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Income growth and inequality: The threshold effects of trade and financial openness

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ABSTRACT

Empirical studies about whether trade and financial openness lead to favourable Gini outcomes yield mixed results and theoretical work suggest that the effects likely depend on the stage of economic development and the nature of the production structure. This paper proposes a model of a small open economy with two key components – a component with heterogeneous agents earning a range of incomes and a component with traded and non-traded goods and associated financial linkages. Simulations show that both trade and financial openness can lead to improvements in both income growth and equality once an economy crosses a critical threshold in capital intensity and in the use of imported intermediate goods in the production process.

1. Introduction

The three key (macro) drivers, most often cited, as being important for understanding income inequality are economic growth, technological change and openness. Studies about the effects of growth and technology generally show that they improve income inequality,[2] but openness, on the other hand, appears to have mixed effects on inequality.

Studies about the effects of openness tend to be concerned about three issues. The first is the focus on the contributions of exports and imports and empirical studies generally discuss the relationship between a trade index measure (computed as the sum of exports and imports expressed as a percentage of GDP) and the Gini measure of inequality. The second is with respect to capital flows and here there is a distinction between the effects of foreign direct investment and the effects of portfolio investment. The former involves establishing income-generating assets in a foreign country that entails some forms of equity and control, the latter involves capital flows in financial assets. Studies of openness have also been concerned with the regulations imposed to restrict free trade and free mobility of capital. The literature about financial liberalization and income inequality is especially broad because financial liberalization takes many forms – they can occur in the capital accounts, in the equity market, in the banking sector.

Since exports and imports are easier to measure, research to understand the distributional consequences of globalization has focussed more on understanding the implication of trade liberalization. Goldberg and Pavcnik (2007), in their review of this literature, surmised that evidence appears to indicate that income inequality worsened (not improved) with trade liberalization, but they also concluded that "the particular mechanisms through which globalization affected inequality are country, time and case specific" (p. 78).

More generally, Jaumotte et al. (2013) tested the effects of *globalization* in trade and finance on income inequality and found the effect to be insignificant. They rationalized it by drawing attention to the fact that trade and financial liberalization have offsetting effects – the former tends to reduce income inequality, while the latter tends to increase income inequality. Understanding this issue is important because trade and financial openness are both important aspects of growth and development and it would be desirable to know whether there are conditions when the effect of increasing both is to improve equality (see Greenwood and Jovanovic (1990) and Beck et al. (2007) for studies about the relationship between financial development and growth in income).

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[2] Dollar and Kraay (2002), for example, show in their highly cited article entitled "Growth is Good for the Poor," that economic growth and poverty reduction are related on a one-to-one basis while Jaumotte et al. (2013) showed that technological change had been a significant driver of the rise in inequality across both developed and developing countries.

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Studies about inequality have thus been conducted across time and across countries.[3] There are numerous empirical studies,[4] but they tend to produce results that are case-specific. Theoretical models have become increasingly used to provide insights to understand the empirical results. As Turnovsky (2015) points out, the varied character of empirical findings about growth and distribution of income or wages or wealth should not be surprising, since growth and distribution are endogenous variables. General equilibrium models are needed to understand the causal links between openness and inequality. However, designing models to understand macro effects and distributional effects are not straightforward as this involves aggregating the behaviour of heterogeneous households. Standard macro-models often rely on a representative agent while agent-based analyses though rich in behavioural details are not convenient frameworks for macro-analysis.

The aim of the paper is to adopt the Turnovsky (2015) line of modelling which allows for an analysis of the distributional consequences of macro-policy. The approach is applied here to develop a model of a small open economy with two key components – a component with heterogeneous agents earning a range of incomes and a component with traded and non-traded goods and associated financial linkages.

Our model has two key features – it allows for trade in intermediate goods and the presence of a skills premium.[5] These features are critical because, notwithstanding the ambiguity in empirical findings, Goldberg and Pavcnik (2007) along with Acemoglu (2003) and Helpman et al. (2010) note that a key to understanding the relationship between trade liberalization and wage inequality is through understanding that trade is, by and large, trade in intermediate goods. Hence trade-induced changes in methods of production induce increases in the demand for skilled workers (the skill premium effect) while also increasing the imports of capital goods. Thus it is likely that trade liberalization would, at first increase inequality, but it is also likely that it would eventually decrease inequality.[6]

In essence our framework embeds an analysis about income distribution into a typical (long run) macro-model (without complications associated with sticky wages/prices or adjustment costs). The three indexes we are interested in – a Gini index, a trade openness index and a financial openness index – are computed in a consistent manner and the model is simulated to understand the implications of changes to both trade and financial flows on income inequality. To enhance the model, we include features typically observed in transitional economies, namely that they are heavily dependent on exports of natural resources; they are less diversified and vulnerable to terms of trade shocks; and the exchange rate is mainly fixed (directly, via a currency board, pegged or managed to maintain a target).

