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Credit constraints, inequality and the growth gains from trade

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HIGHLIGHTS

- This paper studies the effect of wealth inequality on the growth gains from trade.
- The focus is on the role of credit constraints and financial development.
- The data cover manufacturing industries in developing countries.
- The analysis considers differences in growth rates pre- and post-trade liberalisation.
- High inequality has a negative impact on the growth rate in the number of firms.

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ABSTRACT

This paper tests the hypothesis that, in the presence of credit constraints, higher wealth inequality affects negatively the growth gains from trade liberalisation. Variations in the growth rate of value added – decomposed in the growth rate of the number of establishments and the growth rate in average size – of manufacturing industries in 34 developing countries before and after trade liberalisation are used to study the effects of inequality on the difference in growth under liberalised and nonliberalised regimes. The results show that the number of firms in industries with high dependence on external finance in countries with higher inequality grow significantly slower, in both statistical and economic terms, than in industries with low dependence on external finance in countries with lower inequality following a trade liberalisation relative to the closed-economy period.

1. Introduction

One of the foundations of modern economic theory is that free trade benefits the agents that take part in it. This simple idea can be extended to countries, even though standard trade theory is well aware that there might be winners and losers within each country. Moreover, gains from trade may not only be of a static nature, as an economy moves to a higher steady-state equilibrium, but also dynamic and associated with longer-term growth (Gustafsson and Segerstrom, 2010a,b).

However, the empirical evidence seems to be less clear-cut. On the one hand, Dollar and Kraay (2004) suggest that trade liberalisation has led to higher growth rates in all countries and, as a consequence, to lower poverty rates too. On the other hand, Rodríguez and Rodrik (2001) and Rodrik et al. (2004) argue that trade liberalisation may have actually played a much smaller role, if any, in raising living standards and instead they point at institutions and their improvements in the last few decades to explain higher GDP per capita.

Wacziarg and Welch (2008) make a significant improvement in the trade and growth literature by making use of the timing of liberalisation in a within-country setting to identify the changes in growth and investment rates associated with discrete changes in trade policy. They find that countries on average grow faster after opening to trade, but this effect is not homogeneous.

In the effort of understanding the cross-country variation in the growth outcomes of trade reforms, Caselli (2012) shows that the distribution of wealth in developing countries, proxied by land ownership, affects negatively the growth gains from trade

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liberalisation. He also finds preliminary evidence that the negative relationship is stronger at lower levels of financial development, i.e., when credit constraints are more binding.

Therefore, this paper takes over where Caselli (2012) and Wacziarg and Welch (2008) left off by taking a closer look at the role of credit constraints. More specifically, the hypothesis to be tested empirically is whether inequality has an effect on growth, also decomposed in the intensive and extensive margins, in the aftermath of trade liberalisation in the presence of credit constraints.

The paper makes use of the timing of liberalisation in a within-country setting in combination with the methodology developed by Rajan and Zingales (1998). In their paper, Rajan and Zingales (1998) suggest that one way to check whether a channel is at work is to see whether industries that might be most affected by a channel grow differentially in countries where that channel is likely to be more operative (Rajan and Subramanian, 2008). Other empirical growth studies that have used this methodology include Braun (2003) and Braun and Raddatz (2007).

For the purpose of this paper, this implies that growth rate differences between the period the economy is open and the period it is closed for industry–country pairs are regressed on the interaction between inequality at the country level and dependence on external finance at the industry level, a measure of the extent to which firms in a given industry are dependent on funds coming from an entrepreneur's own wealth or borrowing. This approach is equivalent to "difference-in-difference-in-differences" thanks to the use of variation across industries and countries as well as changes between the periods before and after trade liberalisation. This makes it possible to establish a causal relationship from inequality to the growth gains of trade liberalisation through the credit constraints channel. The main finding is that industries more dependent on external financing in countries with high land inequality grow slower in terms of the number of firms after opening to trade relative to the closed-economy period. This is an important finding since the creation of new firms may, in turn, affect the potential for long-term growth and the competitiveness nature of an industry.

The remainder of the paper is organised as follows. Section 2 describes the empirical specification used to test the paper's hypothesis. Section 3 summarises the data used. Section 4 presents and discusses the results and some robustness checks. Section 5 concludes.

