Allocation and Effectiveness of Foreign Aid: An Overview

Ngoc-Sang Pham and Thi Kim Cuong Pham

Abstract This study investigates the nexus between foreign aid and economic outcomes in recipient countries and examines the aid rules to promote its effectiveness. Analyses aim to provide an overview of the two important points in aid literature: aid effectiveness and aid allocation. First, we focus on internal and external factors that can explain why foreign aid is effective in some recipient countries but ineffective in others. Both theoretical and empirical analyses are explored. Second, our work discusses the principal elements influencing aid rules often qualified as suboptimal. Finally, we analyze the criteria and conditions for an optimal allocation of aid, taking into account recipient characteristics and donors' preferences.

Keywords Aid allocation · Aid effectiveness · Economic growth · Fiscal policy · Poverty reduction · Public spending

1 Introduction

Since the United Nations Summit in September 2000, at which the Millennium Development Goals (MDGs) were agreed upon, foreign aid, in particular, Official Development Assistance (ODA), has been continually increasing (Fig. 1). Development aid provided by the donors in the OECD Development Assistance Committee (DAC) reached a peak of 152.8 billion USD in 2019 and increased by 1.4% in real terms compared to 2018, with more aid to the poorest countries. Foreign aid

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Fig. 1 ODA net (constant 2018 USD million) by DAC members between 2000 and 2019. (Source: OECD.org)
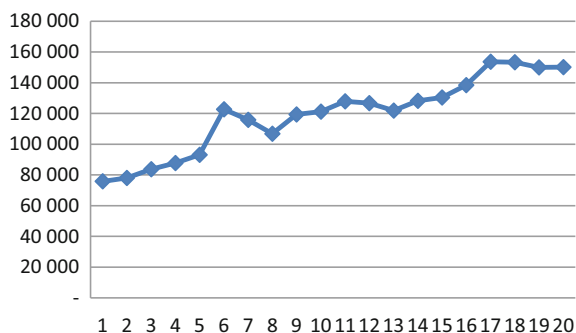
constitutes an important source of revenue for numerous recipient countries and can reach up to 10% of GDP in low-income countries.[1]

ODA flows are the main tool for economic cooperation between developed countries (donors) and developing countries (recipients). ODA finances infrastructure and action projects to fight hunger, promote poverty reduction, public health, education, etc., for the goals of economic development and welfare improvement in recipient countries. ODA accounts for more than two-thirds of external financing to least-developed countries as a lever to mobilize private investment and increase domestic tax revenues in recipient countries.

Developing countries, particularly the most vulnerable and low-income countries, need foreign aid because it may provide favorable conditions for a generation of economic growth and attainment of sustainable development. Several studies have offered substantial results on the nexus between foreign aid, its allocation, and economic outcomes of recipient countries. It would be important to summarize the main points regarding the effectiveness and allocation of aid to identify (1) the main factors influencing the aid effects in recipient countries and (2) the main characteristics taken into account in aid policy practiced by donor countries. It is also necessary to highlight how the interaction between recipient and donor policies can determine aid effectiveness.

The scope of our analysis is the following. In Sect. 2, we review theoretical growth models that explain the relationship between foreign aid and economic growth, as well as the effects of aid rules. Section 3 analyzes the effects of foreign aid on the recipient countries' economic outcomes and government behavior based on a number of recent empirical studies. In terms of economic outcomes, we underline economic growth, income distribution, and poverty reduction as the three important points helping recipient countries to achieve sustainable development goals. In addition, we emphasize the conditional effects of aid, particularly the fact that aid may have striking impacts on the recipient's fiscal policy and public expenditures, and explain how the interaction between the recipient's fiscal policy

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[1] See   http://www.oecd.org/dac/financing-sustainable-development/development-finance-data/ODA-2019-detailed-summary.pdf.

and economic and institutional characteristics determine the final effects of aid. In Sect. 4, we discuss different criteria and principal elements influencing the aid allocation often qualified as suboptimal from a Pareto point of view. We also present the normative approach to analyze the optimal allocation of aid. Section 5 provides final remarks and a discussion concerning the foreign aid in the global pandemic context due to the Covid-19.

2 Foreign Aid and Public Finance in Theoretical Growth Models

The evaluation of aid effects is necessary to determine an efficient allocation of aid to recipient countries. Many issues are under debate regarding the effectiveness of foreign aid in terms of economic growth. While empirical studies are abundant, there are relatively few theoretical analyses on this issue. The role of foreign aid in the growth process of developing countries has been modeled in a growth model by Chenery and Strout (1966), who argue that foreign aid affects growth through investment. Precisely, in a recipient country, its investment is the sum of domestic saving and foreign aid that equals a fraction of the recipient's GNP. If we refer to a Solow exogenous model, it is straightforward to find a positive effect of aid on recipient countries' economic growth.

Chartterjee et al. (2003) examine the effects of foreign transfers in a continuous-time growth model à la Rebelo (1991), where the accumulation of public capital comes from two sources: domestic government expenditure and foreign transfer. They assume that foreign transfer is proportional to the recipient's GDP, but not subject to conditions based on the donor's strategy and the recipient's need and performance, which are often mentioned in aid rules. The authors distinguish the effects of two types of transfer: a pure (untied) transfer and a transfer tied to investment in public capital so that the recipient government faces the flow budget constraint as $\tau Y + \overline{T} + \dot{D} + a = \overline{G} + \lambda a + r D$, where the left-hand side represents government revenues with income tax τY, lump-sum tax $\overline{T}$, debt accumulation $\dot{D}$, and foreign transfer a. The right-hand side corresponds to overall public expenditures: government expenditure on public capital $\overline{G}$, capital transfer from donors λa, and interest payments on debt $r D$. Their study examines the structural conditions of the recipient economy, which can influence aid effectiveness. Given this budget constraint, the case $\lambda = 1$ implies that foreign transfers are tied to public investment. In contrast, the case $\lambda = 0$ means that foreign transfer is not invested in public capital and represents a pure (untied) transfer.

Their analyses around the steady state showed that a pure transfer has no dynamic consequences for the recipient economy but is welfare improving while a transfer

tied to public investment generates dynamic adjustments and affects economic growth in the long run. In particular, the benefits of tied transfer can be maximized by the recipient determination regarding the appropriated expenditure and tax rates τ. Results underline the recipient government's role in response to a foreign transfer in the latter's effectiveness. The authors also indicate a striking difference in the impact of two types of transfer on the public debt D of the recipient economy: a pure transfer leads to higher lung-run indebtedness while a transfer tied to public investment leads to a reduction in the long-run debt.

Chartterjee and Tursnovky (2007), as an extension of Chartterjee et al. (2003), examine the link between aid, growth, and welfare by focusing on the role of the endogeneity of labor supply, public capital–production externalities, and fiscal deficit in the recipient country. These three aspects determine the contrasting effects of untied and tied foreign aid on the recipient country's macroeconomic performance. It is demonstrated that untied aid, which encourages leisure and consumption, may lower the equilibrium growth rate but improve welfare in the long run. In contrast, foreign aid, tied to public investment, raises labor productivity, encourages additional work effort, and increases long-run growth. Besides, numerical simulation analysis in this study shows that transitional adjustments to a foreign transfer are sensitive to the elasticity of labor supply and the elasticity of substitution between inputs in production, and the relative importance of the labor–leisure choice in utility.

