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Can stability of foreign aid agreement reduce global income inequality?

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A R T I C L E   I N F O

A B S T R A C T

Global initiatives on debt relief call for increasing foreign aid assistance to alleviate income inequality. But the potential gains from foreign aid policy coordination may be limited by the willing participation of diverse and self-interested donor countries. If stability of the foreign aid agreement does not occur, then aid effectiveness fails. Thus, the aim of this paper is to investigate the effects of the stability of foreign aid agreement on income redistribution amongst countries. The findings show that stability has positive effects on income mobility from the rich to the poorest countries reducing global income inequality.

1. Introduction

Global initiatives call for increasing foreign aid assistance to alleviate income inequality. The Organization for Economic Cooperation and Development (OECD) reports continuing growth in Official Development Aid (ODA). In fact, during 1960–2013, total ODA disbursements has substantially increased and at least 3.5 trillion dollars have been given as foreign aid from rich to poor countries. The largest donors result to be the United States, France, Germany and the United Kingdom. Furthermore, Qian (2015) reports that 24% (on average) of ODA during 2006–2012 for all donors countries was not transferred to the recipient countries, but the aid money was instead spent on activities in donor countries, mainly for debt relief, administrative costs and expenditure on refugees.

The literature on foreign aid is really rich, but the theoretical and empirical studies report quite different views on the relationship between foreign aid and income. On the one hand, there exist studies supporting the positive effects of the foreign aid. The endogenous growth model developed by Rosenstein-Rodan (1943) shows that foreign aid provides investment capital, which would generate income and raise up the return to capital and promote economic growth. Dalgaard and Hansen (2001) show that there is a linear effect in the aid-income growth relationship due to diminishing returns to foreign aid. Burnside and Dollar (2000), Dollar and Kraay (2001) and Collier and Dollar (2002) suggest that foreign aid coupled with good policies, such as private property rights, fiscal discipline, macroeconomic stability and open to trade, increase the income of the poor countries. On the other hand, there are studies that show the failure of foreign aid to alleviate income inequality. Bauer (1975) defines foreign aid as "*a transfer of resources from the taxpayer of a donor country to the government of a recipient country*". Furthermore, he argues that as donors do not know which investments are appropriate for the recipient country, the transfer of foreign aid destroys economic incentives, leads to misallocation of scarce resources and undermines economic growth. Based on both the history and the evidence on foreign aid, Easterly (2003) shares similar view as

Bauer (1975) questioning about the alternative definition of "aid" "good policy" and "growth" to illustrate the complex relationship between foreign aid and income and the high possibility of failure. Doucouliagos and Paldam (2008) conclude that the aid literature has failed to prove that the effect of aid on growth is statistically larger than zero. The existing empirical evidence on foreign aid also fails to prove an inequality decreasing effect on income distribution (i.e. Calderón et al., 2006; Herzer and Nunnenkamp, 2012). The failure of foreign aid may due to various factors, such as poor governance of foreign aid funding, inefficient and unfair aid distribution amongst the recipient countries, conditional requirements of donor countries, political instability in the recipient countries (Dollar and Kraay, 2001; Inanga, 2008; Younas, 2008; Brück and Xu, 2012; Kalyvitis et al., 2012a; Kalyvitis and Vlachaki, 2012b; Raschky and Schwindt, 2012). Furthermore, there are some studies that have found ambiguous or mixed relationship between foreign aid and growth in the poor countries (Inanga and Mandah, 2008; Werker et al., 2009; Ekanayake and Chatrna, 2010). Holder (2004) argues that the relationship between foreign aid and growth turns out to be an inverted-U shaped under reasonable policy assumption, which is an Aid Laffer Curve. Positive relationship between foreign aid and growth is located in the upward sloped side of the Aid Laffer Curve, while the negative relationship is located at the downward sloped side of the Aid Laffer Curve. Similarly, in a sample of 42 aid recipients covering the period 1970–2000, Kalyvitis and Vlachaki (2012b) find that there is a threshold level of aid, above which the growth impact of aid becomes positive. The different views on the relationship between foreign aid and income may related to the problems of data measurement and identification due to the heterogeneous nature of aid (Qian, 2015).

