

## **Foreign Aid and its Impact on Income Inequality**

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*The efficacy of foreign aid is questioned frequently. Foreign aid is alleged to have “ulterior motives” of promoting donors’ interests and perpetuating poverty. It is also accused of aggravating income inequality in recipient countries. We present the theoretical perspectives of foreign aid’s impact on income distribution and look for empirical evidence of such an alleged relationship in a panel of 94 countries over 20 years. The data, however, show evidence to the contrary that aid causes small reductions in inequality. The findings are similar to those in recent studies on the topic. We have also found that trade and the share of population under the age of 15 worsen inequality.*

**Field of Research:** Development Economics, International Finance.

### **1. Introduction**

Foreign aid is intended to assist with the growth of developing countries. Although foreign aid can be effective in promoting economic growth and reducing poverty, there are cases where aid has been wasted by recipients and donors alike. The existing literature focuses mostly on the effects of aid on growth (Banerjee & Rondinelli 2003; Boone 1997; Burnside & Dollar 2000; Easterly 2003; Quazi 2005; Rajan & Subramanian 2008). However, only a few studies have focused on the impact that aid has on income inequality (Bourguignon, Levin & Rosenblatt 2008; Bjørnskov 2009; Calderon, Chong & Gradstein 2009; Layton & Nielson 2009). While economic growth should benefit the economy as a whole, economic growth does not imply that income inequality will lessen. Furthermore, there have been considerable debates in recent times over the 'motives' of foreign aid and its effectiveness in development. Foreign aid, nowadays, is accused of aggravating income inequality which it is purposed to reduce in the first place.

A review of the existing literature on aid effectiveness and effect of inequality on growth leads us to believe that foreign aid exacerbates inequality. We believe it does so by abetting corruption, encouraging rent-seeking, aggravating unequal access to education, and serving to accentuate the political, social, and economic influence of the elite that serves donor’s political and commercial interests. Here the inflow of foreign aid may be exacerbating the existing inequality and even be contributing to perpetuation of poverty. In our research we seek to determine possible association between disbursement of foreign aid and income inequality of the recipient and whether income inequality is associated with other macroeconomic variables like GDP growth, inflation, and international trade.

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The literature review in the following builds the theoretical background for our study and points out the empirical findings in recent and past studies. Section 3 outlines the methodology and the sources of data used in this study. The fourth section contains a discussion and evaluation of the findings in this study. Concluding remarks and implications of this study is provided in the fifth section. References follow the fifth section and the final section, the Appendix, contains a list of the countries included in this research and tables summarizing the results of the regressions run and diagnostic tests carried out.

## 2. Literature Review

The core of the theoretical debate concerning aid is its effectiveness. The neoclassical school argues that aid can influence growth positively and their primary focus is on recipient countries' policies and accountability as a major determinant of aid effectiveness (Burnside & Dollar 2000). Foreign aid, according to others, represents political harm as recipients dependent on foreign aid must appear to be heeding donors' demands by undertaking, often lavish, projects and programs that are visible to donors (Banerjee & Rondinelli 2003). Aid funds are also very volatile and pro-cyclical in nature. This can have a cataclysmic effect on macroeconomic shocks and its volatility may contribute to the creation of output and poverty traps (Agénor & Aizenman 2010). Western aid lobbies are also culpable since they (in association with local elites) mismanage funds, ignore local knowledge regarding poverty alleviation, and continue to provide aid even after massive theft by corrupt politicians and bureaucrats takes place in recipient countries (Ayodele et al. 2005).

The empirical evidence, however, warrants skepticism. Studies have demonstrated the irrelevance of "good policy" to aid effectiveness (Boone 1997; Hansen & Tarp 2001). Foreign grants were also ineffective in augmenting growth in Bangladesh since they are used to finance non-productive civil expenditures (Quazi 2005). Other studies find no evidence of any effect of aid on growth (Easterly 2003; Easterly, Levin & Roodman 2004; Rajan & Subramanian 2008). The effectiveness of aid is seen to be substantially reduced by misuse of funds by powerful local elites (Angeles & Neanidis 2009). Donor conditionality may partly be blamed for inefficacy of foreign aid (Dalgaard 2008).

