

ORIGINAL RESEARCH: **Evidence of increments in economic growth and income inequality with financial globalization**

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Abstract

In recent decades, globalization has increased; nations are more closely inter-linked, and cross country capital flow and investment have gone up. A common hypothesis among economists is that there is a relationship between openness to capital markets and economic growth. Empirical evidences are found both in favor of and against this hypothesis. This study finds a positive relationship between economic growth and financial globalization. In today's world evidence for growth is not that significant without checking for development parameters; this study finds also a positive relationship between income inequality and financial globalization.

Keywords: Capital markets, Economic growth, Financial globalization, Income inequality.

Introduction

The globalization process has been growing steadily in developing countries since post 1980's (Kose et al., 2010). Financial globalization is a process that deepens cross border capital flows and asset holding. In short, it results in the growth of nations' capital and financial accounts and also provides a basis for transmission of global financial shocks, international risk sharing, business cycle smoothing, and reduction in macroeconomic volatility. According to the World Bank 'financial globalization' is the "integration of countries local financial systems with international financial markets and institutions" (World Bank, Global Development Finance, 2010).

Economists have debated for a long time over the effect of financial globalization on economic growth. Closer financial integration strengthens domestic financial systems, increases investment, promotes efficient allocation of capital and thus increases growth (Levine, 1997; Abiad et al., 2004). It affects growth through increased saving and investment and promotes on a global level an efficient allocation of capital and international risk sharing (Obstfeld, 1994); however, through distortions, it can harm growth as well. Financial instability and misallocation of capital can occur because of international financial market distortions like trade barriers, weak institutions and information asymmetries (Rodrik, 1998; Bhagwati, 1998; Stiglitz, 1999).

The impact of income inequality on financial globalization is also a debated issue. The International Labor Organization publication of "World of Work Report 2008: income inequalities in the age of financial globalization" added fuel to the debate. This report found that gains from the expansionary period of 1990-2007 had benefitted more high income groups than their medium and low income counterparts; financial globalization failed to contribute to the enhancement of global productivity and employment growth, and financial globalization intensified economic instability. In 1990's, systematic banking crises were ten times more frequent than in 1970's; such increased instability typically comes at a steep cost to low-income groups. Financial globalization has reinforced a downward trend in wage share.

The main purpose of this paper is to provide an assessment of the empirical evidence on the effects of

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financial globalization. The paper will focus upon three related questions: First, does financial globalization promote economic Growth? Second, does financial globalization promote inequality? And third, is growth accompanied by inequality?

Literature Review: Economic theories and international financial institutions suggest that countries should increase the inter-linkages with other countries and the global capital market; however, at times of global recession greater financial integration may worsen the situation of economies which are doing perfectly well. Since 1990s, we have witnessed two common topics of discussion in economics, one on inflation and the other on an increase in the frequency and severity of currency crises following the increase of capital mobility (Berg and Borensztein, 2000). Advice for increasing financial openness by international monetary institutions was mainly given after the crisis of 1990s, as well as for removal of trade barriers, privatization of public enterprises, and switching of managed floating exchange rates into free floating exchange rates.

Earlier research by Quinn (1997) and Klein and Olivei (2000) supported a positive relationship between capital account openness and economic growth for developed countries. Baillu (2000), Edwards (1990, 2001), Arteta, Eichengreen and Wyplosz (2001) also found the same evidence with the latter finding that growth is more favored by capital account openness in advanced economies rather than developing economies. However, Alesina, Grilli and Milesi-Ferreti (1994), Grilli and Milesi-Ferreti (1995), Rodrik (1998), Kraay (1998), O'Donnell (2001), Chanda (2000), Fratzscher and Bussière (2004), and Mougani (2006) do not find any linkage between capital account liberalization and economic growth. Rodrik (1998) concluded that capital controls are essentially uncorrelated with long-term economic performance. Prasad et al. (2003) mentioned that theoretical models have identified a number of channels through which international financial integration can promote economic growth in developing countries. However, there is as yet no clear and robust empirical proof that this effect is quantitatively significant.

Lane (2000), and Heathcote and Perri (2004) proved that countries which are more open to trade are also financially more open. This raises a question whether there is a relationship between trade globalization and financial globalization. Feeney (1994) found a complementary relationship between trade globalization and financial globalization.

Not much research has been done to check the impact of financial globalization on income inequality. Jaumotte, Lall, and Papageorgiou (2008) examined the relationship of income inequality with trade and financial globalization. They found that trade globalization had a negative relationship, and financial globalization and FDI in particular had positive relationships with income inequality. Technology has a greater positive impact on income inequality than globalization.

