Journal of International Economics 95 (2015) 274–290

Contents lists available at ScienceDirect

Journal of International Economics

journal homepage: www.elsevier.com/locate/jie

# Improving "national brands": Reputation for quality and export promotion strategies

Julia Cagé [a], Dorothée Rouzet [b,*]

[a] Sciences Po, France
[b] OECD, France

ARTICLE INFO

*Article history:*
Received 25 January 2013
Received in revised form 29 November 2014
Accepted 21 December 2014
Available online 6 January 2015

*JEL classification:*
F12
F13
L15
L52
O14
O24

*Keywords:*
Product quality
Product differentiation
Export promotion
Industrial policy
Trade
Asymmetric information

ABSTRACT

This paper studies the effect of firm and country reputation on exports when buyers cannot observe quality prior to purchase. Firm-level demand is determined by expected quality, which is driven by the dynamics of consumer learning through experience and the country of origin's reputation for quality. We show that asymmetric information can result in multiple steady-state equilibria with endogenous reputation. We identify two types of steady states: a high-quality equilibrium (HQE) and a low-quality equilibrium (LQE). In a LQE, only the lowest-quality and the highest-quality firms are active; a range of relatively high-quality firms are permanently kept out of the market by the informational friction. Countries with bad quality reputation can therefore be locked into exporting low-quality, low-cost goods. Our model delivers novel insights about the dynamic impact of trade policies. First, an export subsidy increases the steady-state average quality of exports and welfare in a LQE, but decreases both quality and welfare in a HQE. Second, there is a tax/subsidy scheme based on the duration of export experience that replicates the perfect information outcome. Third, a minimum quality standard can help an economy initially in a LQE moving to a HQE.



## 1. Introduction

Why do country-of-origin labels matter to consumers? This question finds no clear answer in standard models of international trade, which assume that consumers are perfectly informed about the characteristics of every available product and leave no role for country reputations. However, as a large literature on experience goods has shown, quality is not fully known to consumers prior to purchase for a wide range of goods. Inferring the quality of a good requires time and is achieved both through search and through experience. For these categories of goods, country-of-origin affects product evaluations and consumers' decisions.[1]

In this paper, we argue that a "national brand image" matters because it provides an anchor for the expected unobservable quality of imports such that a bad country reputation can become self-fulfilling. Consumption decisions, in practice, are based on a limited information set available to consumers at the time of purchase: information gathered as a result of past consumption experience and word-of-mouth diffusion, but also the country where the good was manufactured. For new and unknown foreign goods, the main piece of information available to consumers besides observable characteristics is the "made in" label, which indicates the country of manufacturing and creates a key role for national reputations. We call "national reputation" the common component of consumers' expectations of the quality of goods produced within a given country. Country reputations determine the quality that buyers expect before they learn any information specific to a product. We show how the dynamics of consumer learning and country reputation can create multiple equilibria with self-fulfilling expectations.

More specifically, we consider an infinite-horizon two-country model with a continuum of potential foreign exporters heterogeneous in quality, and a constant flow of new potential exporters per period. Each new firm draws a quality parameter from a fixed distribution of firm technologies and has the option to produce a good of this quality. The decision to produce is endogenous: potential foreign exporters decide whether to enter the market and when to exit, taking into account

* Corresponding author.
*E-mail addresses:* julia.cage@sciences-po.fr (J. Cagé), drouzet@post.harvard.edu (D. Rouzet).

[1] Schott (2008) documents that the prices that US consumers are willing to pay for Chinese exports are substantially lower than the prices they are willing to pay for OECD exports of the same products. Many survey-based studies in the marketing literature, summarized by Roth and Diamantopoulos (2009) also emphasize the role of country-of-origin labels in setting consumer perceptions of quality.

http://dx.doi.org/10.1016/j.jinteco.2014.12.013
0022-1996/

the impact of their decisions on expected future sales. We assume that the cost of producing one physical unit of the good is monotonically increasing in quality, but the cost per quality-adjusted unit is decreasing in quality. Quality is known to firms but not observed by consumers before purchase. Hence, import demand depends on perceived quality, which has two components. Goods imported from a given country are first evaluated according to a country-wide prior, which is endogenously determined by the average quality of the country's exports in a long-run industry equilibrium. Importers then learn about the true quality of firms that have exported in the past. The fraction of informed consumers increases with the time a firm has been active on the market. The effect of the country prior will thus prevail for new exporters and fade over time as buyers gain familiarity with individual foreign brands. As a consequence, asymmetric information fosters entry by low-quality firms, which earn higher profits than under perfect information by free-riding on high-quality expectations. It depresses profits of the highest-quality firms, forced to incur initial losses in order to reveal information about their type.

We characterize the equilibrium structure. There are two types of steady states with endogenous reputation: a high-quality, high-reputation equilibrium (HQE), and a low-quality, low-reputation equilibrium (LQE). In a LQE, only the lowest-quality and the highest-quality firms are active; a range of relatively high-quality firms are permanently kept out of the market by the informational friction. Fly-by-night firms export only for one period in this equilibrium; on the contrary, in a HQE, low-quality firms that enter initially as fly-by-nights can last longer than one period. We show that there can be multiple equilibria, such that countries with bad quality reputation can be locked into exporting low-quality, low-cost goods. Where multiple equilibria exist, reputation shocks can then have self-fulfilling effects.

