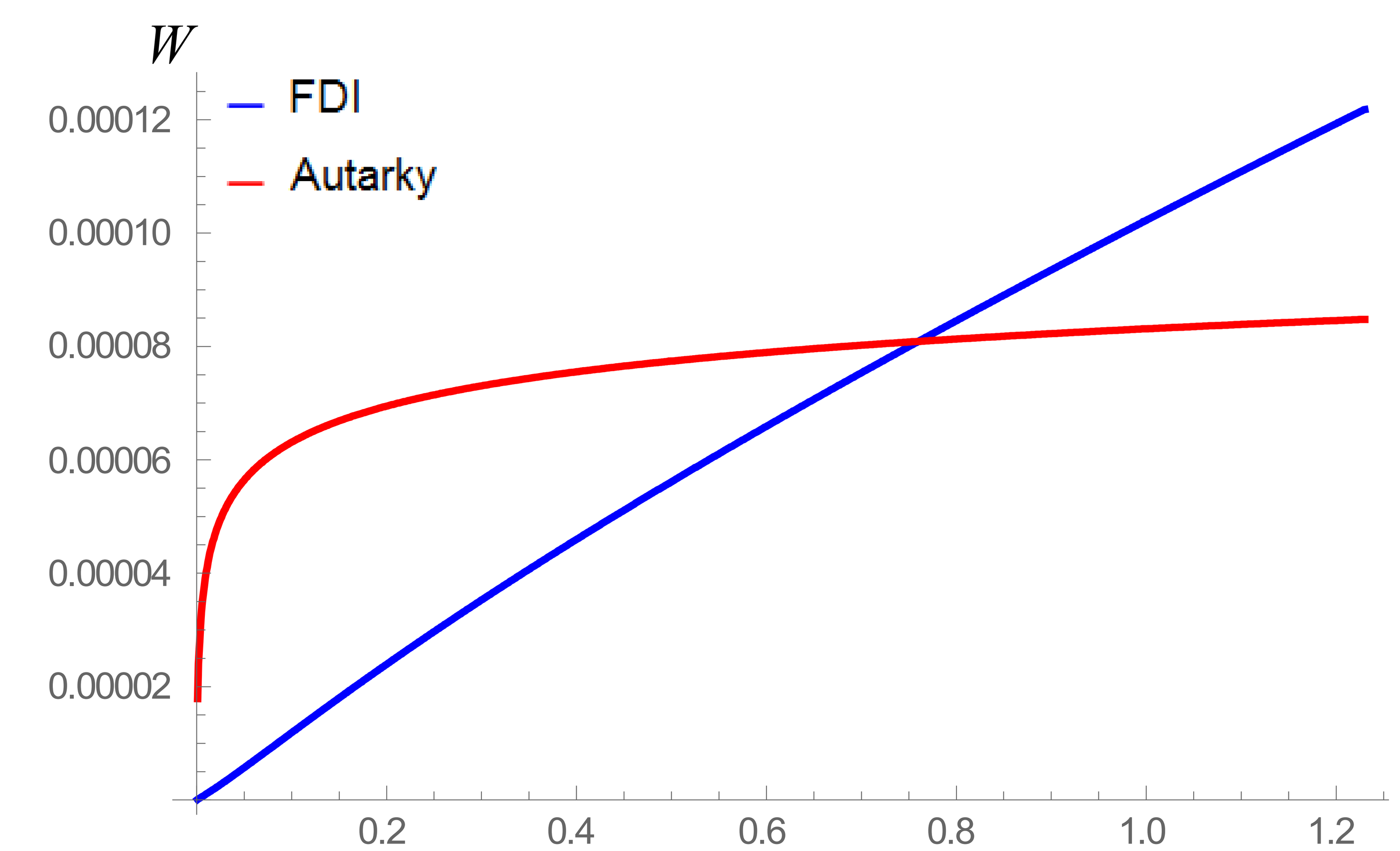


Figure 3: Welfare at different levels of infrastructures

Conclusions

- Moving from autarky to allowing FDI may lead to lower social welfare when infrastructure quality is low.
- Countries with high infrastructure quality are more likely to experience higher social welfare with FDI than autarky.
- A subsidy may occur instead of a tax when environmental damage is small.
- If a government does decide to open the polluting sector to FDI anyway even with low infrastructure, imposing an environmental tax closer to Pigouvian level will lead to higher welfare gains than imposing a subsidy to entice more foreign firm entrance.