Does home market size matter for the pattern of trade?

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Abstract

Does home market size matter for the pattern of trade? Krugman started the literature, showing it does matter. Davis overturned his result, arguing that an assumption of convenience—transport costs only for the differentiated goods—conveniently obtained the result. Here we relax another persistent assumption of convenience—*two* industry types differentiated only by the degree of scale economies—and find that market size reemerges as a relevant force in determining industrial structure.
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1. Introduction

A famous result due to Krugman (1980) is that increasing-returns industries will tend to concentrate production within large markets.[1] If a large country begins to trade with a small country, the large country will shift its industrial structure towards the production of

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  [1] There is a large subsequent literature. See, for example, Helpman and Krugman (1985), Krugman (1991), and Krugman and Venables (1995).

increasing-return-type goods and export these to the small country. The small country, in turn, will shift its structure towards constant-return-type goods and export these to the large country. For example, if trade barriers are reduced between a small country such as New Zealand and a large country such as Japan, New Zealand will shift away from a scale-economy industry such as autos towards a constant-returns sector such as wool. Krugman's result is important, because the success of an economy is thought to be related, in part, to its industrial mix; New Zealand is unlikely to be rich completely specializing in wool.

In a recent paper, Davis (1998) reports a striking finding that overturns Krugman's result. In the original Krugman theory, transportation cost is assumed to be positive for the increasing-returns sector and zero for the constant-returns sector. The absence of transportation cost for the constant-returns sector was regarded as an innocuous simpli-fying assumption. Davis shows first that this assumption is implausible and, second, that without this assumption Krugman's result is overturned. He shows that when transporta-tion cost is the same for the two sectors, trade has no effect on a country's production mix between scale-economy and constant-returns sectors. To illustrate, consider the example of New Zealand and Japan, and assume that there are no differences in Ricardian comparative advantage between the two countries nor differences in factor proportions. The only difference is country size. Suppose the transportation cost of shipping wool is as high as the cost of shipping automobiles and automobile parts. Then opening up trade will not lead New Zealand to shift production from autos to wool; there is no shift in the small country towards the constant-returns sector.

In this paper, we revisit the issue, and our results breathe new life into the idea that country size matters. We find that a seemingly innocuous simplifying aspect of the Krugman and Davis models is actually crucial. These papers assume there are two types of industries: one type is pure constant returns to scale, and the other type has a fixed degree of scale economies. Rather than have two industry types, our model allows for a range of industry types that vary in the degree of scale economies. We follow Davis in assuming that the transportation cost is the same across industries. We find that goods produced in industries with a low degree of scale economies are never traded and thus extend the Davis result to our structure. Goods with a medium and high degree of increasing returns are traded. Our key result is that the pattern of trade *does* depend on country size. The small country exports the medium increasing-returns products; the large country exports the high increasing-returns products. Think about food processing as having moderate increasing returns as opposed to wool (constant returns) and autos (high increasing returns). We find that opening of trade between New Zealand and Japan causes New Zealand to shift production into food processing out of autos and to export food processing and import autos, all the while leaving the wool sector alone.

To allow for variations in the degree of scale economies across industries, we are forced to step out of the standard Dixit–Stiglitz model of monopolistic competition, the workhorse model of this literature. This structure features a fixed cost and constant marginal cost. In the zero-profit equilibrium, fixed costs as a share of revenues equals the markup share of price. This share depends upon the elasticity of demand but is independent of the technology parameters. Thus, increasing the fixed cost in a particular industry has no effect on increasing the equilibrium fixed cost share in that industry; the share remains constant. In fact, in the benchmark case where demand for final