Ports infrastructure and exports, evidence from Japan 2011 Tsunami

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Abstract

The paper explores the implication of internal trade related costs. We extend the standard trade model with heterogenous firms to have a multiple port structure where exporting is subject to port specific local transportation costs and port specific fixed export costs as well as international bilateral trade costs. We derive a gravity equation with multiple ports and show that gravity distortion due to firm heterogeneity is conditional on port comparative advantage and resulting substitution of export across differentiated ports. Finally, we test the prediction of the model with Japanese custom data and detect a port substitution following the 2011 tsunami disaster.

Keywords: firm heterogeneity, extensive margins, transportation costs, fixed costs JEL classification:

1 Introduction

In this paper we contribute to the growing literature on internal barriers to international trade. We do this in two ways. Firstly, we develop a model, based on trade model with heterogenous firms, that makes explicit the dynamics that can exist in an economy when firms can have multiple routes to exports, say to different ports. Each route will have a particular combination of fixed and variable cost. A profit optimizing firm will minimize the cost of exports. We derive the implications for trade when fixed and variable costs change for one port and how this affect the trade for other ports. We hereby extend the gravity framework in heterogenous firms model with internal trade costs and explicit interaction effects between trade routes. Secondly, we test the prediction of the theoretical

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