The simulations are designed to provide insights into the relationship between trade and financial openness and income inequality. We simulate the model for shocks to the external sector (in the form of changes to export demand, and the terms of trade), for varying degrees of openness. We also systematically varied the relative capital (conversely labour) intensity in the traded and non-traded sectors and the imported intermediate goods replacement ratio to understand the mechanisms that affect income inequality.

The main reason for simulating alternative production features is to obtain insights about the relationship between growth and inequality as an economy develops. As argued by Galor and Moav (2004), the relationship between inequality and growth changes as the engine of growth changes from physical capital accumulation to human capital accumulation. In the first stage, inequality stimulated development because channelling resources towards individuals with a higher propensity to save stimulates investment and growth. In contrast, when human capital emerged as the growth engine, the adverse effect of credit constraints on investment in human capital is mitigated and the positive effect of equality on economic growth is promoted. All of which is to say that trade in intermediate goods which boosts physical capital accumulation likely increases the Gini, while the skills premium which boosts human capital accumulation likely decreases the Gini. Do these channels also explain why financial liberalization would ameliorate inequality?

To anticipate results, our simulations highlight the fact that favourable (lower) Gini outcomes come about because of the distributive effects to wages and labour, due to the increased productivity of labour in sectors with relatively higher capital intensity. However, the opposite correlations noted between the Gini and trade and financial openness in many empirical studies is not a general result. We show that for economies with capital intensive production methods and low imported intermediate goods content, that an increase in both trade and financial indexes can result in a negative correlation with the Gini (i.e., both types of openness supports an improvement in income growth and reduction in inequality over time).

The paper is organized as follows. Section 2 of the paper presents some economic statistics about income inequality and measures of trade and financial flows using the World Bank database. Section 3 presents the key features of our calibrated small open economy model. The model is simulated to yield causal insights about the relationship between the trade and financial openness indexes and the Gini coefficient. Specifically, we simulate the model for shocks to the export sector (in the form of export demand and terms of trade shocks) to understand the mechanisms that affect openness and income inequality. Concluding remarks are in Section 4.

1.1. Inequality and openness: descriptive statistics and correlations

Annual data about measures of income inequality and economic statistics are extracted from the World Bank database. It is an unbalanced panel, covering 214 countries, with data unavailable for many countries before the mid-1990s. Since the data set spans a range of economies with very different characteristics, we have used the World Bank classification of income groups. The number of countries in each income group are: low income (53); lower-middle income (51) upper-middle income (31); high income, non-OECD (47) and high income, OECD countries (32).

Table 1 presents some descriptive statistics (means and standard deviations) about income inequality and indexes of openness for the last 10 years (2004–2013) for the five groups of countries. The variables reported are the Gini coefficients on inequality and the bottom and top quintiles (*BQ* and *TQ*) shares of income. The data set also includes a measure of trade openness (the ratio of trade – sum of exports and imports – to GDP), and FDI (net foreign direct investment) to GDP ratio. We have also included the composite aggregate capital account openness CI index created by Chinn and Ito (2008); it is an index scaled to lie between 0 and 1 with 1 being completely open without any regulatory restrictions on cross-border financial transactions.

The mean trade openness indexes increase from low to high income, and is highest for the non-OECD income group. This pattern is also observed for the mean ratio of (net) foreign direct investment to GDP. According to the Chinn–Ito (CI) openness index, high-income OECD countries are most open; in other words, least subjected to capital controls. The Gini-measure of inequality across income groups appears to

[3] Anderson (2005) points out that while most empirical time series studies show that greater openness increased inequality of wages, cross-sectional studies tend to show that increased openness had little effect on inequality. He conjectures that inequality associated with increased demand for skilled labour was offset by other industry effects. See for example study by Munshi (2012) of industrial data between 1975 and 2002 for Bangladesh which showed that increased demand for goods resulting from trade liberalization produced with labour-intensive methods had the effect of diminishing overall wage inequality as the wages of the least-skilled improved.

[4] See for example, Dimitrios et al. (2014) for a study about globalization and income inequality for a panel data of EU27 countries.

[5] Gourdon et al. (2008) pointed out that initial endowments, particularly with respect to skilled labour, matters - they found that trade liberalization had strong positive effects on inequality in countries where a high proportion of the labour force had little or no education.

[6] See Halter et al. (2014) for more discussion about the time dimension.

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