Foreign Direct Investment, Foreign Aid and Incomes Inequality in Selected African and South American Countries

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This paper reports findings of our study on the effects of foreign direct investment (FDI) and foreign aid (FA) on incomes distribution in 71 African and South American countries for the period of 1970-2014. We find that FDI increases income inequality while FA decreases it in general. However, magnitudes of the effects are stronger for African countries as compared to Latin American ones.

1. Introduction

There is growing evidence that income inequality has been increasing over the years, and that it has consequences for social stability and peace because extreme inequality often leads to civil unrest and violence. Given an increasing level of resource transfers to developing countries in the forms of foreign direct investment (FDI) and foreign aid (FA) as well as growth in international trade over the years, an interesting research question arises—how have these resources affected income distribution in developing countries? While both of these foreign capital resources have been found to significantly influence the scope and rate of economic growth in developing countries, very few studies have directly tested the effect of FDI and FA on income inequality in developing countries, especially for African and South American countries where the problems of economic growth and income distribution need to be addressed. Also, there is literature suggesting both positive and negative effects of globalization or openness of economies, thus making it an issue requiring empirical verification. In an effort to fill in the gap in the literature, this paper reports results of an empirical study examining the impact of openness, FDI and FA on income inequality in 71 selected African and South American countries for the period 1970-2014.

The paper is organized into four sections. Section two presents a summary of theories and hypotheses pertaining to the issue at hand. Two key hypotheses-- skill premium hypothesis insofar as FDI is concerned and social capital formation hypothesis with respect to FA—are examined. Underlying the skill premium hypothesis is the contention that FDI creates demand for skilled workers and thereby helps to widen wage differential between employees working for subsidiaries of multinational corporations and employees working for

domestic firms. It thus contributes towards increasing income inequality. The social capital formation hypothesis contends that most of the foreign aid goes to infrastructure creation and education and healthcare improvements. It thus helps to reduce income inequality by uplifting the poorer segment of the population. In Section three, a simple model with Gini coefficient as the dependent variable for analysis of empirical data is presented. Section four presents estimated empirical results followed by their discussion. We discuss implications of the findings for further research and policy developments as well as some remaining shortcomings of the paper in the concluding section.

2. Theories and Hypotheses

Foreign direct investment by multinational corporations, resource transfer in the form of foreign aid provided by governments and private institutions, and international trade have become the pathways of globalization. And globalization has been on the rise due to these resources. This phenomenon has also spawned a lively debate on the consequences of globalization for the welfare and wellbeing of people around the world. More concretely, concerns have been raised about the effects of investment, aid and trade on income distribution, economic growth and overall human development.

While a large number of empirical studies have found a positive effect of FDI on economic growth (Li and Liu, 2004; Carkovic and Levine, 2005; Samuel, 2009; Farkas, 2012), the effect of FA on economic growth is still controversial. Do these resources that influence rate and pattern of economic growth have some bearing on income inequality? There are cases such as the East Asian countries where economic growth is accompanied by relatively equitable incomes distribution. There are also countries such as some in Africa and South America where economic growth has not improved equality in terms of incomes and opportunities. What roles FDI, FA and international trade play in the evolution of the structure of income distribution in developing countries is an important question. Fortunately, there is some literature that addresses this question. We first review the empirical literature bearing on this issue.

Basu and Guariglia (2007) observed that FDI promotes both inequality and growth in developing countries. Farkas (2012) examined the effect of FDI on economic growth of developing countries and found out that positive spillovers of FDI depended on the absorptive capacity of host countries. Countries with a higher levels of human capital and a developed financial markets revealed higher absorptive capacities. Herzer and Nunnenkamp (2011) examined the effect of FDI on income inequality for 10 European countries during 1980-2000. They found a short-run positive effect on income inequality but it turned out to be negative in the long run. Mahutga and Bandelj (2008) found similar effect of FDI for 10 Central and Eastern European countries for the time period 1990-2001. Findings of Figini and Gorg (2006) for developing countries are in line with these results. Globalization or openness of an economy will have an impact on incomes distribution. In the famous Hechscher-Ohlin model of international trade, international trade would reduce wage inequality as it would