The relationship between growth and income inequality has been difficult to decipher. The Kuznets' inverted U-curve hints that income inequality will rise as the economy grows in the earlier stages of development and fall again when GDP per capita surpasses a certain amount (Kuznets 1955). However, it is argued that high income inequality may lead to reduced economic growth (Barro 2000; Figini 1999). Empirical analysis concludes that the impact of inequality on growth is negative (Bénabou 1996; Deininger & Squire 1998; Panizza 2002; Banerjee & Duflo 2003).

Foreign aid and inequality have hitherto been attributed to be associated with many undesirable effects. However, few studies have been performed on foreign aid's impact

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on inequality and vice-versa. Changes in inequality, however, are not solely the result of receipt of foreign aid. This discussion begins with the political stream.

Firstly, in a developing country like Bangladesh, a large share of the economy is underground or informal and employs a lion's share of the labor force. Democracies are often biased against such informal or underground economies and thus do not undertake programs and projects that favor this 'enclave economy.' Moreover, money from foreign donors reduces the need for these regimes to rely on internal revenue. Thus, governments will focus on appeasing donors and local elites while the poor for whom the aid is intended are overlooked. Inflow of foreign currency as aid can also trigger the Dutch Disease which hurts growth and employment. Effort by donors to monitor the use of their funds undermines the authority of recipients to decide for themselves the policies that are best for them. Nevertheless, foreign aid's impact in autocracies tends to be pro-poor and possibly equality enhancing. Democracy is also thought to adversely affect inequality (Layton & Nielson 2009).

Secondly, the structuralist stream explains the changes in distribution of income in the US using the SBTC (skill-based technical change) argument (Aghion 2002; Lindsey 2009). This theory states that the rapid progression of technology has led to a soaring demand for highly skilled professionals which is only met with lagging supply. In addition the increase in internationalization (or Globalization) of developing economies is a possible reason for changes in inequality (Layton & Nielson 2009; Alderson & Nielsen 1999; Evans & Timberlake 1980; Reuveny & Li 2003). The intuition behind their logic is simple, the economy tends to produce more of the goods and services it has comparative advantage in, thus only augmenting incomes of those involved in international trade.

The third stream of literature regarding dynamics of inequality concerns the aggregate economy. This school argues that macroeconomic development causes increase in inequality relative to increase in per capita income up to a critical point assuming that Kuznets curve holds true in all countries (Layton & Nielson 2009). Similarly, minimum wage is believed to increase unemployment, and unemployment's negative relationship with GDP growth (Dornbusch, Fischer & Startz 2004) is well known. Unemployment itself, as well as through reduced growth, can contribute to inequality.

The final stream attributes changes in inequality to the changes in demographics. Differential fertility, population aging, share of youth population of total, education, ethnic diversity, percentage of population employed in the informal sector, and even immigration play substantial roles in increasing inequality. Moreover, inter-generational disparity between the top and bottom income groups widens as the population ages. This theory conforms to the SBTC (skill-based technical change) to some extent but also stresses the significance of differential access to education. Growth in youth population, ethnic diversity, immigration, and growth of the informal sector or

underground economy may all play roles in exacerbating inequality (Aghion 2002; Layton & Nielson 2009).

So how can foreign aid affect inequality? Aid increases the amount of resources the recipient government has at hand (Boone 1997; Collier & Dollar 2004). Aid deteriorates governance since a less “resource-constrained” has reduced interest in being accountable to the local population (Rajan & Subramanian 2007). Aid funds can not only diminish democracy but funds may not even reach their intended purpose (helping the poor). As a matter of fact, these funds are sometimes embezzled and expended by the local elite in association with governing people (Drazen 2000). Examples of such incidents include Zaire under Mobutu Sese Seko, Indonesia under Suharto, the Philippines under Marcos, Zimbabwe under Robert Mugabe etc (Bjørnskov 2009). All political systems are believed to favor high-income political elite (Boone 1997) and as such foreign aid would mean more funds for governing people and the local elite to misappropriate. Aid can be used to maintain and augment existing disparities in income and political clout. Therefore, we deduce that aid has adverse effects on inequality and growth for that matter when it is ineffective due to political misdemeanor.

