Does Clean or Dirty Matter? Trade, Type of Environmentally Sensitive Industry, and the Environment

*Gang Li**

Hitotsubashi University

Abstract

The purpose of this paper is to highlight the role of investment in the interaction between trade and the environment. We emphasize the negative effects of environmental degradation on production side and focus on three fundamental issues: specialization patterns, environmental qualities, and welfare gains.

How trade and the environment interact with each other? This topic has been extensively discussed in the literature. Many authors formulate environmental degradation as consumer externality. The production externality approach has received relatively less attention. Among those, Taylor and Brander (Canadian Journal of Economics 30 (1997), 526–552) focus on open-access renewable resources and show that if a country is a resource exporter, then usually it loses from trade in the long run duo to the decline in its resource stock. Copeland and Taylor (Journal of International Economics 47 (1999), 137–168) focus on incompatible industries and show how pollution can motivate trade by spatially separating these incompatible industries.

An important contribution of the above-mentioned two models is that they distinguish the short-run effects from the long-run. The quality of the environment is measured by a stock variable (the stock of resources or the stock of environmental capital) evolving over time and the long-run effects thus depend on the dynamic path as well as the steady state. In the long run, however, there is another significant economic activity, investment, which is the central issue in many fields of economic theory but somewhat neglected in the analysis of the interaction between trade and environment.

This paper, therefore, extends the framework of Taylor and Brander (1997) and Copeland and Taylor (1999) to incorporate endogenous capital accumulation and intertemporal optimization. There are several interesting results derived in this paper. First, trade tends to lead to specialization no matter clean or dirty is the environmentally sensitive industry. This differs the models abstracting from investment, where trade leads to specialization only when the environmentally sensitive industry is clean. Second, trade degrades the environment in a small open economy no matter the clean or dirty good it specializes in. In the models abstracting from investment, this happens only when the economy specializes in the dirty good. In a two-country world, the environment become worse in the country completely specialized in the industry not environmentally sensitive. Third, trade increases the world total steady-state consumption and the steady-state equilibrium of complete specialization yields the highest world total consumption.

Keywords: Production externality; Investment; Specialization patterns

JEL classification: F18; Q20

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