**Is foreign aid an effective tool for growing a developing country’s economy?**

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**Abstract**

In 2001, World Bank President James Wolfensohn talked about how "we" must act to achieve the goal of "ensuring a beneficial globalization" by doubling foreign aid. In 2002, President George W. Bush announced an increase in foreign aid spending and stated "We must include every African, every Asian, every Latin American, every Muslim, in an expanding circle of development". In almost no other field of economics do experts and politicians promise such large welfare benefits as "we" do in aid and growth. This however begs the question, “How efficient is foreign aid at growing an economy?”.

**Introduction**

Every year, MDCs and other charity groups spend billions of US dollars to send foreign aid to developing countries. These groups intend to use foreign aid as an economic stimulus to help LDCs develop more rapidly in order to equalize the disparity in wealth. However, just how effective is foreign aid at improving a countries GDP growth? The research goal of this paper is to discover the effect of foreign aid on the recipient country’s GDP growth rate.

Previous instances of literature have found no statistically significant link between foreign aid and GDP growth, however the amount of aid committed each year continues to grow. This paper aims to use new data to validate the findings of previous literature. To discover whether results in previous literature still apply or were only consequences of the socioeconomic environment of the time.

**Historical Literature**

This paper primarily looks upon the paper William Easterly 2003 “Can Foreign Aid Buy Growth”[3]. Within this paper, the author looks at data from the late 1970’s to late 1990’s. The author concluded that there was not enough macroeconomic evidence to support any claims of foreign aid improving a country’s growth.

**Data**

**Raw Data Source**

To answer our question, we gathered data regarding the amount of aid a country’s receives and their GDP. Data regarding GDP was sourced from The World Bank[2] and foreign aid data from the AidData database [1].

**Data Manipulation**

To answer our question, we will regress the amount of aid received by a country in a certain year on its GDP growth that year. The selected sample countries will be intentionally spread to have various economic and geographical environments to provide a more comprehensive result. However, the raw data is organized in a manner that makes immediate regression analysis impossible. We are thus required to process the data and form a panel data set.

**Variable Generation**

Every instance of foreign aid received is denoted as one of 9 different groups or dummy variables. These dummy variables are food aid, supply aid, health aid, administration aid, education aid, infrastructure aid, economic aid, welfare aid, and war aid. The groups are decided based on the declared purpose for each instance of aid (exact groupings can be found in the appendix). Each of the dummy variables are then summed together to form explanatory variables for each year. We thus regress GDP growth rate against each of the nine explanatory aid variables under three different models, pooling, fixed effect and random effect over a period of 12 years (2002 – 2014).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Dependent Variable: GDP1 | | |
|  | Pooling | Fixed Effect | Random Effect |
| *FoodAid* | 5.035e-11 | 5.340e-11 | 5.055e-11 |
|  | (2.266e-11) | (2.250e-11) | (2.278e-11) |
| *SupplyAid* | 6.606e-11 | 6.112e-11 | 6.669e-11 |
|  | (3.703e-11) | (3.683e-11) | (3.717e-11) |
| *Health Aid* | 1.913e-11 | 1.849e-11 | 1.881e-11 |
|  | (1.446e-11) | (1.445e-11) | (1.452e-11) |
| *AdminAid* | -5.944e-12 | -7.068e-12 | -5.764e-12 |
|  | (2.124e-11) | (2.122e-11) | (2.124e-11) |
| *EducAid* | 1.3894e-11 | 1.2560e-11 | 1.3798e-11 |
|  | (2.202e-11) | (2.170e-11) | (2.207e-11) |
| *InfraAid* | 2.506e-12 | 3.219e-12 | 2.523e-12 |
|  | (4.833e-12) | (4.782e-12) | (4.854e-12) |
| *EconAid* | -2.748e-13 | 3.007e-13 | -2.770e-13 |
|  | (1.258e-12) | (1.252e-12) | (1.257e-12) |
| *WelfareAid* | 3.280e-11 | 3.696e-11 | 3.264e-11 |
|  | (2.267e-11) | (2.256e-11) | (2.269e-11) |
| *WarAid* | -7.256e-11 | -7.830e-11 | -7.270e-11 |
|  | (6.576e-11) | (6.539e-11) | (6.582e-11) |
| *Adj. R2* | 0.064 | 0.033 | 0.063 |
| *DF* | 278 | 267 | 278 |
| Observations | 288 | 288 | 288 |