Until now, only a few empirical studies have been performed on foreign aid’s impact on inequality. Half of the studies find aid to be “equality enhancing” (Bourguignon, Levin & Rosenblatt 2008; Calderon, Chong & Gradstein 2009). Nevertheless, the undoing of foreign aid’s benefits through trade barriers restricting access to markets in developed countries is also discovered (Bourguignon, Levin & Rosenblatt 2008). Foreign aid is found to improve income distribution in the presence of good institutions (Calderon, Chong & Gradstein 2009). Two studies, on the other hand, find a negative relationship (Bjørnskov 2009; Layton & Nielson 2009) but the relationship to be robust in one of the cases. Although the other study produces somewhat inconclusive results, they find a robust “zero to positive” correlation between aid and inequality (Layton & Nielson 2009). It is also found that aid deteriorates the current period’s inequality more than inequality in the following period or later. Foreign aid in conjunction with democracy culminates in accentuating income held by the top quintile. In autocracies, however, such an impact of aid is negligible (Bjørnskov 2009). Thus, economists are equally divided in their assessment of the impact of foreign aid on recipients’ income inequality.

### 3. Methodology

The dependent variable in our model is inequality measured as GINI coefficient. The independent variables in the model are ODA growth rate, corruption, agricultural employment as percentage of total, GDP per capita, growth rate, inflation, percentage of total population that is aged 0-14, and net trade growth rate. The model is illustrated below:

$$\text{GINI}_{it} = \beta_0 + \beta_1[\text{ODA growth rate}]_{it} + \beta_2[\text{Corruption perceptions index}]_{it} + \beta_3[\text{Agricultural employment}]_{it} + \beta_4[\text{GDP per capita growth rate}]_{it} + \beta_5[\text{Inflation}]_{it} + \beta_6[\text{Population aged 0-14}]_{it} + \beta_7[\text{Net trade growth rate}]_{it} + u_{it}$$

$t = 1989, \dots, 2008$

$i = \text{Albania, } \dots, \text{Zambia}$

### 3.1 Method for Data Collection

Data on GINI is sourced from the Standardized World Income Inequality Database (SWIID), Version 3.0 (Solt 2009). SWIID interpolates the missing data that is available from the World Income Inequality Database (WIID). We are using the GINI index calculated from the gross income. Net ODA growth rate is used as a measure for aid. We have calculated ODA growth rate from data on 'Net official development assistance and official aid received (constant 2007 US\$)' obtained from the World Bank Development Indicators (World Bank 2010). Corruption data is taken from Transparency International's annual Corruption Perceptions Index (CPI) (Transparency International 2009). This index is on an inverted scale and as such a lower number means a country is more corrupt than a country with a higher one. For agricultural employment we have gathered the 'employment in agriculture' (% of total employment), variables GDP growth rate, inflation, and population aged 0-14 are in percentage and all sourced from the World Bank's databank. The final variable 'net trade growth rate' is calculated from the net trade in goods and services (BoP, current US\$) index provided by the World Bank. Hence, all the variables except corruption index are in percentage. Since GINI index is a ratio, running regression on a ratio like GINI with a dollar unit like ODA and GDP per capita may lead to biased results. This reduces specification bias and ensures dimensional homogeneity in the model.

Data on the variables mentioned above are annual and taken from 94 developing countries from Africa, Latin America, the Caribbean, Eastern-Europe, and Asia over a period of twenty years that spans from 1989 to 2008. Countries are chosen on the basis of availability of data regarding foreign aid and income inequality. Any country with fewer than 10 observations (50% of total time span) in both ODA and foreign aid is excluded from the analysis. The sampling method is, therefore, a purposive one and the list of the countries included in this study is provided in the appendix. Table 1 shows the summary of the entire dataset.

**Table 1: Summary of Data**

Variable	Obs	Mean	Std. Dev.	Median	Min	Max
GINI Index (Gross)	1551	44.81	8.34	44.57	20.49	71.66
Net ODA Growth Rate	1801	20.81	558.28	-0.39	-14742.86	12100
Corruption Perceptions Index	854	3.43	1.54	3	0.4	9.4
Employment in Agriculture (% of Total Employment)	841	26.58	19.91	21.8	0	89.3
GDP Per Capita Growth (Annual %)	1841	2.15	5.86	2.56	-44.15	90.47
Inflation, Consumer Prices (Annual %)	1660	40.34	291.36	7.64	-9.62	7481.66
Population Ages 0-14 (% of Total)	1880	36	8.42	37.49	12.57	51.92
Net Trade Growth Rate	1640	-63.24	2338.59	7.41	-88513.47	5874.76

ODA growth rate, GDP per capita growth rate, inflation, and trade growth rate are quite volatile with wide variations between the maximum and the minimum. Other variables have narrower range and are quite stable. Variables with the most number of observations are population aged 0-14 followed by GDP per capita growth rate. Very few observations are available in corruption and agricultural employment. A sub-sample is also taken from the sample which includes South Asian countries such as Bangladesh, India, Nepal, Pakistan and Sri Lanka. Our study has a particular focus on this region.

