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Product heterogeneity, cross-country taste differences, and the growth of world trade☆

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A B S T R A C T

This paper extends the analysis of the "home market" effect in Krugman (1980) to a flexible demand structure and examines the dynamic effects of trade liberalization. I first develop a model in which consumers are heterogeneous in their valuations of product attributes and firms offer goods of heterogeneous attribute levels. With international trade in the presence of cross-country taste differences, consumption is home-biased in the immediate aftermath of liberalization. Once industries specialize, the volume of trade grows and so do the gains from liberalization. In the long-run equilibrium with open markets, the volume of trade is diminished by the existence of cross-country taste differences only if countries specialize completely. I then show that the adaptation of industrial composition to the demand structure of the European common market was associated with growing within-European trade in the automotive industry.

1. Introduction

Since it is the prediction that most clearly distinguishes the "new" trade theory from classical motives for trade, the "home market" effect of Krugman (1980) has received ample attention in the empirical literature. Davis and Weinstein (1999), Davis, 2003 and Keith and Ries (2001) show that production increases more than one-for-one with local demand for a good, while Feenstra et al. (2001) show how increasing returns can be distinguished from other motives for trade in a gravity framework. Hanson and Xiang (2004) extend the two-sector prediction of Krugman (1980) to a multi-industry setup and then derive and test a relative home market prediction relating demand and sector characteristics to net trade

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flows. Aizenman and Brooks (2008), focusing on the case of beer and wine, present direct evidence for the existence of pronounced cross-country differences in demand patterns (see also Atkin (2013)).[1]

The home market effect in Krugman (1980) is, however, derived under the restrictive assumption of demand being unit-elastic. In his setting, expenditures thus do not react to the change in relative prices and the relative supply of varieties that is brought about by trade liberalization. Against the backdrop of the widespread empirical evidence that expenditures do strongly react to such changes (see, for example, Imbs and Mejean, 2015 for a recent study and survey of the literature), it is worthwhile to extend the analysis of the home market effect relaxing the assumption of unit-elastic demand.

This paper contributes to the literature on international trade by extending the analysis of the home market effect to a flexible demand structure. With this extension, the model provides two novel insights regarding under what conditions and to which extent cross-country taste differences affect the volume of and the gains from trade. First, compared to the benchmark of countries having an identical distribution of preferences, cross-country taste differences lead to consumption being home-biased in the immediate aftermath of liberalization. This is so as each country's industry structure is optimized for the preferences of domestic consumers and domestic output thus does not match well with preferences abroad.

Second, cross-country taste differences also have implications for the dynamic impact of a trade liberalization. This is so as national industries adapt only gradually to the demand structure of a globalized market. With increasing specialization, the aggregate volume of trade rises due to the extensive margin as firms with low export revenue are replaced by high export revenue firms that produce goods better suited to foreign demand. This adaptation process of national industries to the demand structure of international markets highlights that cross-country taste differences can explain the sluggish response of trade volume to liberalization (documented for example by Yi, 2003; 2010, Ruhl, 2008, and Hummels, 2007).

I conclude by providing evidence that these considerations have indeed been significant determinants of trade flows in the European automotive industry. I uncover taste differences along the product attribute dimension relying on external estimates of the elasticity of demand and using the structure of the model. I then show that after the creation of the European common market, the adaptation of industrial composition to the demand structure of the common market was associated with growing within-European trade in the automotive industry.

In emphasizing the importance of shifts in the sectoral composition of the economy that are driven by demand patterns rather than comparative advantage, this paper relates to the literature on structural transformation and international trade (see Matsuyama, 1992 and more recently Uy et al., 2013) and also to the literature on dynamic Heckshер–Ohlin models of trade. Regarding the latter literature, the mechanism of the model presented in this paper is closely related to Cunat and Maffezzoli (2007) analysis of how the dynamic response of factor accumulation amplifies the initial growth effect of a marginal trade liberalization in the presence of increasing returns.

In highlighting the importance of taste differences for the volume of trade, this paper connects the literature examining home market effects in homothetic preference frameworks with the literature examining Linder's (1961) hypothesis that in the presence of non-homothetic preferences, income differences impede the volume of trade (see, among others, Markusen, 1986; Baier and Bergstrand, 2001; Bergstrand, 1990; Fajgelbaum et al., 2011; Föllmi et al., 2008; Hallak, 2010; Matsuyama, 2000, and Fieler, 2011). In particular the analogy of the cases of complete and incomplete specialization in Fajgelbaum et al. (2011) and in this study documents that a common effect is present in these two preference frameworks. In both, the response of industry composition to cross-country differences in consumption decisions increases the volume of trade: while for a fixed domestic industry composition, a lower fraction of consumers who value a certain good is associated with a lower volume of imports of this good, the reverse holds true once the industry composition has adjusted to liberalization. This is so as with trade, lower domestic valuation for an attribute is associated with an over-proportional reduction in domestic production of goods embodying the attribute, and consequently, higher import volume of such goods.[2]

The structure of this paper is the following. Section 2 presents the model and also analyzes the equilibrium of the closed economy. The immediate aftermath of liberalization is analyzed in Section 3, while Section 4 examines the long-run equilibrium. Section 5 examines the role of cross-country taste differences for the growth of automobile trade during and after the creation of the European common market. Section 6 concludes.

2. A model of demand for heterogeneous products

This section develops a model featuring consumers with homothetic preferences and heterogeneous tastes. The aim is to extend the setting of Krugman (1980), who assumes that each consumer only consumes one type of good and that expenditures for each type of good are thus fixed exogenously, to the case in which consumers differ in their propensity to consume one type of good or the other, yet consumption decisions react to the availability of varieties and their respective relative prices.

[1] See also Davis (1998), Weder, 2003), Holmes and Stevens (2005), Crozet and Trionfetti (2008), Behrens et al. (2009), and Brülhart and Trionfetti (2009). Keith et al. (2002) examine whether the home market effect arises under alternative preference frameworks that feature increasing returns, but do not rely on the demand function of Dixit and Stiglitz (1977). Anderson and van Wincoop (2004) sketch a preference setup featuring heterogeneous tastes and verbally analyze how differences in preferences might create implicit trade barriers, but they do not solve for the equilibrium of the sketched model.

[2] It is noteworthy that whereas (Linder, 1961, p. 94) certainly stresses the importance of income heterogeneity as the main driver of taste differences, his argument that "[t]he more similar is the demand structure of two countries, the more intensive, potentially, is the trade between these two countries" also extends to the case of homothetic taste differences analyzed in this paper.