allow developing countries to specialize in less skill-intensive activities. However, the new FDI inflows into developing countries are targeted more to manufacturing and service sectors where skill premiums are higher as opposed to the FDI going traditionally to the extractive sector. Thus FDI driven skill premiums will increase wage inequality between foreign and domestic firms. In addition, FDI also induces some level of spillover effect on domestic firms, as they need to upgrade technology and be mindful of productivity to compete with the foreign firms (Clark *et al*, 2011; Lin *et el*, 2013). This may lead to an increase in income inequality, at least in the short run ((Franco and Gerussi, 2013). In the long run, domestic firms may catch up with the foreign firms and the effect of skill premium on income distribution may dissipate. For example, Sylwester (2005) did not find any evidence of a positive association between FDI and income inequality, as measured by the Gini coefficient, in a cross-sectional study of 29 developing countries for the period of 1970 to 1990. On the other hand, Clark et al. (2011) reviewed a large number of empirical studies on the effect of FDI on income inequality. Based on their review, they concluded that FDI contributes to increase rather than decrease income inequality in host countries.

While cross-national studies of FDI and incomes inequality relationship are generally consistent in their findings, time-series studies of this relationship for individual countries are varied and complex (Mah, 2012).

Views on impact of foreign aid on income inequality are also divided, and empirical evidence produced by researchers is inconclusive as well. For example, Bourguignon et. Al. (2008) found FA to be equality enhancing, whereas Bjornskov (2010) found a negative effect of FA on income equality. Saidon, Yusop, Ismail and Hook (2013) studied the effects of sectoral foreign aid in 75 aid recipient countries for the period 1995-2009. Their findings indicate that FA in the economic sector reduced while multi-sectorial aid increased income inequality. Chong, Gradstein and Calderon (2009) examined the effect of foreign aid on income inequality for a cross-section of 176 countries for the period 1970-2002. They found weak empirical evidence of aid improving income distribution. Since most of the foreign aid to developing countries is spent on infrastructure creation and social capital formation such as education and health improvement for the poor, this finding is not surprising. As the authors correctly reasoned, corruption, poor institutions and misallocation might have neutralized the effectiveness of foreign aid, however.

Regarding the effect of trade on income inequality, the classic Stolper-Samuelson factor endowment trade model (1941) predicts that free trade will raise incomes of abundant factors and lower the incomes of scarce factors. Following this model, we can predict that international trade should increase wages of workers and thereby reduce income inequality. However, this is tricky for developing countries as the high wage earning labor in manufacturing sector is limited. Especially in the case of African countries, the existence of the labor aristocracy hypothesis (Waterman, 1975) posits that the income distribution situation will in fact worsen because international trade benefits only a small fraction of the labor force. This is in line with the observation made by Leamer (1994) that globalization and technological change in skill-intensive sectors produce a multiplicative

effect increasing income inequality in developing countries. Franco and Gerusi (2013) have summarized a set of important empirical studies on the effect of trade on income inequality. They find the empirical findings less homogenous as compared to the effect of FDI on income inequality.

Reuveny and Li (2003) studied the effects of democracy and openness on income inequality for a sample of 69 countries during the period from 1960 to 1996. The openness variable was measured by trade flows, FDI inflows, and financial capital inflows. Their findings indicated that democracy and trade reduced whereas FDI increased income inequality. However, their sample included both developed and developing countries.

In sum, we will test three specific hypotheses related to foreign economic resources and income inequality: skill-premium hypothesis related to FDI, social capital formation hypothesis related to FA and openness hypothesis related to international trade.

3. Model, Method and Data

We use the following equation to test the extent of positive or negative effects of FA and FDI on the Gini index:

$$\text{Gini} = f \text{(growth, foreign capital, and trade)} \qquad (1)$$

where Gini is the measure of income inequality; growth is growth rate of gross domestic product (Growth); foreign capital has two components namely, foreign aid (FA) and foreign direct investment (FDI); and trade has two components—exports (EXP) and imports (IMP). Except for growth rate of GDP, all foreign capital and trade variables are expressed as a ratio of GDP.

Assuming linearity, Equation (1) can be written as:

$$\text{Gini} = a + b_1 \text{Growth} + b_2 \text{FA} + b_3 \text{FDI} + b_4 \text{OPEN} + e \qquad (2)$$

where b's are the coefficients of the respective variables, and e is the error term of the equation.