Using a discrete-time overlapping generations (OLG) model, Dalgaard (2008) studies the effect of the following aid policy rule: the flow of aid a_t depends negatively on the recipient's income per capita y_{t-1} and the so-called donor's exogenous degree of inequality aversion λ, so that $a_t = \phi y_{t-1}^{\lambda}, \phi > 0, \lambda < 0$. In this OLG growth model, he shows that an exogenous increase in foreign aid, represented by a higher value of parameter ϕ, leads to a higher steady-state income and a higher social welfare in the recipient country. Besides, the degree of inequality aversion λ of the donor determines the characteristics of the transitional dynamics of income per capita. Figure 2 from Dalgaard (2008) shows a monotonic transition to the unique steady state (see 1A) or an oscillation transition (see 1B) when the degree of inequality aversion is weak or strong, respectively. The economy may stagnate (see 1C) even though it receives foreign aid, or it is characterized by a two-period cycle (see 1D) in other cases of inequality aversion.

Pham and Pham (2020) consider a discrete-time general equilibrium framework where public investment, partially financed by aid, may improve the recipient economy's TFP. They model aid per capita at period t as $a_t = \max\{\overline{a} - \phi k_t, 0\}$ where the couple $(\overline{a}, \phi)$ is interpreted as the aid rule imposed by the donor and represents aid conditionalities while the physical capital per capita k_t represents the recipient country's need. This modeling takes into account the donor's rules and the recipient's needs, which are represented by a low initial capital stock. According to the above formula, aid flows are limited by an upper threshold, and the recipient
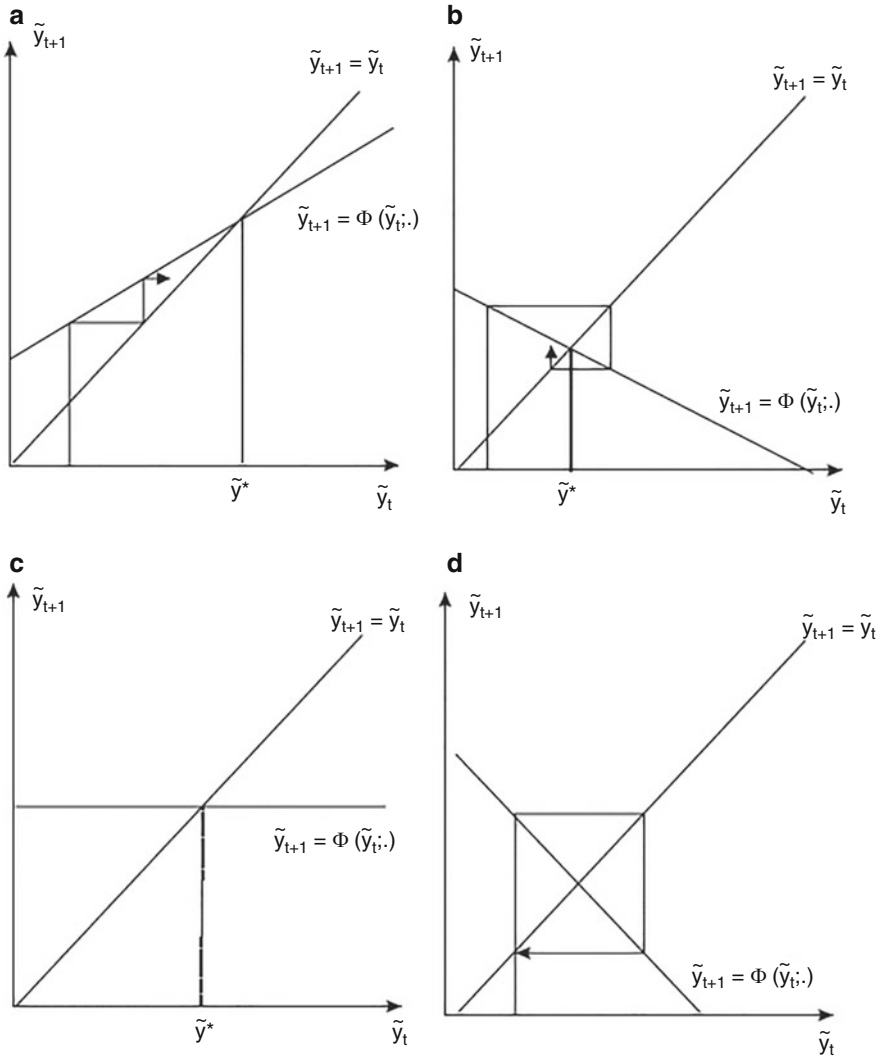
a

$\tilde{y}_{t+1}$

$\tilde{y}_{t+1} = \tilde{y}_t$

$\tilde{y}_{t+1} = \Phi\,(\tilde{y}_t;.)$

$\tilde{y}^*$ $\tilde{y}_t$

b

$\tilde{y}_{t+1}$

$\tilde{y}_{t+1} = \tilde{y}_t$

$\tilde{y}_{t+1} = \Phi\,(\tilde{y}_t;.)$

$\tilde{y}^*$ $\tilde{y}_t$

c

$\tilde{y}_{t+1}$

$\tilde{y}_{t+1} = \tilde{y}_t$

$\tilde{y}_{t+1} = \Phi\,(\tilde{y}_t;.)$

$\tilde{y}^*$ $\tilde{y}_t$

d

$\tilde{y}_{t+1}$

$\tilde{y}_{t+1} = \tilde{y}_t$

$\tilde{y}_{t+1} = \Phi\,(\tilde{y}_t;.)$

$\tilde{y}_t$

Fig. 2 Transitional dynamics and donor inequality aversion: degree of inequality aversion determines the characteristics of the transitional path. (Source: Dalgaard, 2008)

country would no longer receive aid once it was rich enough. This modeling is also compatible with aid allocation rules used in several bilateral and multilateral aid policies (World Bank's International Development Association, Asian Development Bank, European Development Fund, etc.).

By providing a full analysis of transitional dynamics, Pham and Pham (2020) explain how foreign aid can help a small recipient country to escape the poverty trap and potentially get economic growth in the long run. Unlike Dalgaard (2008), they underline the role played by the recipient fiscal policy and government effort in financing public investment and the efficiency in the use of aid. The global dynamics of equilibrium is quite complex: the capital path may diverge or converge to a steady state, or fluctuate around it. There may also be a two-period cycle. These different outcomes are analyzed in four distinguished levels of circumstances depending on the degree of corruption in the use of aid, the autonomous technology, the fixed cost and efficiency of public investment, as well as the donor's rules.