**Table 1**

|  |  |  |
| --- | --- | --- |
|  | Hausman Test: FE vs RE |  |
| Chisq | df | p-value |
| 13.826 | 9 | 0.1287 |

**Table 2**

**Empirical Analysis**

With the Hausman Test, we fail to reject the null hypothesis. Both the fixed effect and random effect models are consistent. As the fixed effect is more efficient (has a marginally smaller standard error), we shall take fixed effect as the best model to explain our data.

Almost all of the variables are statistically insignificant. The only exception is EconAid passing a significance level of 10%. This suggests that aid directed at developing a country’s economy has a noticeable effect on the country’s GDP growth. However, most of the estimators have standard errors greater than 50% of the coefficient value and thus are unreliable. Even if we were to ignore the unreliability, the estimator coefficients suggest that nearly a trillion 2010 US dollars in foreign aid would be required to raise GDP growth by a 1%. This suggests that the effects of aid are small likely impossible to differentiate from statistical noise.

These claims can be further supported upon analyzing the R squared value. As we can see in table 1, the adjusted R squared is very small with a value of barely 0.033. Based on our current model, only 3% of the change in a country’s yearly GDP growth rate can be attributed the foreign aid.

These results mirror those found in previous literature. There is a significant lack of evidence in support of a link between foreign aid and economic growth. Foreign aid, regardless of where it is directed, has little to no effect on the growth rate of a country’s GDP.