Methodology

This includes the empirical strategy used, definitions of variables and the data sources. This study has taken a total of 61 countries of which 21 are developed and 40 are developing countries (lists are included at the end of this section *) and the period of study is 20 years, i.e. from 1991-2010. Models for economic growth and income inequality are estimated separately. The estimation technique used in both models is Arellano-Bover/Blundell-Bond estimation. This study uses Chinn-Ito index for financial inclusion as de jure measures of financial globalization. In the income inequality model, de facto measures of financial globalization such as trade, tariffs, external assets and liability are also used.

The growth model was formed as follows:

$$\text{Real GDP per capita} = \alpha_0 + \alpha_1 \text{ Financial Inclusion} + \alpha_2 \text{ Investment Ratio} + \alpha_3 \text{ Population Growth} + \alpha_4 \text{ Credit to Private Sector} + \alpha_5 \text{ ICT Capital Ratio} + \alpha_6 \text{ Service Sector Employment} + \epsilon$$

Real GDP per capita was taken from World Bank GDP and GDP per capita database. GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy, plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars.

Chinn Ito index for financial openness is used as proxy for financial inclusion. The Chinn-Ito index (KAOPEN) is an index measuring a country's degree of capital account openness. The index was initially introduced by Chinn and Ito (Journal of Development Economics, 2006). KAOPEN is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). Investment ratio is the ratio of total investment taken from World Economic Outlook Database and GDP per capita from World Bank GDP and GDP per capita database.

Population growth (annual %) is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage and derived from total population. Population sources used include World Population Prospects by United Nations Population Division, Population and Vital Statistics Report (various years) by United Nations Statistical Division, census reports and other statistical publications from national statistical offices, etc.

Credit to private sector is domestic credit to private sector (% of GDP) taken from World Bank credit to private sector database. Domestic credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of equity securities, trade credits and other accounts receivable that claim repayment. For some countries these claims include credit to public enterprises.

ICT capital ratio is ratio of ICT capital services and the total capital services (ICT + non ICT). It is taken from Total Economy Database where ICT capital services % means growth of capital services provided by ICT assets, and non ICT capital services % means growth of capital services provided by non ICT assets. Service sector employment data is taken from World Bank's world development indicators.

The inequality model was formed as follows:

$$\text{GINI} = \alpha_0 + \alpha_1 \text{ Export/GDP} + \alpha_2 \text{ Import/GDP} + \alpha_3 \text{ Tariff} + \alpha_4 \text{ Ex Liabilities/GDP} + \alpha_5 \text{ Ex Assets/GDP} + \alpha_6 \text{ Financial Inclusion} + \alpha_7 \text{ ICT Capital/Total Capital} + \alpha_8 \text{ Credit /GDP} + \alpha_9 \text{ Employment in Agriculture/Total Employment} + \alpha_{10} \text{ Employment in Industries/Total Employment} + \epsilon$$

Gini coefficient data was taken from Net Gini database calculated by world Income Inequality Database. Export and import here are non-oil export and import, respectively. Percent change of volume of imports/exports refers to the aggregate change in the quantities of total imports/total exports whose characteristics are unchanged; the goods and services and their prices are held constant, therefore changes are due to changes in quantities only.

Tariff is the average of weighted mean and simple mean tariff rates that were taken from World Bank Tariff rate, applied, weighted mean, all products (%) and World Bank Tariff rate, most favored nation,

simple mean, all products (%), respectively. Weighted mean applied tariff is the average of effectively applied rates weighted by the product import shares corresponding to each partner country. To the extent possible, specific rates have been converted to their ad valorem equivalent rates and have been included in the calculation of weighted mean tariffs. Import weights were calculated using the United Nations Statistics Division's Commodity Trade (Comtrade) Database.

Effectively applied tariff rates at the six- and eight-digit product level were averaged for products in each commodity group. When the effectively applied rate was unavailable, the most favored nation rate was used instead. Simple mean most favored nation tariff rate is the unweighted average of most favored nation rates for all products subject to tariffs calculated for all traded goods. External assets and liability ratio is taken from Lane, P.R. and G.M. Milesi-Ferretti, 2006, "The External Wealth of Nations Mark II: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970–2004" and its 2009 update. Agricultural and industrial employment data were taken from World Bank's world development indicators. Specification for inequality model is borrowed from Jaumotte, Lall, Papageorgiou (2008).