It should be noticed that the effectiveness of aid depends on how aid is used in recipient countries and on the absorptive capacity of these countries. Two questions arise: Does aid reduce recipient governments' effort in financing public expenditure? If so, what is the impact of the crowding-out effect on economic outputs in a small recipient country? Pham and Pham (2019) address these questions in a two-period model by endogenizing the use of foreign aid and fiscal policy in a recipient country. They assume that overall public expenditures, comprising public services and public investment, are financed by two sources: foreign aid and tax revenue. The recipient government makes its decisions regarding public services, public investment, and the manner to use foreign aid when caring about the population's welfare and its own interest. Their framework indicates a crowding-out effect on the tax effort, which is reinforced by public investment's low efficiency. However, due to a positive effect of aid on public investment, the final effect of aid on economic growth is positive. The aid effect depends on the recipient circumstances, reflected by the efficiency of public investment, as well as the donors' sensitivity with respect to this efficiency.

Focusing on a bilateral aid and its optimal design as well as its effectiveness in a neoclassical framework, Scholl (2009) underlines the conflict of interests between a donor and a recipient government. Using a neoclassical growth framework, he analyzes the link between aid, incentive conditionality, and economic growth following different types of recipient government (from weakly to highly benevolent). Aid conditionality is endogenous and defined by the following rule: the aid amount is chosen by maximizing the donor's utility subject to competitive equilibrium and the government budget constraint in the recipient country. Compared to an unconditional policy, the optimal conditional aid policy is more effective because it strongly stimulates the steady-state economic performance and improves welfare on both sides: recipient household's welfare and donor's welfare.[2]

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[2] For contracting with foreign aid in a static model, see Azam and Laffont (2003). See Bourguignon and Plateau (2017) for an overview of the theoretical literature that deals with the problem of governance in donor–recipient relationships by using the contract theory.

3 Conditional Effectiveness of Aid: How Does Foreign Aid Affect Recipients' Government Behavior and Economic Outcomes?

3.1 Aid and Government Behavior in Recipient Countries

One of the most important issues regarding the aid effectiveness concerns the recipient government's decisions. A question concerning (desirable or undesirable) fungibility of aid[3] arises: Is aid used to finance public expenditures (to promote economic growth) and social expenditures (to improve social welfare) or is it mis-appropriated by corrupt governments? Understanding the relationship between aid, government behavior, and economic outcomes in recipient countries has important implications for aid policy and donor decisions. However, existing empirical studies do not provide a consensus in this regard, and the debate continues.

As a significant component of the public budget in developing countries, foreign aid has been used to finance public expenditures, both in the social sector (e.g., sanitation, education, health, etc.) and in the productive sector (e.g., infrastructure, public investment, etc.). There is evidence that foreign aid increases public expenditures in recipient countries (Remmer, 2004; Van de Walle & Mu, 2007; Feeny & McGillivray, 2010; Morissey, 2015, etc.). Using cross-country data over the period 1970–1999, Remmer (2004) underlines a positive link between foreign aid and government size. A positive effect of foreign aid on public investment is found by Ouattara (2006b). Precisely, based on a sample of recipient countries over the period 1980–2000, this study also shows that aid flows exert a positive effect on developmental expenditure (such as health and education), but a negative impact on nondevelopmental spending (wages, salaries, and subsidies).

Although there is a consensus on the positive link between foreign aid flows and the overall public expenditure, the nexus between aid and recipient fiscal policy is not conclusive. An important question is whether and how foreign aid matters for fiscal policy?[4] In general, studies examining fiscal policy focus on taxes, public expenditures, and borrowing in budget deficits. Ouattara (2006b), using panel data of aid recipient countries over the period 1980–2000, concludes an absence of a significant link between aid and fiscal policy. On the opposite, Remmer (2004) shows a negative relation between aid and tax effort. Feeny (2007) develops a fiscal response model to investigate the impact of foreign aid on recurrent expenditures (i.e., nondevelopmental expenditures such as wages, regular administrative costs of running government department and services), developmental expenditures, tax revenues, and borrowing behavior in the Melanesian countries (Fiji, Papua New Guinea, the Solomon Islands, Vanuatu) for the period 1989–2002. Their results

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[3] This means that recipient countries divert aid flows to fund items that the donors did not wish to support.

[4] See Morissey (2015) for further details on this issue.

show that foreign aid has positively impacted general public expenditures, but Melanesian countries have lowered their tax revenues in response to aid inflows. In the same vein, Combes et al. (2016), using data from 59 developing countries during the period 1960–2010, underline a significant effect of foreign aid on recipient countries' fiscal policy. Besides, the fiscal effect of aid is stronger in countries with a low governance score and a low absorptive capacity.

When considering a single recipient country, several empirical analyses also show that foreign aid matters for the conduct of fiscal policy and affects domestic borrowing. For instance, considering Ghana's case, Osei et al. (2005) show that aid is associated with improved fiscal performance, increases its tax revenue, and is used to reduce borrowing. It follows that recurrent expenditure, usually financed by tax revenue, rises more than investment expenditure due to the aid increase. In this sense, aid is fungible even if it enables fiscal performance. Ouattara (2006a) also shows a negative effect of aid on domestic borrowing for the case of Senegal over the period 1970–2000. Concerning the case of Papua New Guinea studied in Feeny and McGillivray (2010), they observe that aid decreases tax revenue over 1969–2000. This negative fiscal policy response may be considered an argument for research on the dependence on foreign aid donors.

The crowding-out effect of aid on public expenditures was recently tested in a field experiment among in-office-elected politicians in Malawi. Seim et al. (2020) examine how foreign aid or information about foreign aid affects politicians' decisions regarding the provision of development goods within the education sector. These authors randomly assigned 460 elected local politicians to receive or not receive information about foreign aid projects at schools in their constituencies. After receiving or not receiving information, these local politicians make real decisions regarding the allocation of development goods to these same schools. Observational decisions show that when public policymakers receive information about an aid project in a given school, they are less likely to target that school with development spending. This result shows a crowding-out effect of aid in the education sector, more precisely a spatial crowding-out effect, as aid causes a spatial reallocation of spending within the education sector. However, this fungibility of aid has no negative impact on development outcomes because many politicians in this field experiment make their allocation decision in favor of schools that had not yet received support, rather in favor of schools with their political family members in attendance.

Regarding the non-negative fungibility, other studies such as Pettersson (2007), Wagstaff (2011), van de Walle and Mu (2007), and Rana and Koch (2020a, b) also show that aid fungibility has not necessarily a negative impact on the aid effectiveness targeted at growth, health, welfare, etc. In particular, Rana and Koch (2020b) establish an inverse U-shape between aid inflows and fungibility in the Pakistan case. According to this study, the fungibility of development aid can help progress toward the development goals when looking at it from the perspective of welfare and redistribution effect. Shifting resources from initial programmatic and geographic projects to others could mean that public expenditures partially funded by foreign aid may be used more efficiently, as showed by the field

experiment in Seim et al. (2020) mentioned above. Obviously, governance quality plays an important role in determining the degree of fungibility and the desirable or undesirable fungibility (Kaya & Kaya, 2020).