**Further Analysis**

Within this dataset we are mixing many different countries with different economic and political environments. To further test the consistency of the results we divide the data set into three different geographical regions. This will also test if the EconAid estimator is truly statistically significance. We segment the data into three different groups (Africa, Asia and The Middle East) and run the regression again.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Dependent Variable: GDP1 | | | | | | | | |
|  | Asia | | | Middle East | | | Africa | | |
|  | Pooling | Fixed Effect | Random Effect | Pooling | Fixed Effect | Random Effect | Pooling | Fixed Effect | Random Effect |
| *FoodAid* | -2.676e-11 | -7.837e-11 | -1.379e-10 | 3.047e-11 | 2.288e-11 | 1.044e-10 | 3.326e-11 | 3.952e-11 | 3.461e-11 |
|  | (1.005e-10) | (9.520e-11) | (1.135e-10) | (7.223e-11) | (7.480e-11) | (8.669e-11) | (2.882e-11) | (2.940e-11) | (2.804e-11) |
| *SupplyAid* | 1.314e-11 | -3.058e-11 | 2.376e-11 | -2.010e-11 | -1.854e-11 | 6.601e-12 | 6.541e-11 | 8.071e-11 | 3.826e-11 |
|  | (4.264e-11) | (4.555e-11) | (4.124e-11) | (6.064e-11) | (6.107e-11) | (7.017e-11) | (1.319e-10) | (1.343e-10) | (1.304e-10) |
| *Health Aid* | 9.414e-12 | 5.544e-12 | -1.711e-11 | 1.334e-11 | -2.134e-11 | 2.583e-11 | 5.338e-12 | 4.149e-12 | 1.100e-11 |
|  | (1.294e-11) | (1.196e-11) | (1.487e-11) | (8.048e-11) | (8.867e-11) | (8.015e-11) | (1.983e-11) | (2.048e-11) | (1.915e-11) |
| *AdminAid* | -2.263e-11 | -1.682e-11 | -1.995e-11 | -2.835e-11 | -3.066e-11 | -2.165e-11 | 1.204e-11 | 4.065e-11 | 4.602e-12 |
|  | (1.789e-11) | (1.650e-11) | (1.610e-11) | (2.512e-11) | (2.666e-11) | (2.874e-11) | (6.280e-11) | (6.652e-11) | (6.245e-11) |
| *EducAid* | 2.249e-12 | 1.750e-11 | 8.483e-12 | -6.273e-11 | -3.451e-11 | -6.077e-11 | 7.597e-11 | 4.898e-11 | 8.258e-11 |
|  | (1.618e-11) | (1.484e-11) | (1.474e-11) | (6.193e-11) | (6.683e-11) | (6.906e-11) | (5.333e-11) | (5.446e-11) | (5.256e-11) |
| *InfraAid* | 3.613e-12 | 5.355e-12 | -5.458e-12 | -1.073e-11 | -1.180e-11 | -4.969e-12 | 5.843e-12 | 3.561e-12 | 5.529e-12 |
|  | (3.343e-12) | (3.147e-12) | (5.141e-12) | (2.303e-11) | (2.429e-11) | (2.309e-11) | (1.154e-11) | (1.195e-11) | (1.164e-11) |
| *EconAid* | 4.384e-12 | -2.315e-12 | 4.404e-12 | 5.686e-13 | 2.277e-12 | 1.089e-12 | 3.171e-11 | 3.545e-11 | 3.373e-11 |
|  | (5.138e-12) | (5.244e-12) | (4.734e-12) | (3.556e-12) | (3.774e-12) | (3.703e-12) | (2.115e-11) | (2.212e-11) | (2.128e-11) |
| *WelfareAid* | 1.960e-11 | 2.808e-11 | 1.402e-11 | 2.353e-11 | 1.834e-11 | 2.233e-11 | 8.897e-12 | 2.942e-11 | 5.359e-12 |
|  | (2.729e-11) | (2.497e-11) | (2.394e-11) | (3.905e-11) | (4.254e-11) | (4.212e-11) | (8.122e-11) | (8.213e-11) | (8.154e-11) |
| *WarAid* | 2.274e-10 | 4.658e-10 | 2.221e-10 | -2.198e-12 | 1.716e-11 | -2.422e-11 | 2.170e-10 | 5.628e-11 | 1.705e-10 |
|  | (1.546e-10) | (1.492e-10) | (1.734e-10) | (1.010e-10) | (1.070e-10) | (1.064e-10) | (4.374e-10) | (4.448e-10) | (4.309e-10) |
| *Adj. R2* | 0.020 | 0.026 | -0.018 | -0.060 | -0.243 | -0.056 | 0.074 | 0.016 | 0.468 |
| *DF* | 74 | 63 | 74 | 74 | 63 | 74 | 158 | 147 | 158 |
| Obs. | 84 | 84 | 84 | 84 | 84 | 84 | 168 | 168 | 168 |

**Table 3**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Hausman Test: FE vs RE | | | | | | | | |
| Asia | | | Middle East | | | Africa | | |
| Chisq | df | p-value | Chisq | df | p-value | Chisq | df | p-value |
| 4.249 | 9 | 0.894 | 4.719 | 9 | 0.858 | 12.571 | 9 | 0.183 |

**Table 4**

**Geographical Results**

For the Hausman Test, Asia, the Middle East and Africa all fail to reject the null hypothesis. Thus both FE and RE are both consistent within all three geographic locations. Following our previous analysis, we choose the fixed effects model as it is more efficient (FE’s Standard error is mostly smaller when compared to RE).

When divided into geographic regions the results reinforce the conclusions made in our previous analysis. According to table 3, all the coefficients continue to remain insignificant regardless of region. Any significance EconAid previously had has also disappeared. Adjusted R squared has also decreased across all three regions. None of the regions have a value greater than 0.03 and the Middle East even has a negative R squared value.

