

R&D Subsidies, Market Structure, and Productivity Growth in a Two-country Model Without Scale Effects

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Abstract

This paper develops a two country model to investigate the effects of national R&D subsidies on overall product variety and endogenous productivity growth without scale effects. In particular, monopolistically competitive firms invest in process innovation with the aim of lowering production costs. With imperfect knowledge dispersion, the larger of the two countries has a larger share of firms and a greater level of productivity. The higher concentration of relatively productive firms increases the size of knowledge flows between firms, leading to an increase in firm-level employment in innovation. As a result, an economy with asymmetric countries produces a faster rate of growth than one with countries of similar size. The larger scale of firm-level innovation activity reduces market entry, however, and overall product variety falls. Using this framework, we find that a national R&D subsidy has a positive effect on the industry share, relative productivity, and wage rate of the implementing country. Moreover, if the smaller country introduces an R&D subsidy, overall product variety rises but the rate of productivity growth falls. Alternatively, if the larger country introduces an R&D subsidy, the rate of productivity growth rises, but overall product variety may rise or fall. We briefly consider the implications of the tension between productivity growth and product variety for national welfare.

Key Words: R&D Subsidy, Productivity Growth, Scale Effect

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