3.2 Aid and Economic Outcomes in Recipient Countries

The debate regarding the effectiveness of aid is driven by extensive empirical investigations using different data samples. The main conclusion shows that foreign aid is an external factor playing a conducive role in reaching economic development targets in recipient countries. Foreign aid may contribute to stimulating economic growth and reducing poverty in recipient countries. Still, its impact is contingent on different factors such as recipient countries' quality of governance, economic vulnerability, tax effort, etc. (Burnside & Dollar, 2000; Guillaumont & Chauvet, 2001; Maruta et al., 2020), as well as on the donor's conditionality and targets in aid allocation rules (Carter, 2014; Guillaumont & Wagner, 2014).

3.2.1 Foreign Aid and Economic Growth

There is a consensus on the fact that aid rarely has a direct effect on the growth rate. Its impacts on the recipients' economic growth, if significant, are often conditional on several factors in recipient countries such as institutional quality, political stability, macroeconomic environment, and absorptive capacity (Boone, 1996; Burnside & Dollar, 2000; Easterly, 2003; Moyo, 2009; Mosley, 2015; Temple & Van de Sijpe, 2017; Maruta et al., 2020; etc.).

Burnside and Dollar (2000) is one of the first studies that shed light on the aid's conditional effectiveness and provide part of the scientific background for the policy recommendations in the World Bank.[5] They investigate the nexus between foreign aid, good macroeconomic policy, and economic growth in the recipient countries. The authors use a panel of 56 countries over 1970–1993 and form a policy index to measure macroeconomic policies that consist of three variables: openness measure, inflation rate, and budget surplus. They show that aid effect on growth depends on the nature of macroeconomic policies: in countries with good fiscal, monetary, and trade policies, foreign aid has a higher impact on growth than in countries with bad policies. This finding is summarized in Table 1, which indicates that the derivative of growth rate with respect to aid is significant and positive at a good policy level (policy = 2.4 compared to the case of policy = 1.2).

The authors also underline that macroeconomic policy is more important for aid effectiveness in low-income countries as the cross-derivative of growth rate with

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[5] The World Bank book *Assessing Aid* presenting the aid policy uses the same policy indicator recommended by Burnside and Dollar.

Table 1 The impact of aid and macroeconomic policy on growth rate (Burnside & Dollar, 2000)

		C. In regressions with simple interaction terms		
		At policy = 1.2	At policy = 2.4	Difference
All countries (5)	OLS	0.20(0.15)	0.43** (0.18)	0.23** (0.09)
	2SLS	−0.12(0.31)	0.11 (0.31)	0.22* (0.13)
Lower-income countries (8)	OLS	0.13(0.15)	0.47** (0.20)	0.33** (0.11)
	2SLS	0.05(0.22)	0.37 (0.27)	0.32** (0.15)

* Significantly greater than 0 at the 10-percent level
** Significantly greater than 0 at the 5-percent level

respect to aid and policy is higher in the low-income sample than in the whole sample. Table 1 (last column) shows that this cross-derivative of growth calculated for an OLS regression (2SLS) is equal to 0.33 (0.32) for the low-income sample and only 0.23 (0.22) for the whole sample.

Collier and Dollar (2001, 2002) propose another indicator of policy performance: the World Bank's Country and Institutional Assessment (CPIA). This indicator is the arithmetic mean of the 20 components assessed on a scale from 1 to 6 and grouped into four clusters (economic management, structural policies, policies for social inclusion and equity, public sector management and institutions). Each component has a 5% weight in the overall rating.[6] Using data covering 62 developing countries over the period 1974–1997, Collier and Dollar (2001, 2002) show that aid may promote economic growth and reduce poverty in recipient countries if the quality of their policies is sufficiently high. In other words, development aid and CPIA are complementary in the growth equation. Consequently, an effective aid allocation should increase aid to countries having high policy quality.

Using sectoral foreign aid rather than aggregate aid, Maruta et al. (2020) also underline a conditional effect of aid on economic growth. These authors, using data on bilateral aid flows into three sectors (education, health, and agriculture) received by 74 countries over 1980–2016, show that the marginal effect of each aid category is conditional on the level of institutional quality measured by the International Country Risk Guide (ICRG) Index. Obviously, aid effectiveness also depends on the recipient government's decisions. Mosley (2015) focuses on tax effort, which is an important indicator of institutional structure. He underlines that it is important for recipient countries to broaden their tax structure to improve aid effectiveness in economic growth. Tax effort is also considered as an important factor explaining the aid effectiveness in a theoretical analysis by Pham and Pham (2020).

Other factors such as economic vulnerability, political instability, and absorptive capacity determining the aid effects on economic growth are underlined by Guillaumont and Chauvet (2001) and Chauvet and Guillaumont (2004, 2009). These authors argue that while the economic vulnerability to external shocks is negatively

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[6] Further details of the CPIA can be found in World Bank (2010) and Collier and Dollar (2001, 2002).

associated with growth the marginal effect of aid on growth is an increasing function of economic vulnerability. This index is one of several criteria retained by the United Nations Committee for Development Policy in identifying the least-developed countries. The principal components of the economic vulnerability index are population, share of agriculture, forestry and fisheries in GDP, exports concentration, remoteness from main world markets, adjusted for landlockness, instability of exports receipts, instability of agricultural production, and homelessness due to natural disasters.[7] These studies also indicate that the marginal effect of aid depends positively on policy quality: aid effectiveness is influenced by political instability.

Without rejecting the conditionality of aid effects, certain studies still show a certain fragility of results (Easterly, 2003; Easterly et al., 2004; Guillaumont & Wagner, 2014; etc.). Using the same empirical specification as that in Burnside and Dollar (2000), but expanding the sample of data set, Easterly et al. (2004) nuance the claim from that of these authors. The results on aid effectiveness seem to be fragile when varying the sample and the definition of different variables such as aid, growth, and good policy (Easterly, 2003). Hansen and Tarp (2001) show that the effectiveness of aid is contingent on investment and human capital in recipient countries, and aid has no effect on growth when controlling these variables. Their findings shed light on the link between aid, investment, and human capital, and show that aid increases economic growth through its impact on capital accumulation.

It should be noticed that the effect of aid on growth is not only heterogeneous and country-specific characteristics but also nonlinear and depending on its level. There may exist a threshold from which the marginal effect of aid becomes very small and converges to zero. In other words, aid may positively impact economic growth, but with diminishing returns (Hansen & Tarp, 2001; Wagner, 2014). This point reflects the role of absorptive capacity in recipient countries: a high level of foreign aid may exert no impact because aid is not effectively used. In Chauvet and Guillaumont (2004), the education level (as a measure of human capital) and electricity (as a measure of physical infrastructure) form an indicator of absorptive capacity, which improves the aid effectiveness. Islam (2005) shows an aid Laffer curve in recipient countries with political stability. Moreover, there may also exist a critical threshold above which aid is effective, illustrating the need for "big bush" in certain very vulnerable countries to observe a significant effect of aid on growth.

The existence of these two thresholds is identified in Wagner (2014) using a database including 89 recipient countries. As shown in Fig. 3, the relationship between economic growth and aid per capita is nonlinear, and there exist two thresholds between them aid has a positive effect on growth. Besides, Wagner (2014) also mentions that the level of these thresholds depends on the economic vulnerability of recipient countries.