**Conclusion: “Can Foreign Aid Buy Growth?”**

The short answer, foreign aid is an ineffective tool for improving a country’s immediate GDP growth. There is no statistically significant link between aid and economic growth. The long answer, foreign aid has many difficult to measure effects on a recipient country’s economic and political landscape. Depending on where the aid is directed, foreign spending can have wide spread positive and negative consequences ranging from improving a country’s HDI to making their economy irreversibly dependent on aid. Aid directed at building schools and improving disease control can improving the education and health of citizens allow for more productive workers. This in turn improves human capital which can drive economic growth. Aid can also negatively impact the domestic economy as consuming aid is more efficient in the short term when compared to growing previously stagnant local markets. Domestic production continues to fall as goods delivered in aid are cheaper resulting in economic collapse rather than growth. Both of these situations are theoretically possible under our current models of developmental economics. There are potentially indirect effects that have yet to be explored. However, it is clear that monetary injections in the form of aid have no impact on a county’s short term economic growth.

**Further Areas of Exploration**

This paper measures the effect of foreign aid in the year directly after the aid was received. An area of potential further analysis could be the long term effects of foreign aid. Economic aid can improve the development of a county’s human capital which in turn could impact economic growth. Thus, we could also look at the effects of foreign aid on human development and how that in response affects the growth rate of a country’s GDP.

**References**

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**Appendix**

**Dummy Variable Grouping**

Food: “Emergency food aid”, “Food aid/Food security programme”, “Basic nutrition”.  
  
Supply: “Material relief assistance and services”, “Agricultural inputs”, “Agricultural land resources”.  
  
Health: “Basic health care”, “Basic health infrastructure”, “Emergency health services/support”, “Family planning”, “Health personnel development”, “Health policy and administrative management”, “Health, combination of general, basic, and population policy/reproductive health purposes”, “Health, general, combinations of activities”, “Health, purpose unspecified or does not fit under any other applicable codes”, “Infectious & Parasitic disease control”, “Medical services”, “Population policies/ programmes and reproductive health, combinations of activities”, “Personnel development for population and reproductive health”, “Reproductive health care”, “STD control including HIV/AIDS”.  
  
Administration: “Administrative costs”, “Agricultural policy and administrative management”, “Employment policy and administrative management”, “Environmental policy and administrative management”, “Energy policy and administrative management”, “Financial policy and administrative management”, “Government administration”, “Industrial policy and administrative management”, “Population policy and administrative management”.  
  
Education: “Basic life skills for youth and adults”, “Early childhood education”, “Education facilities and training”, “Education policy and administrative management”, “Education, level unspecified, purpose unspecified or does not fit under any other applicable codes”, “Health education”, “Higher education”, “Mining Education / Training”, “Multisector education/training”, “Secondary education”, “Primary education”, “Teacher training”, “Vocational training”, “Agricultural education/training”, “Medical education/training”.  
  
Infrastructure: “Agricultural development”, “Agricultural services, purpose”, “Agricultural water resources”, “Basic drinking water supply and basic sanitation”, “Electrical transmission/ distribution”, “Energy generation and supply, combinations of activities”, “Forestry development”, “Information and communication technology (ICT)”, “Power generation/renewable sources”, “Air transport”, “Rail transport”, “River development”, “Road transport”, “Rural development”.  
  
Economic: “Debt forgiveness”, “Economic and development policy/planning”, “Formal sector financial intermediaries”¸ “General budget support”, “Informal/semi-formal financial intermediaries”, “Public sector financial management”, “Small and medium-sized enterprises (SME) development”, “Business support services and institutions”.  
  
Welfare: “Social/ welfare services”, “Strengthening civil society”, “Women in development”, “Legal and judicial development”.  
  
War: “Child soldiers (Prevention and demobilisation)”, “Civilian peace-building”, “conflict prevention and resolution”, “Land mine clearance”, “Post-conflict peace-building (UN)”.

Note: Variables such as “Multisector aid” were omitted from date set due to not fitting into any of the dummy variable groupings.