

# North–South trade and income inequality

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## Abstract

This paper investigates the effects of North–South trade on international income inequality. While empirical studies suggest that trade liberalization encourages income convergence and reduces the per capita income gap between poor and rich countries, North–South trade is shown to increase the income gap between the two regions. On the other hand, trade liberalization by either region increases the welfare of both regions, and does not necessarily reduce the gap in “real income” or utility.

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## 1. Introduction

A month following a ministerial meeting in Doha, Qatar, China became an official member of the World Trade Organization (WTO) on December 11, 2001. China’s WTO accession is likely to boost both the US–China and EU–China bilateral trade volumes. Both China and its trading partners are expected to benefit from China’s expanding role in world trade. For instance, [Ianchovichina, Martin, and Fukase \(2000\)](#) report that China’s share of world exports will rise from 3.7% in 1995 to over 6.3% in 2005. However, little attention has been paid to the impact of North–South trade on the income gaps between high-income countries and low-income less-developed countries (LDCs). Will such unprecedented trade liberalization reduce the income gap between LDCs and industrial nations of Europe and North America?

There are two schools of thought regarding the effect of trade liberalization on international income inequality. Some have asserted that trade will tend to cause greater income inequalities between countries ([Myrdal, 1956](#); [Prebisch, 1950](#); [Singer, 1950](#)). In contrast, Adam Smith envisioned a situation in which trade between a rich country and a poor country leads to income convergence ([Elmslie, 1994](#)). Recent empirical studies also suggest that trade promotes income convergence. [Rassekh and Thompson \(1998\)](#) argued that since trade tends to equalize factor prices, per capita income can differ between countries primarily because of differences in capital-to-labor ratios.<sup>1</sup> [Choi \(2001\)](#) investigated the impact of neighbor-immiserizing growth in a model of three trading blocs. [Chao and Yu \(1997\)](#) also

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<sup>1</sup> [Krueger \(1968\)](#) suggested that when factor endowments are dissimilar between countries, trade will equalize factor prices and can perpetuate divergence of per capita incomes.

investigated the long run impacts of trade liberalization through relaxation of quantity restrictions. [Chao, Chou, and Yu \(2001\)](#) analyzed the effect of trade liberalization through export duty rebates.

The purpose of this paper is to investigate whether North–South trade will deepen or reduce international income inequality between the two trading blocs. Accordingly, this paper develops a two-country, two-good, two-factor general equilibrium model within the North–South framework, and analyzes the impacts of trade liberalization on the income gap between the two regions. The South is assumed to be abundant in labor and the North in capital. Two competing measures of national income are used to examine the effects of trade liberalization: national income and real income.

Section 2 develops the basic model. Section 3 investigates how trade liberalization affects the terms of trade and trade volumes, while Section 4 deals with the effects of trade liberalization on national incomes and welfare. Section 5 contains concluding remarks.

## 2. The basic model

We consider the impacts of North–South trade on international income inequality. In light of the increased importance of China’s role in world trade, the world is assumed to consist of two trading blocs, the North (EU and North America) and the South (China).<sup>2</sup> We employ the following assumptions:

- (1) The South consists of  $N$  identical workers who also are consumers.
- (2) Two factors, capital  $K$  and labor  $N$ , are used to produce two goods, the exportable  $Z$  and the importable  $Y$ .
- (3) The exportable  $Z$  is the numéraire, and the domestic price and the foreign price of the exportable are equal to unity.
- (4) The South is abundant in labor, whereas the North is abundant in capital. Both regions have identical production technologies, and no factor intensity reversal occurs.
- (5) Factors are fully employed and are mobile between sectors.
- (6) Perfect competition prevails in product and factor markets.

It is important to note that factor price equalization is not assumed in this paper. However, since no factor intensity reversal occurs, each region exports the product that intensively uses its abundant factor.

Let  $Z$  and  $Y$  denote the domestic production of the exportable and the importable, respectively. Variables of the North are denoted by lowercase letters. As in the standard Heckscher–Ohlin model, the relationships between input and output are written as:

$$\begin{aligned} a_{KZ}Z + a_{KY}Y &= K, \\ a_{NZ}Z + a_{NY}Y &= N, \end{aligned}$$

where  $a_{ij}$  is the input–output coefficient representing the amount of input  $i$  used to produce one unit of product  $j$ ,  $i=K, N$ , and  $j=Z, Y$ . Production possibilities of the two regions are given by

$$Z = F(Y), \quad z = f(y).$$

There is no uncertainty in the product prices, and producers are assumed to observe the world price  $P^*$  and the domestic prices  $P$  and  $p$ .

In the South, consumer preferences are represented by a monotone increasing and quasiconcave utility function,  $U=U(C, X)$  where  $C$  and  $X$  denote domestic consumption of the exportable and the importable, respectively. Similarly, consumer preferences of the North are denoted by Budget constraints of consumers are:

$$\begin{aligned} C + PX &= I, \\ c + px &= i, \end{aligned}$$

where  $P$  and  $p$  are the domestic prices of the  $Y$  good, and  $I$  and  $i$  denote—in terms of the numéraire—consumer income of the South and the North, respectively. The first-order conditions for optimal consumption are  $U_C/U_X=1/P$  and  $u_c/u_x=1/p$ . Let  $C=C(P, I)$  and  $X=X(P, I)$  denote the demand for the importable and the exportable. We assume that both goods

<sup>2</sup> See [Choi \(2001\)](#) for an analysis of growth with three trading blocs. In his model, China competes with other Asian countries.

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