The nonlinear nexus between aid and economic growth and the heterogeneous impact of aid for different groups of countries were analyzed by Harb and Hall (2019) using data comprising 25 developing countries during the period 1984–2008.

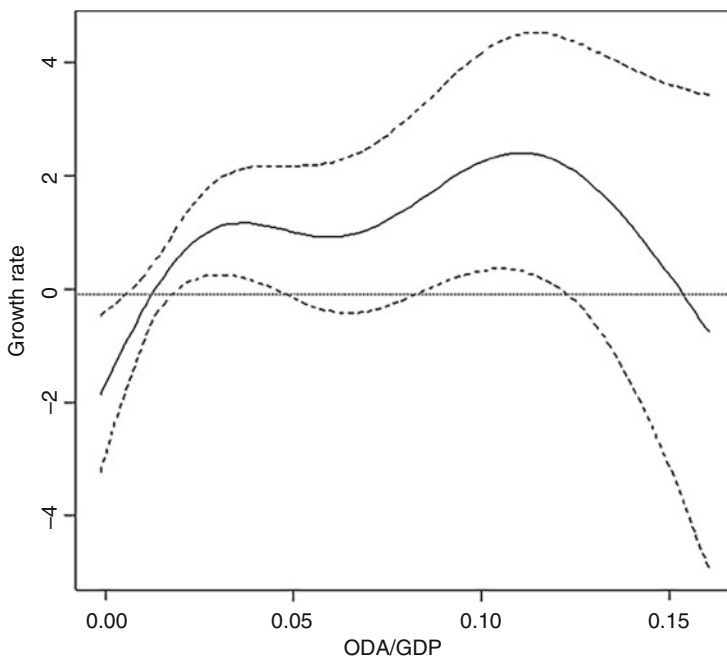[7] See Cariolle (2011) for more details.

Fig. 3 Growth rate and aid per capita. (Source: Wagner, 2014)

They distinguish three groups of countries (low and least developed, lower-middle-income, and upper-middle-income) and identify each group's threshold level of aid. The aid effect above and below this threshold is estimated, corresponding to π_1 and π_2, in Table 2. The last column of this table represents the value of this threshold: 1.221% of GDP for the upper-middle-income group, 4.333% of GDP for the lower-middle-income countries, and 11.385% of GDP for the low- and least-developed countries. Information given in columns π_1 and π_2 indicates that for the upper-middle-income countries the foreign aid is only effective below the threshold of 1221% of GDP, that is, above this threshold, aid does not affect growth (π_1 insignificant). Regarding the low- and least-developed countries, and lower-middle-income countries, the findings in Harb and Hall support the big-push concept as aid becomes effective only when it exceeds the threshold level (π_1 positive and significant). Below this threshold level, aid exerts no impact on economic growth for both groups (π_2 insignificant).

3.2.2 Foreign Aid, Inequality, and Income Distribution

Focusing on other aspects than economic growth, Chong et al. (2009) investigate whether foreign aid reduces income inequality in recipient countries. Their finding shows that foreign aid can impact income inequality, but only in countries having

Table 2 Estimated threshold level of aid for different groups of countries, 1984–2008 (Harb & Hall, 2019)

Variable	π_2	π_1	Transition variables C
(a) Upper middle income countries			
Aid	0.4913(0.0947)*	0.4134 (0.8333)	
Inflation		−0.1151(0.0049)***	
Investment		0.4169(0.0003)***	1.221345
Government expenditure		−0.4037(0.0003)***	
M2		−0.0355(0.2472)	
(b) Lower middle income countries			
Aid	−0.105155(0.2525)	0.83563(0.0382)**	
Inflation		−0.03001(0.3103)	
Investment		0.1216(0.0479)**	4.3337***(0.000)
Government expenditure		−0.02789(0.5403)	
M2			
(c) Low and least developed countries			
Aid	0.09507(0.5668)	1.14157 (0.000)***	11.38522***(0.000)
Inflation		−0.0049(0.6825)	
Investment		0.3697(0.0074)***	
Government expenditure		−0.48357(0.0404)**	
M2		0.02548(0.5021)	

Notes: Dependent variable is real GDP per capita growth. Values in parentheses represent *p*-values. *, **, *** display the significance levels at 10%, 5%, and 1%, respectively. π_1 and π_2 represent the impact of aid above and below the estimated threshold level. Column C shows the threshold level

good institutions measured by a low level of corruption. However, this finding does not appear to be robust when testing other institutional variables. Likewise, Arndt et al. (2015), using data for the period 1970–2007, indicate that aid does not have a significant effect on income inequality, even though it can stimulate economic growth and improve social welfare indicators such as school enrolment, life expectancy, and infant mortality.

Bourguignon et al. (2009) consider aid allocation from high-income donors to developing countries as a pure redistribution of global income. They examine how international policies on foreign aid affect the international income distribution over the period 1995–2002. Different indicators, such as Gini coefficient, Theil entropy, Atkinson measure, and the mean logarithmic deviation, are used to measure the international income distribution. It is shown that international aid transfers have only a small impact on these inequality measures during the considered period. However, this result is based on a strong assumption that all individuals within a recipient country benefit equally from this transfer in the same way. Such an analysis also ignores the impact of aid policies on the within-recipient country distribution of income.

Paradoxically, aid may increase income inequality in recipient countries (Bjørn-skov, 2010; Herzer & Nunnenkamp, 2012). On the one hand, this result may be explained by the fact that two key criteria in aid allocation (need and merit) for aid effectiveness are violated. It is also explained by undesirable aid fungibility (i.e., the recipients' governments have incentives to use aid in other sectors than those initially targeted by donors). On the other hand, the negative effect of aid on income distribution may result from the downward of recipients' competitiveness through real exchange rate appreciation. In such a situation, the poor people may be seriously affected (Bjørnskov, 2010). Herzer and Nunnenkamp (2012), using data for 21 recipient countries over the period 1970–1995, find that aid has an inequality increasing effect on income distribution. Moreover, this effect is robust to different estimation methods, different inequality data sets, and different inequality measures such as the Gini coefficient and the Estimated Household Income Inequality Index.

3.2.3 Aid and Poverty Reduction

One of the targets of the Millennium Development Goals and the Sustainable Development Goals is poverty reduction. It is crucial to understand whether foreign aid is effective in poverty reduction and by which channels it may lead to poverty reduction. In the seminal papers of Collier and Dollar (2001, 2002), the authors underline that by its effects on economic growth aid may be conducive to poverty reduction in recipient countries, depending on the elasticity of poverty reduction with respect to the growth rate. In other words, for a marginal effect of aid on growth, the number of poor getting out of poverty depends on this growth elasticity. A strong assumption in these studies remains in the constancy of this elasticity and its uniformity among recipient countries. All recipient countries are supposed to have a growth elasticity of poverty reduction equal to -2. This assumption is

not supported by the analysis in Bourguignon (2003), which is instead for the heterogeneity of growth elasticity of poverty reduction among recipient countries. In particular, Bourguignon (2003) underlines an inverted nexus between growth elasticity of poverty reduction and the initial level of poverty itself.

