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A comment on the "Porter Hypothesis"

Delivered at the conference

The Porter Hypothesis at 20:
Can environmental regulation enhance innovation and competitiveness?

McGill University Faculty Club
Montréal, Canada - June 28, 2010

Professor Porter,
Dear colleagues and guests,

I first wish to thank the organizers of this event, in particular Marie-Claire Cordonier-Segger and Stewart Elgie, for inviting me to present the following comment on the "Porter Hypothesis."

The Porter Hypothesis holds that *well-crafted environmental regulation will foster innovations which can benefit not only the environment but also (sometimes) polluting firms, thereby enhancing overall productivity*. I would like to briefly propose what I deem to be a new explanation for why and how this debated (and debatable) assertion could turn out to be true.

One of the most spectacular outcomes of environmental regulation over the past decades is the emergence of the environmental goods and services industry (or **eco-industry**). I refer here, as the OECD's definition goes, to the industry which *produces goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air, and soil, as well as problems related to waste, noise and eco-systems*. As the first slide (given in the appendix) shows, this eco-industry is:

▪ Large and growing, with global revenues totaling $548bn in 2005 and expected to reach $688bn in 2010 and $800bn in 2015;

▪ Big in employment, having generated 3.4 million direct jobs in the European Union alone in 2005 (compared with 2.7 million jobs imputable to car manufacturing and 2.4 million jobs to the chemical industry);

▪ Increasingly global, having experienced a 14% average growth in trade for environmental goods between 1990 - 2002 (well above the average of 6% for all goods);

▪ And, indeed, *innovative*, accounting for 5-8% of all patents in 2009.[1]

Returning to the Porter Hypothesis, which is pictured in the second slide (provided in the appendix), this suggests another reason for why it might be right after all. If some environmental regulations have succeeded in stimulating innovation, competitiveness and productivity over the last decades, it happened not only because regulated firms went on their own to revise and upgrade their technologies, but also (perhaps mostly) because such regulations did foster the division of labor between polluting producers and abatement suppliers. In short, I submit that **the innovation process triggered by environmental regulation has largely been a Smithian one.**

In *The Wealth of Nations*, Adam Smith (whose intuition was to be revisited later by George Stigler, in a famous article) tells us that "the division of labor is limited by the extent of the market." Over the last decades, precisely, economic growth (i.e. overall markets expansion) coupled with more stringent environmental regulation have lead polluting firms to end up procuring most abatement goods and services from specialized *external* providers. The generic benefits of such enhanced division of labor were stressed by Smith himself: it leads to *better focus* by managers on their core business, ever *greater expertise*, an ensuing *propensity to innovate* and *greater productivity* (to which one may add economies of scale, higher-powered incentives and more efficient risk sharing).

Harnessing this Smithian process, for the greater advantage of society, now bears a number of implications for policy makers.

◊ Environmental policy, of course and first of all, must be revised in many ways, for it not only has an impact on the size of demand for environmental goods and services but also on the *elasticity* of demand and therefore the eco-industry's rent.

◊ New sets of instruments must be brought in, pertaining for example to *competition policy* and, more generally, *industrial policy*, in order to make the eco-industry (and all its clients down the value chain) more competitive.

◊ Data collection, finally, must be improved. The eco-industry was formally defined by the OECD, in partnership with Eurostat, in 1998 (only 12 years ago!). Definitions are still imperfect and subject to change, and they often differ across countries. This matters in trade negotiations and for any rigorous follow up of this key industry.

I thank you for your attention.

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[1] These data, and additional figures, can be found in the references listed at the end of this comment.

References

Ernst & Young: *Eco-industry, its Size, Employment, Perspectives and Barriers to Growth in an Enlarged EU*, European Commission – DG Environment, September 2006.

Eurostat: *The Environmental Goods and Services Sector – A Data Collection Handbook*, Office for Official Publications of the European Communities, 2009.

OCDE (2005): "Opening Markets for Environmental Goods and Services," *Policy Brief*.

Selwyn, Jonathan et Bill Leverett (2006): "Emerging markets in the environmental sector," UK Centre for Economic and Environmental Development (UK CEED), Report to the Department of Trade and Industry.

Sinclair-Desgagné, B. (2008): "The environmental goods and services industry," *International Review of Environmental and Resources Economics*, vol. 2, p. 69-99.

Stigler, G. J. (1951): "The division of labor is limited by the extent of the market," *Journal of Political Economy*, vol. 59, no. 3, p. 185-193.

U.S. International Trade Commission: *Air and Noise Pollution Abatement Services: An Examination of U.S. and Foreign Markets*, April 2005.

APPENDIX

The environmental goods and services (EGS) industry

- **Large** and **growing** (global figures)
  - **$548bn** in 2005
  - **$688bn** in 2010
  - **$800bn** in 2015
- Big in **employment** (EU 2005 data; direct jobs)
  - **Eco-industry** - **3.4 million**
  - Car manufact. - 2.7 million
  - Chemicals - 2.4 million
- Increasingly **global**
  - **14% growth in trade** between 1990 and 2002 (average = 6%)
- **Innovative**
  - **R&D** (per firm on average) **= 3% of total revenue**
  - **5-8% of all patents** in 2009

What **else** can make the Porter Hypothesis work?