### 3.2 Method for Data Analysis

We are conducting panel analysis involving either a random or a fixed effects model (Layton & Nielson 2009). Various tests are also conducted that include unit-root test and Lagrange multiplier test for random effects. First we run the panel regressions with standard errors and then with robust standard errors to ensure that heteroscedasticity is not exerting a substantial impact on the results. We are using the statistical software package Stata® for running the regressions

### 4. Discussion of Findings

Our research is quantitatively determining the possible correlation between inequality and foreign aid. The relationship between foreign aid and income inequality is negative when the regressions are carried out on the entire sample. This relationship is statistically significant both in random effects and fixed effects model when robust standard errors are used. It is also worth mentioning that the level and the first lag of ODA growth have significant correlation with GINI and has a slightly bigger coefficient than ODA at level. In contrast, the second lag of ODA fails to show a significant relationship in either model.

**Table 2: Results of Random Effects Model – Entire Sample**

Number of Observations = 386		R-squared: Within = 0.1142
Number of Countries = 61		Between = 0.0562
		Overall = 0.1159
<b>Variable</b>	<b>Coefficients</b>	
<b>GINI</b>	<b>Random Effects with SE</b>	<b>Random Effects with RSE</b>
ODA Growth Rate	-0.000064 (0.000153)	-0.000064 (0.0000204)***
Corruption	0.4394427 (0.2793739)	0.4394427 (0.4272097)
Agricultural Employment	-0.0160084 (0.0202892)	-0.0160084 (0.0265744)
GDP Growth Rate	-0.0724654 (0.034205)**	-0.0724654 (0.0498116)
Inflation	-0.0074653 (0.0126232)	-0.0074653 (0.0178884)
Population aged 0-14	0.3932224 (0.0734921)***	0.3932224 (0.1519752)***
Trade Growth Rate	0.0000251 (0.0000254)	0.0000251 (0.0000254)

SE is Standard Error and RSE is Robust Standard Error. \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%. Standard errors and robust standard errors in parentheses.

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The South Asian sub-sample, however, generates ambiguity as the fixed effects model gives a positive relationship between aid and inequality at level and second lag. On the other hand, the random effects model and the fixed effects model with the first lag of aid produces a negative correlation between aid and GINI. Unfortunately, the South Asian sub-sample does not follow a random effects model. As a result, we don't find the hypothesis to be acceptable in the entire sample while a degree of ambiguity prevails in the sub-sample of South Asia. The overall  $R^2$  for South Asia are significantly higher than those for the entire sample.

**Table 3: Results of Fixed Effects Model – South Asia**

Number of Observations = 13		R-squared: Within = 0.9917
Number of Countries = 3		Between = 0.8247
		Overall = 0.6332
<b>Variable</b>	<b>Coefficients</b>	
<b>GINI</b>	<b>Fixed Effects with SE</b>	<b>Fixed Effects with RSE</b>
ODA Growth Rate	-0.0060345 (0.0018008)**	-0.0060345 (0.0000827)***
Corruption	1.245815 (0.1730057)***	1.245815 (0.0414466)***
Agricultural Employment	-0.2334559 (0.0591858)**	-0.2334559 (0.0091485)***
GDP Growth Rate	0.93433722 (0.0895649)***	0.93433722 (0.0136914)***
Inflation	-0.0361898 (0.0257418)	-0.0361898 (0.0020462)***
Population aged 0-14	1.143404 (0.15132)***	1.143404 (0.0138627)***
Trade Growth Rate	-0.0005735 (0.0001794)**	-0.0005735 (5.69e-06)***

SE is Standard Error and RSE is Robust Standard Error. \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%. Standard errors and robust standard errors in parentheses.

Therefore, it is concluded that aid actually reduces income inequality in recipient countries since most of the coefficients are negative and quite a few of which are statistically significant. Although, the equalizing effect is small, it is present and robust in many cases. This is probably due to better targeting of aid and increased accountability on both sides of donors and recipients. We also find that the previous year's aid affects the current year's inequality more than the current year's aid. In addition, aid from two years back has little or no impact on this year's GINI.