Economic growth is not the only channel through which aid reduces poverty in recipient countries. Kaya et al. (2013) focus on aid allocated to the agricultural sector because most of the poor live in rural areas, and their main sources of income are from agriculture and related activities. Aid targeting specific sectors such as the agricultural sector may be more effective in reducing poverty than aid targeting GDP growth per capita. Indeed, using a panel of 46 recipient countries over the period 1980–2003 and the poverty headcount ratio at 1 dollar/day as a poverty indicator, their analysis shows that a 1% increase in aid is associated with a 0.21% decrease in the headcount poverty ratio of the recipient countries. The authors underline that foreign aid may also influence the composition of public expenditures in favor of pro-poor expenditure. Sector-specific aid may affect the poverty level either directly through enhancing services and projects or indirectly through economic growth reflected in lagged values of aid used as an explicative variable. In particular, Kaya et al. (2013) show that the growth elasticity of poverty (in absolute value) is equal to 1.7 or 3.5 based on different specifications.

Several empirical investigations linking aid to monetary poverty reduction indicate that aid could be pro-poor (Mosley et al., 2004; Mosley & Suleiman, 2007; De Matteis, 2013; Alvi & Senbeta, 2012; Mahembe et al., 2019). Mosley et al. (2004) and Mosley and Suleiman (2007) shed light on the fact that aid effect in reducing poverty is contingent on corruption level, income distribution, and the categories of pro-poor expenditures in recipient countries. In particular, using a sample of 79 recipient countries over the period 1981–2004, Alvi and Senbeta (2012) underline that bilateral aid, often supposed more motivated by donors' interests, does not necessarily reduce poverty while multilateral aid can promote poverty reduction. De Matteis (2013) shows that when aid allocation targets a poverty-focused perspective its effectiveness in poverty reduction is amplified.

Guillaumont and Wagner (2014) and Mahembe and Odhiambo (2017) underline that foreign aid could be pro-poor without impacting monetary poverty. The reason is that aid used to fund infrastructure and public social expenditure that benefit the poor people promotes universal access to primary education and health care.[8] These authors also indicate that if aid has a stabilizing impact, that is, aid can stabilize economic growth, it can make growth more pro-poor. According to Guillaumont and Wagner (2014), aid allocation should be balanced between growth target and public social expenditures (aid to health, aid to education, etc.) because aid can contribute to reducing poverty (through its impact on the size of public social expenditures) and improve the productivity in social factors.

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[8] For instance, d'Aiglepierre and Wagner (2013) showed that aid to primary education exerts a significant effect on school enrolment and repetition rates in primary school. Likewise, Arndt et al. (2015) showed that aid can improve school enrolment and reduce infant mortality.

4   Aid Allocation

This section discusses the criteria and conditions used by different institutions and donor countries when allocating aid. We also analyze alternative allocations of aid qualified as optimal in aid literature, focusing on poverty reduction, economic growth, population welfare, as well as donors' preferences.

4.1   Aid Allocation: Motivation and Criteria

Foreign aid constitutes an important source of revenue in developing countries. Since 2000 when the United Nations Millennium Declaration was signed and the Millennium Development Goals were agreed, foreign aid, particularly Official Development Assistance (ODA), has been continually increasing (Fig. 1). For example, it rose by 69% in real terms between 2000 and 2010 and has doubled between 2000 and 2020.

One of the most relevant questions is how aid is allocated to recipient countries or which factors are used in allocating aid. Several donors employ the *performance-based allocation* systems in allocating aid. These allocation systems give priority to the countries in need (in terms of population size and income), and also those with the ability to use aid effectively: poor countries and/or with a high need should receive a high amount of aid. For instance, the World Bank's International Development Association (IDA) uses the following specific form $\text{Aid}_i = y_i^\beta P_i^\gamma N_i$, where Aid_i is the aid allocated to country i, N_i is country i's population size, and P_i represents the performance rating of country i, based on an assessment of the quality of its policies and institutions. P_i is determined by the World Bank's Country Performance and Institutional Assessment (CPIA). The income per capita y_i represents the recipient's need. This aid allocation based on performance adheres to the effectiveness principle, the IDA rule sets $\beta = -0.125$ and $\gamma = 5$. Compared to the IDA, other international institutions such as the Asian Development Bank, the European Development Fund, and the UK's Department for International Development use different variants of this rule. For instance, the Asian Development Bank formula assigns a higher weight to recipient countries' poverty but lower to the recipient's population size. In a study for the 2008 Development Cooperation Forum at the UN Economic and Social Council, Andersson (2008) evoked several other measures of recipients' need and performance influencing the form of aid allocation. Recipients' need is measured by low GDP per capita, low IDH, high child mortality, post-conflict country, etc., while its performance is measured by the growth of GDP per capita or government effectiveness index, etc.

Several empirical analyses on aid allocation rules emphasize the two main characteristics in recipient countries: their need for assistance, measured by their income per capita, and their absorption constraint representing their ability to use aid effectively, measured by the World Bank's Country Performance Rating (Easterly,

2007; Easterly & Pfutze, 2008; Knack et al., 2011; etc.). Dreher et al. (2015) focus on the recipient's need in terms of gender gaps in education, health, or women's rights and shed light on the fact that donors increase aid to countries with larger gender gaps and low female achievement in health and education. Their analysis also shows the evidence of an aid allocation based on merit as donors tend to reward countries that achieve reductions in gender gaps or reduce female deprivations in health and education.

In'airat (2014) examines whether good governance is a criterion for selectivity in aid allocation using a panel of 122 recipient countries over 2001–2010. For good governance, the author uses the Worldwide Governance Indicators developed by Kaufmann et al. (2013) and composed of six dimensions: voice and accountability, government effectiveness, lack of regulatory burden, rule of law, independency of the judiciary system, and control for corruption. Their analysis shows evidence of donors' preference for good governance. This result is in the vein of an aid allocation based on the performance criterion. In particular, when using individually six governance indicators, this study shows that only control of corruption and voice and accountability (including civil liberties and political stability) significantly affect donors' decision for aid allocation. A more recent analysis of Weiler et al. (2018) on bilateral aid for climate change adaptation (adaptation aid) over the period 2010–2015 also reflects the results on foreign aid literature. This study tests whether good governance or recipient merit matters for allocation of adaptation aid and shows that donors' decision seems to confirm a principle of performance-based allocation. Countries with good governance (measured by the Worldwide Governance Indicators) are more likely to receive more adaptation aid because they are perceived as better able to use and absorb received aid amounts.