Income inequality is operationalized in a number of ways, and a number of indices such as Gini coefficient, Atkinson index, coefficient of variation, decile ratios, and Generalized Entropy (GE) index are available for empirical purpose. However, the most widely used measure is the Gini coefficient (De Maio, 2006). It measures the extent to which the income distribution in a country deviates from a hypothesized situation of perfect equality.

The value of Gini varies between 0 and 1, where the coefficient 0 indicates perfect equality and 1 perfect inequality. This is the dependent variable in our case.

Raw data required to compute input data related to gross domestic product (GDP), import, and export were taken from the *World Tables* published by the World Bank, complemented by data from the United Nations *Yearbook of National Statistics*. Data source for foreign direct investment and foreign aid is the publication of the United Nations Conference on Trade and Development (UNCTAD). Data for Gini Index were extracted from the *World Tables*, complemented by CIA's country Books. The data used in the study cover the period from 1970 to 2014. Availability of consistent, comparable time-series data for all the variables of interest restricted the selection of countries.

We estimated Equation (2), using an ordinary least squares technique. The data used are annual averages for the period 1970-2014. Since the averages are over 45 years, it is assumed that year-over-year fluctuations in the data will have smoothened out.

4. Empirical Results

Descriptive statistics for the variables used in this study are presented in Table 1.

Table 1
Descriptive Statistics for Africa and America (South of the US)
(Only Countries with Available GINI)

	GINI(%)	GDPGR	FDIGDP	FAGDP	OPEN
Mean	45.2479	0.0839	0.0248	0.0704	0.6981
Standard Error	0.9192	0.0021	0.0033	0.0079	0.0376
Median	44.5000	0.0847	0.0190	0.0564	0.5964
Mode	42.8000	#N/A	0.0000	#N/A	#N/A
Standard Deviation	7.7450	0.0178	0.0276	0.0662	0.3164
Sample Variance	59.9845	0.0003	0.0008	0.0044	0.1001
Kurtosis	-0.0124	0.9467	21.7819	1.1470	0.5140
Skewness	0.3501	0.2013	3.8229	1.1842	0.8864
Range	33.5000	0.1029	0.2276	0.2866	1.4335
Minimum	30.8000	0.0418	-0.0302	0.0004	0.1916
Maximum	64.3000	0.1448	0.1974	0.2870	1.6251
Sum	3212.6000	5.9534	1.7637	4.9974	49.5644
Count	71	71	71	71	71

Empirical results obtained by estimating the model as specified in Equation #2 are presented in Table 2.

Table 2
Regression Results for Growth Rates of GDP
(t-statistics in parentheses)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	43.195	43.82	38.36	48.43	40.81
FDI/GDP	-77.11[***]	51.25	91.77[*]	-102.44[**]	-102.44[***]
	(2.11)	(1.428)	(1.84)	(2.51)	(2.65)
FA/GDP	-12.68	-9.35	3.27	30.01[*]	73.11[**]
	(0.89)	(0.57)	(0.16)	(1.60)	(2.26)
GDPGR	40.04	--	--	--	87.73
	(0.71)				(1.35)
Open	6.96[**]	--	10.42[**]	1.19	--
	(2.32)		(2.37)	(0.43)	
R^2	.088	.022	0.178	.196	.254
F	3.26	1.53	2.262	2.96	3.73
N	71	71	46	25	25

[*]Significantly different from zero at 10% level
[**]Significantly different from zero at 05% level
[***]Significantly different from zero at 01% level

The regression results presented in Table 2 convey a picture of complex relationship between FDI and income inequality. The coefficients of FDI are positive and significantly different from zero in model 3. This means FDI inflows increase incomes inequality. This is the case for African sample. However, we notice exactly the opposite with respect to signs of the coefficients of FDI in models 4 and 5. These are the regression results for the South American

sample. FDI seems to have contributed towards reducing income inequality in this case. Putting these results together, we may say that these findings provide support to the famous inverted U-curve hypothesis postulated by Kutznets, where income distribution increases in the early stage of economic development and starts to decrease as the economic development begins to take off. Since there are significant structural differences between these two regions, foreign capital resources may have influenced the nature and extent of income distribution situation differently. Furthermore, the wage premium commanded by workers working for enterprises affiliated to multinational corporations in African countries may be higher than in South American countries due to the presence of labor aristocracy in the former.