Our study answers a few other questions outlined earlier. Firstly, we find trade to aggravate income inequality. Having said that, trade is found to be equality enhancing in South Asia. This probably follows the trend of increasing investment in human capital by people of the Sub-continent.

Secondly, we find 'population aged 0-14' to increase income inequality. This variable is significant in almost every model with or without robust standard errors. Its coefficients are usually some of the largest in the models. The intuition behind this is simple, the population aged 0-14 are either unemployed, underemployed or employed in low-skilled, low-paid sweatshops. Those working in low-paid jobs also represent low-income household who cannot afford education for their children and may even rely on their

income for that matter. Ultimately, the bigger this population is the higher the income inequality.

Thirdly, we find a negative relationship between GDP growth rate and income inequality. Although the Kuznets inverted-U hypothesis is more complicated than the scope of this research, we do not find higher GDP growth going along with higher GINI coefficients. Nevertheless, GDP growth has a largely positive association with GINI coefficient, especially in South Asian countries. This is intriguing because it might be an indication that Kuznets hypothesis is at work and that growth is not being pro-poor.

Finally, there are some results unique to South Asia, some of which are contrary to those found in result from the entire sample. Our analysis reveals corruption improves equality in South Asia. Although, corruption took a positive and insignificant coefficient with GINI in the entire sample, its negative coefficient is significant only in the fixed effects models in South Asia. This is counter-intuitive since corruption is believed to effect skewing of income distribution. However, corruption is thought to have some beneficial effects as it may lead to economic efficiency “as a part of Coasian bargaining process” (Bardhan 1997). Corruption may be a process by which government funds are directed towards the poor. We have also discovered that employment in agriculture reduces inequality. This negative relationship between inequality and agricultural employment is significant in the fixed effects models. The impact of inflation on income is somewhat ambiguous. Inflation increases inequality in the random effects model but reduces inequality in the fixed effects model.

## 5. Conclusion

The hypothesis being rejected elicits a feeling of relief knowing that aid is effective, albeit to such a small effect, and that aid actually reduces inequality. These findings debase the allegations of 'ulterior motives' of aid for that matter. Our findings are consistent with findings obtained by two earlier studies (Bourguignon, Levin & Rosenblatt 2008; Calderon, Chong & Gradstein 2009) and a contrast to the two other studies (Bjørnskov 2009; Layton & Nielson 2009). We also contradict the findings that the current year's aid has a bigger effect than what the previous year's aid has on the current year's inequality. Aid can be effective even in the face of rampant corruption. In fact, our finding that corruption in South Asia may actually help reduce inequality is intriguing. It is also worthwhile to note that the sub-continent has managed to attain high growth rates despite having some of the most corrupt countries on earth. Our belief is that it is a part of development where initially corrupt governments may actually benefit the transition into an industrial economy by cutting the “red tape” of bureaucracy.

The other findings are of paramount importance as well. The fact that trade causes income distribution to be more skewed is of grave concern in an increasingly globalized world. There is a pressing need for trade to be fair and beneficial for the world's poor. Developed countries must remove tariff and non-tariff barriers against developing



countries' exports. It is also necessary to put an end to all agricultural subsidies in developed countries that harm millions of poor farmers worldwide.

Another worrying issue is the role of population; especially the population that is young and dependent (ages 0-14). Our study indicates that population belonging to this age-group has a substantial impact on inequality. Population has become a serious concern with the global population topping seven billion. Recent incidents in the food markets including price hikes in staples and subsequent riots around the globe pose a serious threat to food security and that of national security. It is imperative that developing country administrations focus on population control to ensure social cohesion, justice, optimum economic growth, and safety for its citizens.

Agriculture's role in the economy diminishes as the economy grows. However, we find that agricultural employment has a negative relationship with GINI coefficient. So, developing countries must be careful to avoid large-scale inequality increases as a result of transition from an agrarian to an industrialized economy. This can be eschewed by ensuring equitable growth through appropriate policies. These policies may include equitable and easy access to education, healthcare, political dialogue, and social security.