* The estimation sample included the advanced economies of Australia, Austria, Canada, Denmark, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Singapore, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom, and the United States. The developing economies in the sample included Argentina, Bangladesh, Belarus, Bulgaria, Chad, China, Costa Rica, Ecuador, Egypt, El Salvador, Georgia, Ghana, Hungary, India, Indonesia, Israel, Jamaica, Kenya, Latvia, Macedonia, Madagascar, Malaysia, Mexico, Namibia, Pakistan, Philippines, Poland, Russia, South Africa, Sri Lanka, Sudan, Tajikistan, Thailand, Turkey, Uganda, Ukraine, Venezuela, Vietnam, Zambia, and Zimbabwe.

Results

Estimation of the growth model for the whole sample of countries shows that 3 factors have a significant impact on economic growth. Financial inclusion, investment ratio and service sector employment are significant factors for economic growth. Interestingly, credit to private sector, and ICT capital ratio do not affect economic growth significantly. Growth is increased by 619.0469 times by unit change in financial inclusion and is significant at 1%. Results are robust and confirmed at 2% significant level (Table 1 and 2).

Table 1: Growth model results

Model specification	Full model
Real GDP per capita L1	0.917 (0.034)*
Financial Inclusion	619.0469 (243.3685)**
Investment ratio	221.6758 (59.19206)*
Population growth	810.489 (768.843)
Credit to Private Sector	-24499.29 (16590.08)
ICT capital ratio	-355.043 (572.7364)
Service sector employment	224.285 (83.5017)*

Observations - 741
 * = significant at 1%
 ** = significant at 2%
 Robust Standard Errors in parenthesis

Post estimation
 Sargan test statistic = 38.17
 P value = 0.92

Table 2: Inequality model results

Model specification	Full model
Gini L1	0.9541 (0.0512)*
Non-oil Import ratio	12.2319 (9.3194)
Non-oil Export ratio	24.7067 (12.3145)***
Tariff	0.0075 (0.0028)*
External Liability ratio	-0.0037 (0.0069)
External Assets ratio	-0.0007 (0.0072)
Financial Inclusion	0.3140 (0.1758)****
ICT capital ratio	0.3149 (0.2261)
Credit to Private Sector	28.2152 (25.6979)
Agricultural employment ratio	2.8974 (4.0649)
Industrial Employment ratio	-7.6898 (4.9005)

Observations - 474

* = significant at 1%

** = significant at 2%

*** = significant at 5%

**** = significant at 10%

Robust Standard Errors in parenthesis

Post estimation

Sargan test statistic = 30.16

P value = 0.93

The estimation of inequality model for the whole sample of countries shows that three factors had a significant impact on increasing income inequality. Tariffs is significant at 1%, non-oil export ratio is significant at 5% and financial inclusion is significant at 10% level with robust standard errors. Interestingly, external assets and liability ratios decrease income inequality. Inequality is increased by 0.3140982 times by unit change in financial inclusion and is significant at 1%. Results are robust and confirmed at 10% significant level. Income inequality changes by 0.0075 times by unit change in tariff.

Discussion

Based on estimated models and previous sections, countries achieving higher economic growth may opt for deepening cross border capital flows and asset holdings by reducing restrictions on capital and financial account. If these actions are accompanied by higher investment and increment in service sector employment, they can help increase the rate of economic growth in developing countries. It is assumed that credit availability to private sector and investment in technology can foster economic growth, and of course it does, but if cross border exchange restriction distortions are abolished by countries, financial globalization can help the countries develop and achieve higher economic growth at a faster rate surpassing the effects of technology and credit availability. Technology and credit availability can help achieve further economic growth after the world gets fully globalized.

In the case of income inequality, increments in tariffs are associated with increment in income inequality which explains the Stolper-Samuelson theorem since more expensive domestic produce are purchased by consumers in place of cheaper imports. Capital that goes to other countries is more likely to be invested in highly productive sectors; thus sectors that demand higher skills and use higher technology may increase employment, and the income of those particular sectors that are already higher (in terms of skills, education and technology) may rise and thus raise the income of those who have better education and already higher incomes. Financial globalization tends to increase economic growth but a large share of increased finances goes to those who already have higher incomes; they can increase their assets, and these assets can be used further to provide more credit and thus support a further increase in income and assets.

Conclusion

The estimates suggest that the observed rise in income inequality over the past two decades is largely attributable to the impacts of tariffs and financial inclusion while in the case of economic growth it is attributable to the impacts of financial inclusion and investment ratio. This reflects two offsetting impacts of financial globalization. On one hand external assets and liability ratio reduce income inequality and on the other hand, trade, tariffs and financial inclusion increase income inequality.

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