

Infant Industry Protection and Industrial Dynamics

Josh Ederington
University of Kentucky

Phillip McCalman

1 Introduction

contrast, the trade and technology diffusion literature mentioned above explicitly assumes that

technological change is driven by firms' decisions to adopt new technology. The adoption decision of firms follows the standard setup as presented in Reinganum (1981). This basic framework is integrated into a model of monopolistic competition.³

amount of labor per unit of output. As is standard, we assume that production of the numeraire good is defined by $l = x_0$

2.3.1 Pricing

The above first-order condition demonstrates the tradeoff faced by firms in the choice of when

The above distribution function describes the process of technological progress in a small open economy. Given initially high adoption costs, all domestic firms are low-tech until T_L . At T_L the

where $A_0 = \frac{2(-c) + n_f(b-c)}{n+2}$, $A_1 = \frac{2 + cn_h(1-\bar{q}) + n_f b}{n+2}$ and $A(q(t))$ is defined by (5).

A straightforward application of the envelope theorem verifies that equilibrium profits are declining in n_h . This ensures a unique equilibrium for the constant n

LEMMA 1 *Holding the number of domestic (n_H) and foreign (n_F) firms constant, an increase in trade barriers, b*

These results illustrate the importance of controlling for entry and exit dynamics when one

increase in trade barriers, b , will increase the probability that a given firm adopts the new technology at some time (an increase in τ

domestic competitors who steal a portion of that profit stream. Thus, protection does not reduce

Differentiating this equation with respect to T_b yields:

$$\frac{\partial}{\partial T_b} = e^{-rT_b} (H(q=1, b) - H(q=1, b=0)) > 0$$

$$= T_H e^{-rt} H(\dots)$$

$$e^{-rt}k(T_H) = e^{-r\tau}$$

Proof: Assume \bar{F} and \bar{F}_0 are such that

a prime example being the tire industry, in which the number of firms halved in a period of 5 years.

diffusion by permanent domestic firms ($q(t)$) as well as the number of permanent domestic firms (n_p) and the number of temporary (low-tech) domestic firms (n_d). Given that the shakeout occurs

PROPOSITION 6 *In industries characterized by sufficiently high entry costs (F*

at different rates, the relative number is altered by a factor :

$$d^{-n}$$

6 Conclusion

There is a highly regarded literature concerning trade protection and technology adoption. This paper contributes to that literature by analyzing infant industry protection in an industry life-cycle model with endogenous entry and exit. This paper makes three main contributions to our understanding of the impact of protection on technological diffusion. First, we show that trade protection can have different implications for the timing of adoption relative to the probability

Reference

Bagwell, K. and Staiger, R. W. (1992). The sensitivity of strategic and corrective r&d policy in battles for monopoly. *International Economi in*