### **5.1. Limitations of This Study**

- i. A major limitation of the study is the non-inclusion of inequality between males and females. According to the UNDP women make up some 70% of the World's poor (UNDP 1995). There is a growing divide between the changes in male and female representations in poverty where poverty in rural men rose by 20% and that of rural women rose by 48% (Power 1993). The impact foreign aid has on growing this divide between males and females is not tested in the study.
- ii. Many of the small and Island countries are left out due to inadequate availability of data.
- iii. Corruption data by Transparency International do not span the 20 year period of the study and gaps remain in this variable.
- iv. An additional variable 'Labor Force with Tertiary Education' is not included in the model due to insufficient availability of data.

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## **Appendix**

### **A) List of Countries Included in Research**

Countries with \* are Least Developed Countries (LDCs)

- |                            |                     |                             |
|----------------------------|---------------------|-----------------------------|
| 1. Albania                 | 33. Ghana           | 65. Nepal*                  |
| 2. Algeria                 | 34. Guatemala       | 66. Nicaragua               |
| 3. Argentina               | 35. Guinea*         | 67. Niger*                  |
| 4. Armenia                 | 36. Guinea-Bissau*  | 68. Nigeria                 |
| 5. Azerbaijan              | 37. Haiti*          | 69. Pakistan                |
| 6. Bahamas, The            | 38. Honduras        | 70. Panama                  |
| 7. Bangladesh*             | 39. Hong Kong       | 71. Papua New Guinea        |
| 8. Belarus                 | 40. India           | 72. Paraguay                |
| 9. Bolivia                 | 41. Indonesia       | 73. Peru                    |
| 10. Bosnia and Herzegovina | 42. Iran            | 74. Philippines             |
| 11. Botswana               | 43. Israel          | 75. Senegal*                |
| 12. Brazil                 | 44. Jamaica         | 76. Sierra Leone*           |
| 13. Burkina Faso*          | 45. Jordan          | 77. Singapore               |
| 14. Burundi*               | 46. Kazakhstan      | 78. South Africa            |
| 15. Cambodia*              | 47. Kenya           | 79. Sri Lanka               |
| 16. Cameroon               | 48. Korea, Rep.     | 80. Swaziland               |
| 17. Cape Verde             | 49. Kyrgyz Republic | 81. Tajikistan              |
| 18. Chile                  | 50. Lao PDR*        | 82. Tanzania*               |
| 19. China                  | 51. Lesotho*        | 83. Thailand                |
| 20. Colombia               | 52. Macedonia       | 84. Trinidad & Tobago       |
| 21. Costa Rica             | 53. Madagascar*     | 85. Tunisia                 |
| 22. Cote d'Ivoire          | 54. Malawi*         | 86. Turkey                  |
| 23. Croatia                | 55. Malaysia        | 87. Turkmenistan            |
| 24. Cyprus                 | 56. Mali            | 88. Uganda*                 |
| 25. Djibouti*              | 57. Mauritania*     | 89. Uruguay                 |
| 26. Dominican Republic     | 58. Mauritius       | 90. Uzbekistan              |
| 27. Ecuador                | 59. Mexico          | 91. Venezuela               |
| 28. Egypt                  | 60. Moldova         | 92. Vietnam                 |
| 29. El Salvador*           | 61. Mongolia        | 93. Yemen Republic*         |
| 30. Ethiopia               | 62. Morocco         | 94. <a href="#">Zambia*</a> |
| 31. Gambia                 | 63. Mozambique*     |                             |
| 32. Georgia                | 64. Namibia         |                             |

**B) Selected Regression Results**

SE is Standard Error and RSE is Robust Standard Error. \*Significant at 10%; \*\*Significant at 5%; \*\*\*Significant at 1%. Standard errors and robust standard errors in parentheses.

**Table 1: Results of Random-effects Model – Entire Sample, ODA Lag 1**

Number of Observations = 390		R-squared: Within = 0.1105
Number of Countries = 61		Between = 0.0562
		Overall = 0.1122
<b>Variable</b>	<b>Coefficients</b>	
<b>GINI</b>	<b>Random Effects with SE</b>	<b>Random Effects with RSE</b>
ODA Growth Lag 1	-0.0000781 (0.000153)	-0.0000781 (0.0000305)***
Corruption	0.4442954 (0.2761105)	0.4442954 (0.4265297)
Agricultural Employment	-0.0159102 (0.0202395)	-0.0159102 (0.0265144)
GDP Growth Rate	-0.713196 (0.0341365)**	-0.713196 (0.0499184)
Inflation	-0.0069838 (0.0125818)	-0.0069838 (0.0179069)
Population aged 0-14	0.3862708 (0.0730847)***	0.3862708 (0.1520244)***
Trade Growth Rate	0.0000247 (0.0000254)	0.0000247 (9.11e-06)***

