

# Convergence or Divergence of Production Patterns in the EU: Empirical Test of the Multiple-Cone Heckscher-Ohlin Model

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## Abstract

This paper attempts to examine empirically whether countries exhibit convergence or divergence in production patterns over time. I employ the production side of the Heckscher-Ohlin (HO) model as a theoretical framework. In particular, this paper focuses on the two types of equilibria; single- and multiple-cone equilibrium. The single-cone equilibrium has all countries in the world producing all goods. On the other hand, in the multiple-cone equilibrium, countries specialize in the distinct subsets of goods according to their relative factor endowments. Since the HO model is fundamentally built on the static framework, equilibrium is characterized by prevailing goods prices and production technologies at each point in time. Consequently, changes in these parameters may alter the equilibrium condition and the structure of cones as well. Moreover, those changes are likely to be triggered by, for example, trade liberalization and broader economic integration.

In this paper, I estimate the relationship between countrywide capital-labor ratio and per capita sectoral output, i.e., development path for the single- and multiple-cone equilibrium. I make use of data on factor endowments and sectoral output of manufacturing industries for the 22 European Union (EU) member states. By adopting an empirical method introduced by Schott (2003), this paper performs year-by-year estimation of development path from 1995 to 2006. By testing the single-cone model against alternative multiple-cone model, I examine whether the structure of cone remains over the sampled period.

Results reveal that the single-cone equilibrium is not rejected against the alternative multiple-cone model for the years from 1995 to 1999. However, I find the strong empirical support for the HO specialization in favor of the two-cone equilibrium after 2000. It suggests that production patterns in the EU member states become more diverged in the 2000s. Due to the trade liberalization between capital-abundant original member states and labor-abundant new member states, international division of labor may have been enhanced in the EU according to countries' relative factor endowments.

**Schott, Peter K.** 2003. "One size fits all? Heckscher-Ohlin specialization in global production." *American Economic Review*, 93(3): 686-708