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PRESS RELEASE

Trade, wages and productivity

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Over the last decade, empirical research on international trade has revealed the existence of substantial firm-level heterogeneity in productivity even within narrowly-defined industries. Only a small share of firms is engaged in foreign trade, and these firms differ along various dimensions from purely domestic ones. Exporters tend, in particular, to be larger and more productive than non-exporters. These firm-level productivity differences act as channels through which trade liberalization brings about aggregate productivity gains, by forcing the least efficient firms to leave the market and by reallocating market share from low to high productivity firms.

As these firm-level facts are intrinsically incompatible with the paradigm of the 'representative firm' that has dominated international trade theory for decades, several models with heterogeneous firms have been recently put forward to accommodate them. In his seminal contribution, Melitz (2003) extends Krugman's (1980) model of intra-industry trade to cope with productivity differences across firms. Although Melitz's (2003) model has greatly increased our understanding of intra-industry reallocations in a trading world, it is fair to point out that it relies on two rather restrictive assumptions: factor price equalization (FPE) and constant elasticity of substitution (CES). These features do not conform with abundant recent empirical evidence.

We are unaware of a fully-fledged general equilibrium model with heterogeneous firms in which wages and mark-ups are endogenous and need not be equalized across countries. Developing such a framework is the first contribution of this paper. To this end, we extend the recent model by Behrens and Murata (2007) to accommodate heterogeneous firms and multiple countries which may differ in size, accessibility, and underlying productivity distribution. Despite the richness of effects and economic mechanisms at work, our model remains highly tractable. This makes it particularly well-suited as a basis for applied work. Therefore, turning to our second contribution, we take our model to the data and quantify it using a well-known dataset on interregional trade flows between US states and Canadian provinces.

This quantified framework is particularly useful, because it allows us to finely assess how and through which economic channels various exogenous shocks would affect the different Canadian provinces and US states. We provide two such 'counterfactual analyses'. First, we simulate the effects of eliminating trade distortions between Canada and the US. We find that international trade would considerably expand. Furthermore, we also quantify the impact of this full removal of the Canada-US border on other key economic variables at the regional level. In particular, we show that all regions would see welfare gains since average productivity increases and product diversity expands everywhere, but some regions quite naturally gain more than others.

In the second counterfactual analysis, we investigate how local market size affects the equilibrium via changes in regional populations. To this end, we keep trade frictions fixed at their initial levels and consider how the observed population changes between 1993 and 2007 affect the different provinces and states. We find that the western Canadian provinces and the southern US states gain the most in terms of productivity and wages, whereas small peripheral regions like Newfoundland may experience productivity and welfare losses.

Our framework can serve as a basis for the incorporation of endogenous productivity into less stylized computable general equilibrium models for policy analysis and we strongly endorse its application.