**Table 2: Results of Random-effects Model - Entire Sample, ODA Lag 2**

Number of Observations = 394		R-squared: Within = 0.1009
Number of Countries = 61		Between = 0.0604
		Overall = 0.1135
<b>Variable</b>	<b>Coefficients</b>	
<b>GINI</b>	<b>Random Effects with SE</b>	<b>Random Effects with RSE</b>
ODA Growth Lag 2	-0.0000873 (0.0001523)	-0.0000873 (0.0000533)*
Corruption	0.4791572 (0.2749378)*	0.4791572 (0.4291572)
Agricultural Employment	-0.0151986 (0.0202633)	-0.0151986 (0.0263835)
GDP Growth Rate	-0.06915 (0.0341788)**	-0.06915 (0.0058001)
Inflation	-0.0058001 (0.0125935)	-0.0058001 (0.0179688)
Population aged 0-14	0.3676525 (0.075835)***	0.3676525 (0.1515574)**
Trade Growth Rate	0.0000242 (0.0000254)	0.0000242 (9.11e-06)

**Table 3: Results of Fixed-effects Model – South Asia, ODA Lag 1**

Number of Observations = 13		R-squared: Within = 0.9660
Number of Countries = 3		Between = 0.9230
		Overall = 0.6478
<b>Variable</b>	<b>Coefficients</b>	
<b>GINI</b>	<b>Fixed Effects with SE</b>	<b>Fixed Effects with RSE</b>
ODA Growth Lag 1	-0.0014713 (0.0021693)	-0.0014713 (0.002993)**
Corruption	0.9028826 (0.2682937)**	0.9028826 (0.0380653)***
Agricultural Employment	-0.0813895 (0.0663306)	-0.0813895 (0.0137075)**
GDP Growth Rate	0.6841244 (0.092148)***	0.6841244 (0.0029734)***
Inflation	-0.014965 (0.0528614)	-0.014965 (0.0021867)**
Population aged 0-14	0.7209302 (0.1493298)**	0.7209302 (0.0010811)***
Trade Growth Rate	-0.0004485 (0.00037)	-0.0004485 (0.000052)***

**Table 4: Results of Fixed-effects Model - South Asia, ODA Lag 2**

Number of Observations = 13		R-squared: Within = 0.9643
Number of Countries = 3		Between = 0.9488
		Overall = 0.6420
<b>Variable</b>	<b>Coefficients</b>	
<b>GINI</b>	<b>Fixed Effects with SE</b>	<b>Fixed Effects with RSE</b>
ODA Growth Lag 2	0.0011283 (0.0020786)	0.0011283 (0.000222)**
Corruption	0.8672618 (0.2654356)**	0.8672618 (0.113695)***
Agricultural Employment	-0.0355171 (0.0754995)	-0.0355171 (0.0064869)**
GDP Growth Rate	0.6469311 (0.1061664)***	0.6469311 (0.109518)***
Inflation	0.0246402 (0.0639791)	0.0246402 (0.0106996)
Population aged 0-14	0.638748 (0.1818679)**	0.638748 (0.0225098)***
Trade Growth Rate	-0.000339 (0.0003444)	-0.000339 (0.0000288)***

**Table 5: Breusch and Pagan Lagrange Multiplier Test for Random Effects – Entire Sample**

xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

$$\text{gini}[\text{cn},t] = Xb + u[\text{cn}] + e[\text{cn},t]$$

Estimated results:

	Var	sd = sqrt(Var)
gini	64.38492	8.024021
e	4.41673	2.101602
u	54.72472	7.397616

Test:  $\text{Var}(u) = 0$   
 $\text{chi2}(1) = 833.93$   
 $\text{Prob} > \text{chi2} = 0.0000$

**Table 6: Breusch and Pagan Lagrange Multiplier Test for Random Effects – South Asia**

xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

$$\text{gini}[\text{cn},t] = Xb + u[\text{cn}] + e[\text{cn},t]$$

Estimated results:

	Var	sd = sqrt(Var)
gini	26.34374	5.132615
e	.0253079	.1590847
u	0	0

Test:  $\text{Var}(u) = 0$   
 $\text{chi2}(1) = 0.59$   
 $\text{Prob} > \text{chi2} = 0.4440$