Aid and economic growth: Evidence of China

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Abstract. In recent years, China' foreign aid career has prompted the economic and social development of the recipient countries and has been received much attention from the world. This paper assesses the impact of China's foreign aid on the economic growth of recipient countries. We find that Chinese foreign aid promotes the economic development of recipient countries and verify the effectiveness of foreign assistance.

Keywords: Chinese aid; Economic growth.

1. Introduction

With the rapid development of Chinese economy, China plays an important role in international aid field. Meanwhile, Chinese aid has been increasingly received concerns from the international community. Especially under the current Covid-19 pandemic, China offers many countries with plenty of medical supplies in order to help them fight against the pandemic. As a responsible country, China actively contributes to the world while developing itself.

The existing researches have examined whether aid could promote the development of recipient countries and provided explanations from the perspective of conflict and energy poverty (Crost et al.,2014; Munyanyi and Churchill, 2022). However, whether foreign assistance has helped recipient countries achieve the development goal, existing literature has not reached consistent conclusions. This paper evaluates the facilitation effect of Chinese aid on the economic growth of recipient countries and confirms the effectiveness of foreign aid.

The structure of this article is as follows. The second part presents the related studies and makes comments. The third part introduces the empirical model and data. The fourth part presents the main results. The final is conclusions.

2. Literature review

In existing studies, some literatures have shown that aid could help recipient countries attain development (Dreher and Lohmann, 2015). Galiani et al. (2017) found that promoting physical investment is an important mechanism to promote short-term economic growth. No matter what form the aid takes, it can boost the capital flow of recipient countries, and aid can boost growth by freeing up resources that can be invested in the economy if recipient countries are constrained in finance. The effectiveness of foreign aid is also affected by the institutional environment of recipient countries. Not only aid promotes the growth of countries, but also promotes the development of recipient countries' enterprises. Chauvet and Ehrhart (2018) found that aid could boost the increase of enterprise sales in recipient countries, and aid alleviated the infrastructure constraints and credit constraints of enterprise activities to accelerate the rise of enterprises sales. Although aid is a critical source of funds to facilitate economic growth and social stability for developing countries, aid itself does not necessarily bring development, or even hinder economic growth (Rajan and Subramanian, 2011; Leshoro, 2013).

The above literatures have laid the foundation for the further study of this paper. Therefore, we analyze whether Chinese aid boosts recipient countries' development.

3. Data and regression model

3.1 Main model

According to related studies , we establish the model as follow:

$$growth_{it} = \alpha_0 + \beta aid_{i,t-1} + \lambda X_{i,t} + \gamma_t + \delta_i + \varepsilon_{it} \quad (1)$$

Eq.(1) is our baseline model. In Eq.(1), $\mathrm{growth}_{\mathrm{it}}$ refers the economic growth of country i in t year . The main independent variable of interest, $\mathrm{aid}_{\mathrm{it}}$, measures Chinese aid to country i in t-1 year. X_{it} refers to the control variables, including population, resource, trade, institution quality, agriculture development and education level. And γ_{t} is the year fixed effect, δ_{i} is the country fixed effect, $\varepsilon_{\mathrm{it}}$ is the error term.

3.2 Data descriptions

This paper mainly uses the following databases: AidData's Chinese Official Finance database, WDI database and WGI database.

The dependent variable is $growth_{it}$, which is GDP per capita of recipient countries and take the logarithm. The independent variable of interest is aid_{it}, which is the ratio of aid to gdp.

We also control other variables. The first is population (pop), measured as the logarithm of population of recipient countries. The second is resource, measured as the ratio of natural resource rents to GDP . The third is trade, measured as the ratio of imports and exports to GDP. The fourth is institution quality (institution). The fifth is the level of agriculture development (agriculture).We use the logarithm of agricultural land area to measure. The sixth is the level of education (education). We use the spending on education as a percentage of gross national income to measure.

Table 1 is the summary descriptions of main variables.

Table 1. Summary statistics

variable	mean	sd	min	max
gdp	7.367	1.202	4.705	10.926
aid	0.011	0.035	0.000	0.788
pop	15.745	2.008	9.193	20.982
resource	9.742	12.787	0.000	87.459
agriculture	10.611	2.625	1.386	14.669
trade	78.577	37.750	1.378	347.997
institution	-0.067	0.131	-0.295	0.524
education	3.929	2.596	0.300	23.629

4. Main results

Table 2. Basic results

	(1) growth	(2) growth	(3) growth
aid	2.048***	0.856***	0.390**
	(0.502)	(0.218)	(0.187)
Controls	No	Yes	Yes
Country FE	Yes	Yes	Yes
Year FE	No	No	Yes
N	1119	895	895
R^2	0.023	0.491	0.647

Note: Standard errors are clustered at the country level in parentheses.
***p<0.01, **p<0.05, *p<0.1.

Table 2 shows our main results. When controlling country fixed effects but not adding control variables, the estimate in column (1) shows that the coefficient of aid is positive and significant at 1%

significance level. In column (2), we further add control variables and find that the coefficient of aid is still positive and significant. Column (3) reports the results of adding controls and controlling the year and country fixed effects. As can be seen, the coefficient of aid is still positive at 1% significance level. These results show that Chinese aid can promote the development of recipient countries.

5. Summary

Foreign aid is an essential part of the international community and has always been the focus of research. With the increase of China's foreign aid in recent years, it is playing an increasingly important role in the field of international aid. This article examines whether Chinese aid facilitates the economic development of recipient countries. Our results confirm that Chinese aid could promote the growth of developing countries. Therefore, it is necessary to increase the scale of foreign aid to help developing countries achieve the development.

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