This last result challenges the effectiveness of some export-led growth strategies which rely on exporting low-quality, low-cost goods and gradually moving up to higher quality, higher unit-value goods. A number of East Asian economies have pursued such strategies in the past. Without policy intervention, we show that it may not be a feasible path if the economy is trapped in a self-fulfilling equilibrium in which the country's reputation for low quality prevents some high-quality firms from entering export markets. We therefore consider various policies that can be implemented in a low-quality equilibrium to promote exports and improve a country's reputation abroad.

Our model delivers novel insights about the impact of the following trade policies. First, an export subsidy increases the steady-state average quality of exports and welfare of the exporting country in a LQE, but decreases both quality and welfare in a HQE. This policy raises the incentives to export for all firms, but in a LQE it has a larger effect on high-quality firms which have a longer effective horizon. Conversely, in a HQE, it only leads to additional entry by low-quality firms, which creates a negative reputation externality on all exporters. Second, there is a tax and subsidy scheme based on the duration of export experience that replicates the perfect information outcome. Finally, a minimum quality standard can help an economy initially in a LQE move to a HQE.

The remainder of this paper proceeds as follows. Section 2 reviews the literature relevant to the present study. Section 3 lays out our modeling framework. Section 4 analyzes high-quality and low-quality steady-state equilibria with endogenous reputation. Section 5 explores the effects of different policy instruments on quality, reputation and welfare. Section 6 concludes.

## 2. Related literature

This paper relates to the international trade and industrial organization literature on vertical quality differentiation and asymmetric information. This section briefly explains how our dynamic approach with a continuum of quality types and self-fulfilling reputations differs from the existing models of asymmetric information in exports.

Informational barriers to entry in international trade have been studied by Mayer, (1984), Grossman and Horn (1988), Bagwell and Staiger (1989), Bagwell (1991), Chen (1991), Dasgupta and Mondria (2012, 2013) and Chisik (2003). Mayer (1984) was the first to investigate export subsidies in the presence of initially uninformed consumers but did so without modeling explicitly the process of consumer learning and expectation formation, and relied on pessimistic consumer beliefs. Dasgupta and Mondria (2013) develop a two-period model with similar features to ours, where the quality of new exporters is unobservable and that of continuing exporters is known by a fraction of consumers. They, however, focus on the role of intermediaries in providing quality assurance and do not analyze the formation of country reputations.

The articles that are the most closely related to the present paper are Bagwell and Staiger (1989) and Chisik (2003) who both explore the interplay between country reputation, exporting firm quality and optimal trade policy. While our paper builds on these pioneering works, it departs from them both in the assumptions and in the policy implications. In our model, exporting firms cannot signal their quality, so that information acquisition is entirely driven by the dynamics of consumer learning through experience and the evolution of country reputations. We also introduce a richer quality structure with a continuum of quality types rather than only two types; and a richer time structure with an infinite horizon model, while Bagwell and Staiger (1989) use a two-period model and Chisik (2003) considers a static game. We are then able to model the process of reputation formation and investigate the transition dynamics of quality and reputation between steady states, between an uninformed prior and the steady state, or following shocks.

In contrast to the existing literature, we obtain two distinct regimes (HQE and LQE). In the LQE regime, non-exporters are in the middle of the quality distribution, while the lowest-quality firms and the highest-quality firms are not precluded from entering the market. While Grossman (1990) has anticipated the hollowing out of the middle of the quality distribution, our paper is the first to formalize these results.[2]

Note moreover that our paper is one of the very few that focus on country-of-origin reputations rather than on pure informational barriers to entry. Together with Chisik (2003) and Dasgupta and Mondria (2012) we are the first to model self-fulfilling country reputations — and we improve on these previous works by introducing a dynamic model with a more full-fledged quality dimension. Country-of-origin reputations are certainly related to the topic of exporters of an unknown quality, but also encompass a different set of issues. In particular, their policy implications can depart from those of informational asymmetries as a policy goal is to push the economy on a path to a different, higher welfare equilibrium. In that respect, our modeling of country-of-origin reputations is related in spirit to the approach of the statistical discrimination literature, though policy instruments naturally differ from those considered in a labor market framework (for a survey of the literature on discrimination in the labor market, see Lang and Lehmann, 2012).

Furthermore, our model delivers novel insights about the impact of trade policies. It is well-understood in the literature that export subsidies can be welfare-improving or -decreasing depending on whether information externalities lead to a problem of insufficient or excessive entry, respectively. Bagwell and Staiger (1989) focus on the welfare-improving case: they explore a situation in which asymmetric information yields socially insufficient entry. A subsidy can induce high-quality firms to enter the export market, whereas in the absence of a subsidy, their entry may be blocked by their inability to sell at prices reflecting their true quality. In contrast, Grossman and Horn (1988) point out that asymmetric information may lead to socially excessive entry when the quality choice is endogenous. In their model, an export subsidy does encourage entry but the marginal entrants are those with the greatest incentive to produce low-quality goods, reducing average

[2] In Bagwell and Staiger (1989) and in Chisik (2003), there are only two types of firms, so by construction there cannot be the hollowing out of the middle that we obtain.