

# Quantitative restrictions, market power and productivity growth

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## Abstract

This paper shows that, when compared to tariffs, quantitative restrictions (QRs) have a negative effect on innovation and productivity growth. First, QRs lead to stagnation in the steady state, in the absence of domestic competition, while tariffs allow for positive steady-state growth. Second, the replacement of a QR by a tariff equivalent leads to an increase in the short run incentives to innovation. © 2001 Elsevier Science B.V. All rights reserved.

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## 1. Introduction

The replacement of quantitative restrictions by price instruments, like tariffs, has been an important component of the reform of trade policies, over the last three decades, both in multilateral negotiations (e.g. the Uruguay Round) and in unilateral liberalizations (World Bank, 1997). One rationale is the notion that QRs expand the market power of domestic firms, augmenting the static costs of protection (Bhagwati, 1958). But perhaps, more important, is the belief that QRs hinder the productivity growth of domestic firms (Nishimizu and Page, 1991; Thomas et al., 1991).

The anti-QR sentiment arises from the idea that QRs hinder competition which, in turn, hurts productivity growth, given the disciplinary role of import-competition (Balassa, 1989; Rodrik, 1995). Nishimizu and Page (1991) argue that “quantitative

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restrictions break the link between domestic and international prices. (...); [and that] instruments that interfere with the transmission of [international] prices can make the productivity performance of competitors irrelevant and lead to deteriorations of comparative advantage over time.”

This paper presents a formal discussion of the role of QRs on productivity growth. It demonstrates that the expansion in domestic market power and the insulation from world price movements, arising from the use of QRs instead of tariffs, hinders innovation and cost cutting.<sup>1</sup> Hence, it argues that *tariffication*, i.e. the replacement of a QR by a tariff that keeps unchanged the rate of protection, increases productivity growth in the short and long term.

A number of studies present evidence of the perverse effects of QRs on productivity and innovation, by finding a negative and significant empirical relationship between the coverage ratio of QRs and measures of productivity performance, in cross-country and cross-industry samples (Edwards, 1998; Nishimizu and Page, 1986, 1991). Notably, after controlling for the level of protection, Kim (2000) and Lee (1996) still find that the use of QRs had a significant negative effect on productivity growth in Korea. In addition, based on evidence from country-studies of trade liberalization episodes, World Bank (1997) argues that economic growth speed up after a shift from quotas to tariffs.

To address how trade policy influences innovation, this paper looks into the effects of market power on R&D, in small open economies, in an endogenous growth context. Our chief result is that, absent domestic competition, foreign competitive pressure is key to sustaining long-run endogenous growth. For trade policy, this implies that the economic costs of QRs (over tariffs) are also related to long-run growth, and thus are much higher than the traditional increase in domestic mark-ups (see Helpman and Krugman, 1989) and the ensuing level effect on productivity. In particular, QRs hinder innovation in two ways.

First and foremost, QRs lead to stagnation in the steady state, while under tariffs, the domestic firm's long run innovation rate is positive. This result is driven by the *monopolization effect*, through which an increase in productivity increases a firm's mark up. We argue that it hinders the incentives for R&D and leads to stagnation, even in the presence of technological increasing returns to R&D. Steady-state endogenous growth requires a conflicting *pro-competitive* effect from (foreign) competitors that lowers domestic mark-ups. QRs lead to stagnation because they block out the pro-competitive pressure of foreign competitors.

The second effect of QRs on productivity growth is related to their role in expanding domestic mark-ups (Bhagwati, 1958; Helpman and Krugman, 1989). By lowering mark-ups and increasing output, tariffs further innovation, through the cost spreading of R&D (Cohen and Klepper, 1996). Moreover, the ensuing increase in productivity leads to an expansion in the mark-up, due to the *monopolization* effect. In the long run, the mark-up under a tariff equivalent rises above its QR equilibrium, thus reversing the short run effects of *tariffication* considered by Bhagwati (1958).

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<sup>1</sup> Miyagiwa and Ohno (1995) present a different mechanism where QRs hinder the investment in R&D compared to tariffs.

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