DO FREE TRADE AGREEMENTS AFFECT INCOME INEQUALITY?
AN EMPIRICAL INVESTIGATION

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**Extended Abstract**

Preferential trade agreements through FTA between countries and groups of countries have highly increased in number during the last two decades. Despite numerous studies on the effect of trade on income inequality since Hecksher-Ohlin model and Stolper-Samuelson theorem, a possible linkage between FTA and income inequality has received little attention and had not been studied thoroughly.

Therefore, this study attempts to investigate the impact of trade through FTA on income inequality through FTA. This work goes beyond and improves upon previous findings by investigating the role of FTAs along with overall trade openness simultaneously and highlighting the extent to which FTA may impact on income inequality. More specifically, using the augmented income inequality model for Gini index with a recent data set from 132 countries, this paper attempts to estimate the effect of the number of FTA notification both in goods and services to WTO on income inequality in Gini index for cross-countries.

This study examines the effect of international trade through FTA on intra-national inequality of income. The empirical linkage between FTA and Gini index for income inequality is tested in the augmented income inequality estimation of cross-countries regression. Main findings from the estimation using a recent data set of 132 countries show strong evidence for the impact of FTA on income inequality while overall trade openness is not found to affect income inequality.

To investigate the impact of trade openness and FTAs on income inequality, a modified income inequality equation is employed in this study. The dependent variable is income inequality within a country measured by the intra-country Gini index. In the benchmark equation for income inequality, GDP and per capita GDP are used as independent variables to consider a country’s scale and income effects. Unemployment rate is also included as an additional explanatory variable to control for the labor market.

Accordingly, the benchmark estimation begins with the following basic income inequality equation for determinants of income inequality within country $i$ at time $t$:

$$(INEQUALITY)_{it} = \alpha + \beta_1(ECO)_{it} + \beta_2(UNEMP)_{it} + \epsilon_{it}, \quad \text{---------------------------------------- (1)}$$

where INEQUALITY represents country $i$’s income inequality measured by the Gini index in country $i$ at time $t$. ECO is the variable for scale and income effect of the country $i$ (GDP and per capita GDP). UNEMP is the unemployment rate of country $i$. In order to investigate the impact of labor market performance on income inequality, a variable controlling for the unemployment rate is also included.
The second basic model for income inequality includes a variable related to the tax system such as total tax revenue-GDP ratio to consider the role of tax in income inequality as follows:

\[(\text{INEQUALITY})_{it} = \alpha + \beta_1 (\text{ECO})_{it} + \beta_2 (\text{UNEMP})_{it} + \beta_3 (\text{TAX})_{it} + \varepsilon_{it}, \quad (2)\]

where TAX indicates tax-GDP ratio (i.e., tax revenue as a percentage of GDP). The next estimation includes a variable to consider the role of human capital development in income inequality. Namely, educational attainment for human capital accumulation measured by average years of total schooling in a country is used:

\[(\text{INEQUALITY})_{it} = \alpha + \beta_1 (\text{ECO})_{it} + \beta_2 (\text{UNEMP})_{it} + \beta_3 (\text{TAX})_{it} + \beta_4 (\text{EDU})_{it} + \varepsilon_{it}, \quad (3)\]

where EDU indicates educational attainment of country \(i\) measured by average years of total schooling in country \(i\). Next, the benchmark model is augmented with the variable for openness and FTA to consider the impact of international trade on income inequality. FTA indicates bilateral trade while overall trade openness represents multilateral trade. An explanatory variable for trade openness is added in the augmented estimation to examine the role of overall trade openness in a country’s income inequality measurement as in the following equation:

\[(\text{INEQUALITY})_{it} = \alpha + \beta_1 (\text{ECO})_{it} + \beta_2 (\text{UNEMP})_{it} + \beta_3 (\text{TAX})_{it} + \beta_4 (\text{EDU})_{it} + \beta_5 (\text{OPEN})_{it} + \varepsilon_{it}, \quad (4)\]

where OPEN indicates overall trade openness of country \(i\) (total trade in goods and services as the percentage of GDP). Finally, along with overall trade openness, the estimation considers and includes both overall trade openness and FTAs into the benchmark model. An additional explanatory variable for FTA notifications is included to examine the impact of FTA on income inequality. Typically, the WTO reports the data for the number of FTA notifications by the types of trade: trade in goods and trade in services, respectively. Thus, separated estimations are conducted with the FTA notification: one with the number of FTA notifications related to the trade in goods, the other with that of FTA notification related to the trade in services.

- Trade openness and FTA notification related to goods trade:

\[(\text{INEQUALITY})_{it} = \alpha + \beta_1 (\text{ECO})_{it} + \beta_2 (\text{UNEMP})_{it} + \beta_3 (\text{TAX})_{it} + \beta_4 (\text{EDU})_{it} + \beta_5 (\text{OPEN})_{it} + \beta_6 (\text{FTA1})_{it} + \varepsilon_{it}, \quad (5)\]

where FTA1 indicates the number of country \(i\)’s FTA notification in goods trade to WTO.
Trade Openness and FTA notifications related to services trade:

\[
\text{INEQUALITY}_{it} = \alpha + \beta_1 (\text{ECO})_{it} + \beta_2 (\text{UNEMP})_{it} + \beta_3 (\text{TAX})_{it} + \beta_4 (\text{EDU})_{it} \\
+ \beta_5 (\text{OPEN})_{it} + \beta_6 (\text{FTA1})_{it} + \beta_7 (\text{FTA2})_{it} + \varepsilon_{it}, \quad \text{(6)}
\]

where FTA2 indicates the number of country i’s FTA notifications in services trade to WTO.

More specifically, strong linkage between FTAs and income inequality, i.e., the number of FTA notifications has effect on income inequality, has been found. In particular, it is interesting to find that the effect differs between goods trade and service trade in FTA. An opposite effect was found between goods trade and services trade such that the higher FTA notification related to goods trade reduces income inequality, while the higher services trade notifications increases it.

The findings from this study emphasize the role and importance of bilateral and regional trade through FTA rather than multilateral trade from overall trade openness in the impact of trade on income inequality. They imply that trade liberalization is also likely to yield very different effects on income inequality depending on whether the underlying structure of FTA is related to goods trade or services trade.

Increasing share of trade in services sector is likely to be important in trade’s impact on inducing increase the wage and income gap between the skilled and the unskilled workers in the country. They also suggest that the recent observation of an increasing share of trade expansion in the form of intra-industry trade rather than inter-industry trade is of particular importance when examining the income distributional consequences of trade liberalization. The findings of this paper contribute to the existing related literature by highlighting how free trade through FTAs can affect income inequality in various countries. Specifically, the findings of this paper help us understand that the number of FTA notifications and the features of FTAs can impact the short-run adjustment costs borne through worker displacement and earnings inequality.