2. Econometric specification

The starting point for the econometric model is the specification in Rajan and Zingales (1998) and Braun (2003) for panel data. This specification is augmented by terms interacting trade policy not only with land inequality but also with industry fixed effects and country fixed effects to control for different degrees of tradability across industries in all countries and different years of trade liberalisation across countries:

$$\begin{aligned} Growth_{skt} &= a_0 + a_1 Share_{skt} + a_2 Ineq_k \cdot DepExtFin_s \cdot Open_{kt} \\ &\quad + a_3 FinDev_{kt} \cdot DepExtFin_s \\ &\quad + \eta_s Open_{kt} + \nu_k Open_{kt} + \phi_t + \epsilon_{skt}. \end{aligned} \tag{1}$$

$Growth_{skt}$ is the annual growth rate of industry s in country k averaged over time period t, $Share_{skt}$ is the share of industry s in country k's total value added in manufacturing at the beginning of period t and is included to control for convergence, $DepExtFin_s$ represents the dependence on external finance at the industry level and is time invariant, $Ineq_k$ is land inequality at the country level and is time invariant, $Open_{kt}$ is a dummy that takes value 1 during the time the country is open to trade and 0 otherwise, $FinDev_{kt}$ is the level of financial development at the beginning of period t, η_s represents industry fixed effects, ν_k are country fixed effects, ϕ_t are time period fixed effects and ϵ_{skt} is the idiosyncratic stochastic error term. Time t can only take two values based on a country's openness status, i.e., closed or open to trade.

Taking the difference of Eq. (1) under a liberalised regime, i.e. $Open = 1$, and the same equation under a nonliberalised regime, i.e. $Open = 0$, it gives the main equation to be estimated:

$$\begin{aligned} \Delta Growth_{sk} &= a_0 + a_1 \Delta Share_{sk} + a_2 Ineq_k \cdot DepExtFin_s \\ &\quad + a_3 \Delta FinDev_k \cdot DepExtFin_s + \eta_s + \nu_k + \Delta\epsilon_{sk}, \end{aligned} \tag{2}$$

where Δ represents the difference between the period when country k is open to trade and the period when it is closed to trade.

In order to test whether inequality affects the ability to open a new firm after a country opens to trade, however, it is necessary to decompose the changes in the average growth rate of value added at the industry level into changes in the average growth rate of the number of firms and changes in the average growth rate in average size. This implies estimating the following equations:

$$\begin{aligned} \Delta GrowthNO_{sk} &= b_0 + b_1 \Delta ShareNO_{sk} + b_2 Ineq_k \cdot DepExtFin_s \\ &\quad + b_3 \Delta FinDev_k \cdot DepExtFin_s + \eta_s + \nu_k + \Delta\epsilon_{sk} \end{aligned} \tag{3}$$

$$\begin{aligned} \Delta GrowthAvSize_{sk} &= c_0 + c_1 \Delta RelAvSize_{sk} + c_2 Ineq_k \cdot DepExtFin_s \\ &\quad + c_3 \Delta FinDev_k \cdot DepExtFin_s + \eta_s + \nu_k + \Delta\epsilon_{sk}, \end{aligned} \tag{4}$$

where $GrowthNO_{sk}$ is the average growth in the number of firms of industry s in country k, $ShareNO_{sk}$ is the share of industry s in country's k total number of firms in manufacturing, $GrowthAvSize_{sk}$ is the average growth in average firm size of industry s in country k and $RelAvSize_{sk}$ is the average firm size of industry s in country k relative to the average firm size in country k's manufacturing as a whole.[1]

Eqs. (2)–(4) can be estimated via the OLS estimator with standard errors clustered at the country level.[2]

3. Data sources

The raw data cover an unbalanced panel of 34 developing countries and 28 manufacturing industries between 1963 and 2004, chosen according to the availability of data and whether countries switched to an open trade regime during this period.[3] The analysis is limited to developing countries because land inequality is considered to be a good proxy for wealth inequality only in these countries. The number of observations (industry–country pairs) is 783 in the largest possible sample.

The dependent variables are measured at the 3-digit industry level of the International Standard Industrial Classification (ISIC) as the differences in the average annual growth rate of value added, the average annual growth rate of the number of firms and the average annual growth rate in the average size of an establishment under liberalised and nonliberalised regimes and are calculated based on UNIDO's (2012) database.[4] From the same database it

[1] Following Rajan and Zingales (1998), the results presented in this paper are robust to using changes in industry's share of total manufacturing value added to control for convergence in Eqs. (3) and (4) instead of, respectively, changes in industry's share of the number of firms and changes in relative average firm size. The additional results are available upon request.

[2] The specification in differences is exactly equivalent to fixed effects considering that only two aggregate periods are included in the final specification, i.e., closed and open to trade. The results from the specification in differences are included because they are easier to interpret.

[3] It should be noted that for most countries in the sample the raw data cover a shorter period. As an example, the data available for Bolivia go from 1981 to 2001, of which the first four years cover a period of closed economy and the last seventeen a period of open economy.

[4] The average size in the industry is obtained by dividing the value added in the industry by the number of establishments.