Other analyses underline the link between aid allocation and donors' interests, particularly in bilateral aid (Alesina & Dollar, 2000; & Tichit, 2004; Berthelemy, 2006; Nunnenkamp & Öhler, 2011; Weiler et al., 2018; Couharde et al., 2019; etc.). Political variables (strategic allies, political and civil rights, political interests) or macroeconomic conditions in recipient countries such as trade openness and commercial allies are potential criteria influencing donors' decisions. For instance, Alesina and Dollar (2000) find that most donor countries, apart from France, Italy, Belgium, and Austria, favor recipient countries having better political and civil rights. Donors also use bilateral aid as a foreign policy tool to promote their own economic and political goals. By analyzing bilateral aid allocation for climate change adaptation, Weiler et al. (2018) show that donors take into account their economic interest (measured in terms of the total export of all commodities from the donor to the recipient country). In Nunnenkamp and Öhler (2011), donor strategic interests are reflected by the recipient's relative importance as a donor's export market, and by the degree of recipient UN voting coincidence with the donor.

Couharde et al. (2019) investigate the donors' strategic interests focusing on the role of oil on bilateral aid policy. Analyzing the aid allocation of the G7 donors (Canada, Germany, France, Italy, Japan, the United Kingdom, and the United States) over the period 1980–2010 to 82 recipients, their study shows that aid amount allocated by these donors significantly increases with their oil dependence. The

Table 3 Oil and aid allocation of the G7 donors, 1980–2010 (Couharde et al., 2019)

	(1)	(2)	(3)
Variables	Aid share	Aid share	Aid total
Oil reserves	0.0459*** (0.0106)	0.0498*** (0.0106)	0.0232* (0.0130)
Lagged Dep	4.048*** (0.386)	3.093*** (0.369)	0.000413.68e-05
Multilateral aid		0.101*** (0.0264)	0.148*** (0.0483)
Trade		0.138*** (0.0431)	0.499*** (0.0679)

Notes: Dependent variables: aid share of a recipient in the total aid commitments allocated by the G7 donors, aid total received by a recipient. Values in parentheses represent *p*-values. *, **, and *** display the significance levels at 10%, 5%, and 1% respectively

authors consider the ratio of net oil import–oil consumption of donors to represent the donors' energy security motives. Their analysis shows that strategic interests in terms of oil security impact the G7 donors' aid allocation since a higher oil interest of donors (i.e., higher oil import) results in a higher aid to oil-rich recipient countries. Energy security motives encourage the G7 donors to provide more aid. The oil–aid nexus is highlighted in this study, which shows that the oil endowment held by recipient countries significantly impacts aid commitments by the G7 donors. In other words, oil-rich developing countries are more inclined to receive aid from the G7 donors that are oil importers. Table 3 shows that the coefficient associated with the variable oil reserves is positive and significant. A 1% increase in oil endowment results in a 0.0498% increase in the share of a recipient in the total aid of the G7 donors (column 2). This coefficient given in column 3 indicates that a 1% increase in oil endowment of a recipient leads to a 0.0232% increase in aid received from the G7 donors.

Donors' preferences in aid distribution may be represented by the influence of colonial ties and language homogeneity between aid organizations and recipients (Berthelemy & Tichit, 2004; Maiden & Brockway, 2018). Several African countries have received aid from their former colonizing country. Maiden and Brockway (2018) consider the case of agricultural aid distributed to 56 villages in northern Mali in 2015 and found that several international aid organizations like the FAO and the Red Cross do not seem to target their aid in need as the most vulnerable villages to exogenous shocks seem not to receive the highest aid flows. There is rather a strong nexus between aid and language preference as their findings show that French-speaking villages with French-speakers leaders can receive more aid than others (five other languages). The authors interpret this criterion influencing aid decision as a proof to assumptions that French-speaker leaders are rewarded for being better educated and more closely aligned with the central government in the use of aid.

4.2   Optimal Aid Allocation: How Should Aid Be Allocated?

It is undeniable that performance (i.e., good governance, good macroeconomic policy in recipient countries, etc.) is the most frequent argument to explain aid distribution. International institutions such as the World Bank, the Asian Development Bank, and the European Development Fund, continue to promote this criterion in their aid allocation despite its limitations.

From a normative point of view, many issues are under debate regarding the optimal choice for aid allocation (Collier & Dollar, 2001, 2002; Wood, 2008, Llavador & Roemer, 2001; Cogneau & Naudet, 2007; Carter, 2014; etc.). For instance, Collier and Dollar (2001, 2002) adopt a utilitarian vision by maximizing a social welfare function, which is the reduction of poverty in all recipient countries. More precisely, Collier and Dollar (2001, 2002) estimate the aid allocation that maximizes the reduction of the number of poor in recipient countries. The following optimization problem in Collier and Dollar (2002) summarizes this idea:

$$\underset{\{A^i\}}{\text{Max}} \left\{ \text{Poverty reduction} \equiv \sum_i G^i \alpha^i h^i N^i \right\} \quad \text{subject to} \quad \sum_i A^i y^i N^i = \overline{A}, \quad A^i \geq 0,$$

where $U^i = G^i \alpha^i h^i N^i$ is country i's utility function that depends on its growth rate of per capita income G^i, its elasticity of poverty reduction with respect to income α^i assumed to be equal to -2, its poverty index h^i, and its population N^i. This expression of U^i represents the number of poor in reduction depending on aid as growth rate G^i in recipient country i is a function of aid A^i. The constraint indicates that the sum of aid allocated to all countries (where y^i is per capita income in recipient country i) should be equal to the total available amount of aid $\overline{A}$. The main idea of the optimization problem is the following. The reduction of poverty depends on several factors such as economic growth, initial poverty, and growth elasticity of poverty reduction. Economic growth is in turn influenced by aid and policy quality. Consequently, the optimal aid allocation reducing the poverty is determined by the initial poverty of the recipient country and their policy quality.

The first-order condition for this maximization problem implies that $G_A^i \alpha^i h^i N^i = \lambda y^i N^i$, for any i, where λ corresponds to the shadow value of aid and G_A^i is the marginal effect of aid on growth rate depending on aid amount A^i, and, in particular, on the recipient policy performance measured by CPIA. Table 4 presents the estimated values of G_A^i using data on 59 recipient countries over the period 1974–1997.

Based on these first-order conditions and the estimate of G_A^i, Collier and Dollar (2002) propose an optimal aid allocation that is different from the observed one. Compared to the observed allocation of aid, the Collier and Dollar's allocation gives more aid to the poorest countries implementing the highest policy quality (high CPIA). In other words, an optimal aid policy should give more aid to countries that use it more efficiently for the goal of poverty reduction. However, Dalgaard et al.

Table 4 Aid impact on growth and policy performance (Collier & Dollar, 2002)

			Derivative of the growth rate with respect to 1% of GDP in aid, evaluated at:		
			CPIA		
			2.16	3.04	3.91
Aid/GDP	0	I	0.13	0.40	0.67
		II	1.39	0.55	0.70
		III	−0.01	0.36	0.72
		IV	0.29	0.47	0.65
	2.15	I	0.04	0.32	0.59
		II	0.23	0.39	0.55
		III	−0.10	0.27	0.64
		IV	0.20	0.39	0.56
	4.70	I	−0.06	0.21	0.48
		II	0.05	0.21	0.37
		III	−0.20	0.17	0.53
		IV	0.10	0.28	0.46

Notes: G_A^i is evaluated at three different levels of aid (0%, 2.15%, and 4.4% of GDP) and three different values of CPIA (2.16, 3.04, and 3.91) for four different specifications

(2004) suggest reconsidering the Collier and Dollar's rule and shed light on a deep nexus between aid effect and structural characteristics in terms of institutions or climatic circumstances. According to these authors, strong fundamental character-istics may compensate for a bad policy performance. In the same vein as Collier and Dollar (2001, 2002), Wood (2008) includes an intertemporal aspect in his analysis and considers not only initial poverty but also future poverty in aid donors' objective function.