With respect to the effect of FA on income inequality, stages of development seem to matter a lot. The coefficients of this variable are positive and statistically significantly different from zero in models one (total sample) and three (African sample). But they are not significant in model four (South American sample). Apparently, FA is not helping to reduce income inequality in both cases. These results are in line with the conclusion arrived at by Chong, Gradstein and Calderon (2009). One could, of course, argue that the social capital enhancement activities of FA are not reflected in the reduction of income inequality yet as people empowered by the help of foreign aid in terms of education and health may not have realized returns on the social capital in the short run due to difficulties in the labor markets characterized by over supply.

Integration of the economies through trade seems to have exacerbated the income distribution situation. The estimated coefficients of the Openness variable are positive and significantly different from zero in model 1 and model 3. But this appears to have no effect for the South American sample. It is likely that since these countries have remained dependent on the multinational corporations for trade and investment for a long time, the effect of globalization might have dissipated.

5. Concluding Remarks

Income inequality is one of the critical issues in achieving human development. Our objective in this paper has been to examine the effects of foreign capital resources and globalization on this critical variable in specific reference to selected African and South American countries.

Income equality is important for economic growth as growth spells are longer in societies where income is distributed more equally (Berg, Ostry and Zettelmeyer, 2012). It also has consequences for social stability and peace because extreme inequality often leads to civil unrest and violence. Whether FDI and FA influence the income distribution situation in a host/recipient country is an important question. This paper has addressed this question by examining and analyzing data for a sample of 71 African and South American countries. The empirical findings indicate some support for the skill premium hypothesis as FDI seems to have contributed to increase the income inequality.

The paper makes two specific contributions to the literature on the effect of foreign capital on income inequality. First, we provide new empirical evidence from African and South American countries to bear on this issue. Amongst the scanty empirical literate on the effects of foreign capital on income inequality, empirical studies pertaining to these two regions of the world, especially Africa, are rare. Hence this study begins to fill the gap in this respect. Secondly, this study has used both foreign aid and foreign direct investment to explore differentiating the effects of different types of foreign capital resources. To the best of our knowledge, no study has used both variables to examine this differentiating effect so far.

Obviously, the study reported here has some limitations. Firstly, FDI can be distinguished by asset seeking vs. asset exploiting types. Each type may have a different effect on income inequality. We have not made that distinction in this paper. Secondly, governance structure and political system of a host/recipient country makes a difference in terms of efficacy of foreign aid and efficiency of FDI. Again, a political stability or democracy variable has not entered into the equation that we estimated. Thirdly, the effect of FDI on income inequality varies by the level of human capital development in host countries. Our model has not included this variable. Fourthly, regional variations due to structural differences in socio-economic infrastructure are bound to influence the nature and extent of the effects of FDI and FA on income inequality. This issue needs to be addressed in a future study in a more refined way as well. These limitations certainly open the door for more research on this important topic.

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List of countries

African Countries

1. Algeria	2. Liberia
3. Angola	4. Madagascar
5. Benin	6. Malawi
7. Botswana	8. Mali
9. Burkina Faso	10. Mauritania
11. Burundi	12. Mauritius
13. Cabo Verde	14. Morocco
15. Cameroon	16. Mozambique
17. CAR	18. Namibia
19. Chad	20. Niger
21. Comoros	22. Nigeria
23. Congo	24. Sao Tome & P
25. Côte d'Ivoire	26. Senegal
27. DRC	28. Seychelles
29. Djibouti	30. Sierra Leone
31. Egypt	32. South Africa
33. Gabon	34. Swaziland
35. Gambia	36. Togo
37. Ghana	38. Tunisia
39. Guinea	40. U.R. of Tanzania
41. Guinea-Bissau	42. Uganda
43. Kenya	44. Zambia
45. Lesotho	46. Zimbabwe

America (South of the USA)

1. Argentina	2. Honduras
3. Belize	4. Jamaica
5. Bolivia	6. Mexico
7. Brazil	8. Nicaragua
9. Chile	10. Panama
11. Colombia	12. . Paraguay
13. Costa Rica	14. Peru
15. Dominican R	16. Saint Lucia
17. Ecuador	18. Suriname
19. El Salvador	20. Trinidad and T
21. Guatemala	22. Uruguay
23. Guyana	24. Venezuela
25. Haiti	26.