From the analysis of this literature one aspect emerges, that is, the stability of foreign aid agreement has not been still now appropriately faced. The aim of foreign aid transfer may deviate from its original outcome of interest due to various factors in each stage (creation, implementation, distribution and monitoring system) generating instability of the foreign aid agreement. Generally, as the foreign aid increases the income of the recipient country and decreases that of the donors, the free-rider problem arises due to the presence of multiple donors who are motivated by self-interest. Thus, the mere coordination of aid, such as general budget supports, will not automatically guarantee the suboptimality of aid provisions (Rahman and Sawad, 2012). Berrittella (2011) shows that if the gains from cooperation are largest, there are countries that have incentive to defect from the foreign aid agreement. This suggests that the effects of the foreign aid agreement may be biased if stability is not taken into account. In fact, *ex-ante*, the initial aid distribution in the agreement is established to obtain defined outcome (i.e. economic growth, population well-being, institutional development, income redistribution) in the recipient countries under the condition that no donor country defects, if this condition does not occur, *ex-post*, aid effectiveness fails. Stability of the foreign aid agreement guarantees the aid effectiveness, both *ex-ante* and *ex-post*. In this context, first of all, one question that merits to be faced is if stability of foreign aid agreement can increase the income mobility from the rich to the poorest countries. Using a multi-country computable general equilibrium model (CGE), the aim of this paper is to investigate the relationship between stability and global income inequality. The main findings show that the stability of the foreign aid agreement has positive effects on income redistribution from the donor to the recipient countries and global income inequality decreases. As no country has incentive to free-ride, the income mobility from the donor to the recipient countries will be effective.

2. Modeling framework

In order to assess the systematic general-equilibrium effects of foreign aid, a multi-country CGE model, labeled AIDCGEM (Berrittella and Zhang, 2014), has been applied, which is a modified version of the standard GTAP model (Hertel, 1997).

A CGE model describes an economy in equilibrium with endogenously determined relative prices and quantities guaranteeing theoretical and accounting consistency. Differently to partial equilibrium models, CGE models allow of evaluating the effects of exogenous shift of policy variables on macroeconomic indicators (i.e. GDP, trade balance and welfare), taking into account the interdependence among all markets and regions. A CGE model builds on a closed accounting system of simultaneous equations representing market equilibrium: equality between supply and demand in each market in the economy. As compared to other methods, one of the advantages is that CGE models can provide concrete measures of changes in welfare due to policy change. This is particularly important for the aim of this paper, because the CGE model allows of answering to questions on who are the winners and losers from changing foreign aid policies, providing policy makers with a better understanding of the possible social results of the income redistribution from the rich to the poorest countries. An assessment of the usefulness of CGE models for policy analysis can be found in Borges (1986), Shoven and Whalley (1992) and Piermartini and The (2005). Furthermore, the CGE approach has been extensively used for the analysis of foreign aid (i.e. Nugent, 1988; Nechyba, 1996; Arndt and Tarp, 2001; Clausen and Schürenberg-Frosch, 2012).

AIDGEM is a comparative static, multi-commodity, multi-region model with the assumptions of perfect competition, market equilibrium and open economy.

On the consumption side, the economy is modeled by a representative household in each region r, whose Cobb–Douglas utility function allocates expenditures between private consumption (C), government consumption (G) and savings expenditure (S) as follows:

$$U_r = C_r^{\alpha_{C,r}} G_r^{\alpha_{G,r}} S_r^{\alpha_{S,r}} \tag{1}$$

with $\alpha_{C,r}$, $\alpha_{G,r}$ and $\alpha_{S,r}$ income shares and $\alpha_{C,r} + \alpha_{G,r} + \alpha_{S,r} = 1$.

The constrained optimizing behavior of the household in region r for private consumption is represented by a non-homothetic Constant Difference of Elasticity (CDE) expenditure function for the set of goods and services. A Cobb–Douglas