Policy designs in a dynamic model of infant industry protection[☆]

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Abstract

This paper takes the neoclassical infant industry model, allows agents to respond to future expectations, and reveals previously unexplained relationships between protection and outcome. Policy, which projects to protect the industry until international competitiveness, may not necessarily succeed, consistent to the mixed empirical evaluations. To guarantee success, protection has to last longer. However, for success to be an equilibrium, protection can last shorter. Decline after take off is also an equilibrium. When adjustment speed is bounded, increasing the protection rate is not isomorphic to decreasing its duration. In policy design, adjustment speed, critical industry scale, and policy duration are all relevant.
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1. Introduction

"The infant industry argument is the oldest and best known rationale for intervention,"[1] of an industry or of the manufacturing sector as a whole. Motivated at least to some extent by the argument, the US, Japan, and Germany all began their industrialization processes under protection, and many developing countries attempted import-substituting industrialization policies in the decades following World War II.

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[1] Krueger (1984, p. 522).

Neoclassical trade theory has argued that temporary protection of an industry can be justified under the existence of market failures when the Mill-Bastable criteria are satisfied.[2] External economies of scale such as knowledge spillovers, trained-worker spillovers, and inter-industry complementarities are pointed out as sources of market failure,[3] and models indicate that protection should be removed once the product is competitive at world market prices. Although most economists have agreed on the theoretical validity of the argument, the apparent dismal performances of post-World War II interventionist policies have lead to a general skepticism over the practical significance of the infant industry argument, and to an acceptance of market-oriented policy stances.[4]

The empirical literature, however, is inconclusive in evaluating the effectiveness of infant industry protection policies.[5] Krueger and Tuncer (1982, p. 1148) report the absence of a "systematic tendency for more-protected firms or industries to have had higher growth of output per unit of input than less-protected firms and industries" in Turkish data of the 1960s and 1970s, but Harrison (1994), on the other hand, finds that the tendency does exist in the same data. Bell et al. (1984) report the mixed nature of evidence. Nishimizu and Page (1991) find positive correlation between export growth and TFP growth, but at the same time find negative correlation between import penetration and TFP growth.

This paper, along with the more recent contributions, makes use of a formal dynamic model.[6] Matsuyama (1990) and Tornell (1991) point out time inconsistency of policy (government inability to commit to not renew protection) and distortion of incentives (industry attaining a captive market under protection) as factors behind failures of protection programs. We propose a different approach. We address a fundamental limitation of the neoclassical infant industry model on which policy prescriptions and empirical evaluations, at least to some extent, have been based. This is the assumption of static expectations, where agents base their behavior on just the current state of the economy.[7] We show that policy design differs qualitatively from the

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[2] Corden (1974, Chapter 9; 1997, Chapter 8) provides a comprehensive synopsis of the infant industry argument. The Mill criterion requires productivity to increase such that the industry can eventually be able to compete under free trade. The Bastable criterion requires the intertemporal social benefit of protection to be greater than the social cost. See Kemp (1960).

[3] Helpman (1984, p. 329) states, "Explanations of external economies—economies of scale which are external to the firm but internal to the industry—rest on the argument that a larger industry takes better advantage of within-industry specialization (the division of labor is limited by the extent of the market, and so is probably the division of other factors of production), as well as better advantage of conglomeration, indivisibilities, and public intermediate inputs such as roads...." A formulation alternative to external economies is internal economies with capital market imperfection.

[4] Some of the problems of infant industry argument that have been pointed out are: difficulty to identify infant industries, capturing of policy by special interests, lack of competitive pressure keeping firms from becoming efficient, and failure of realization of economies of scale due to the small domestic market size.

[5] Rodrik (1995, pp. 2933–41) provides a survey of the empirical literature.

[6] Bardhan (1971) is among the first formal dynamic models of infant industry protection, within which the time pattern of optimal subsidy is derived.

[7] For example, in both Ethier (1982) and Panagariya (1986), factor reallocation depends on the difference in current returns between two sectors.