This utilitarian approach of Collier and Dollar is criticized for its lack of consideration for fairness. In this sense, Llavador and Roemer (2001) and Cogneau and Naudet (2007) adopt the Rawlsian principle in calculating the optimal allocation of aid in order to satisfy the objective of equal opportunities. To equalize the growth opportunities of recipient countries, the donors should provide an allocation that compensates countries for bad initial circumstances so that the final differences in outcomes between countries will be only imputed to differences in their efforts, not their initial circumstances. In Llavador and Roemer (2001), the effort variable is defined by economic management, which is the weighted average of three macroeconomic markers: budget surplus relative to GDP, inflation, and trade openness. The initial circumstances or initial disadvantages of country i are defined as the component of the growth rate, which is not explained by effort or aid.

Cogneau and Naudet (2007) underline that the optimal aid allocation of Llavador and Roemer (2001) is paradoxically in favor of countries with high macroeconomic performances such as South Korea, Indonesia, and Thailand (low inflation, small budget deficit, and major open trade) to the detriment of countries with bad circumstances such as Nicaragua and Zambia. That devises a way of allocating aid that also includes equal opportunity by using another method. These authors

separate the effort and circumstances of recipient countries as in Llavador and Roemer (2001) but use the same framework as Collier and Dollar. However, their aid allocation shares out poverty risks more fairly among the world's population, and their results show that donors should give more aid to the poorest countries than the observed aid allocation.

Note that there is a trade-off between need and effectiveness in the performance-based principle mentioned above. The poorest countries with the greatest need often have the lowest performance or lowest absorption capacity, that is, they are judged to use aid less effectively (McGillivray & Pham, 2017). It seems that such an aid allocation makes a dichotomy between fairness (favoring need criterion) and efficiency (favoring performance criterion). In addition, performance is narrowly defined and is only one attribute, among others, influencing aid effectiveness (McGillivray, 2003; Amprou et al., 2007). This performance approach may be considered as inequitable, ignoring structural handicaps in poor countries and then providing less aid to countries that need it most. Guillaumont et al. (2017), McGillivray and Pham (2017), and Guillaumont et al. (2018) focus on a fairness argument when underlying the lack of human capital and recipient's economic vulnerability rather than policy rating in allocating aid. To go beyond the limitations of the performance approach, Guillaumont et al. (2017) propose an augmented performance-based aid allocation that takes into account an index of structural vulnerability and an index of low human capital in the measurement of performance rather than the country policy rating as mentioned in the above IDA formula. Their analysis proposes that the performance approach used in several multilateral development banks could be improved by taking into account these structural handicaps of recipient countries: more aid should be provided to countries with a high economic vulnerability. Their argument fits in a philosophy of fairness that proposes that aid should compensate the recipient country for its vulnerable initial situation so that all countries can obtain the same initial opportunities.

Carter (2014) proposes an optimal aid allocation that maximizes the welfare of recipient countries rather than economic growth and assumes that recipient countries are neoclassical economies undergoing transition dynamics. This study is based on a neoclassical growth model that permits a welfare-based allocation of aid. In this setting, the objective of maximizing welfare in recipient countries may lead to an optimal allocation giving more aid to countries that are least able to stimulate economic growth. The donor optimization problem consists of allocating a total amount of aid $\overline{A}$ to m recipient countries by choosing parameters β and γ in allocation rule to maximize the sum of recipient lifetime utilities:

$$\underset{\beta,\gamma}{\text{Max}} \sum_i \int_0^\infty L_{it}.U\left(c_{it}\right) e^{-\rho t} dt \text{ subject to the allocation rule } aid_{it} = \frac{y_{it}^\beta P_i^\gamma N_{it}}{\sum_j^m y_{jt}^\beta P_j^\gamma N_{jt}} \overline{A}$$
(1)

and subject to the optimizing behavior by households (Euler equation), capital accumulation, initial capital in each recipient, and its absorptive capacity constraint.

Table 5 Optimal coefficients in the allocation rule under aid impact function and total aid amount (Carter, 2014)

Varying D.		
	V_A	
$D/\sum Y_i (\%)$	β	γ
2	-1.45	0.65
3	-0.58	0.625
5	0.2	0.625
10	0.975	0.625

Notes: V_A is the impact function of aid determining the relationship between gross received aid and effective aid. Total aid takes four levels: 2%, 3%, 5%, and 10% of total GDP in m recipients

The measure of absorptive capacity P_i that enters in the allocation rule is defined as the percentage of aid absorbed at some reference level of aid and assumed to be constant over time. Recipient i receives a share $\alpha_{it} = \frac{y_{it}^\beta P_i^\gamma N_{it}}{\sum_j^m y_{jt}^\beta P_j^\gamma N_{jt}}$ of the fixed total amount of aid $\overline{A}$, and α_{it} varies over time.

Table 5 shows the optimal values of β and γ for four levels of total aid and the impact function of aid V_A that determines the relationship between gross received aid and effective aid. According to their numerical simulations based on the above optimization problem, it is shown that when aid generosity is high, the optimal value β becomes positive. It means that the optimal allocation may not favor the poor countries as in the presence of absorptive constraint: giving too much aid to poor recipients is wasteful and inefficient. The optimal sensitivity to absorptive capacity, γ, seems not affected by the total amount of aid.

In a companion paper, Carter et al. (2015) assume that a donor in the North anticipates that consumption and investment decisions are made by optimizing households in the South (recipients) and takes into account limits in the extent to which recipients can effectively absorb aid. The donor then maximizes a weighted average of welfares in the global North and the global South by choosing an optimal path for international transfers. Here, the North and South's welfare function is the intertemporal utility of representative households, which depends on their consumption paths. By running simulations with specific preferences, Carter et al. (2015) find that optimal transfers depend on several factors: (1) the weight a donor sets on recipient welfare, (2) the form of utility functions, (3) the recipient's capacity to absorb foreign aid, (4) the relative level of the balanced growth path of the recipient, and (5) the recipient's initial distance from that balanced growth path.

5   Discussion and Conclusion

We have provided an overview of the allocation and effectiveness of foreign aid. From theoretical and empirical perspectives, we have looked at internal and external factors that explain why foreign aid is effective in some recipient countries but

ineffective in others. We have also discussed the criteria and conditions for optimal aid allocation, taking into account recipient characteristics and donors' preferences. In brief, the effects and optimal aid allocation depend on both sides: donors and recipient countries. They rely not only on the forms of aid but also on the recipient countries' circumstances.
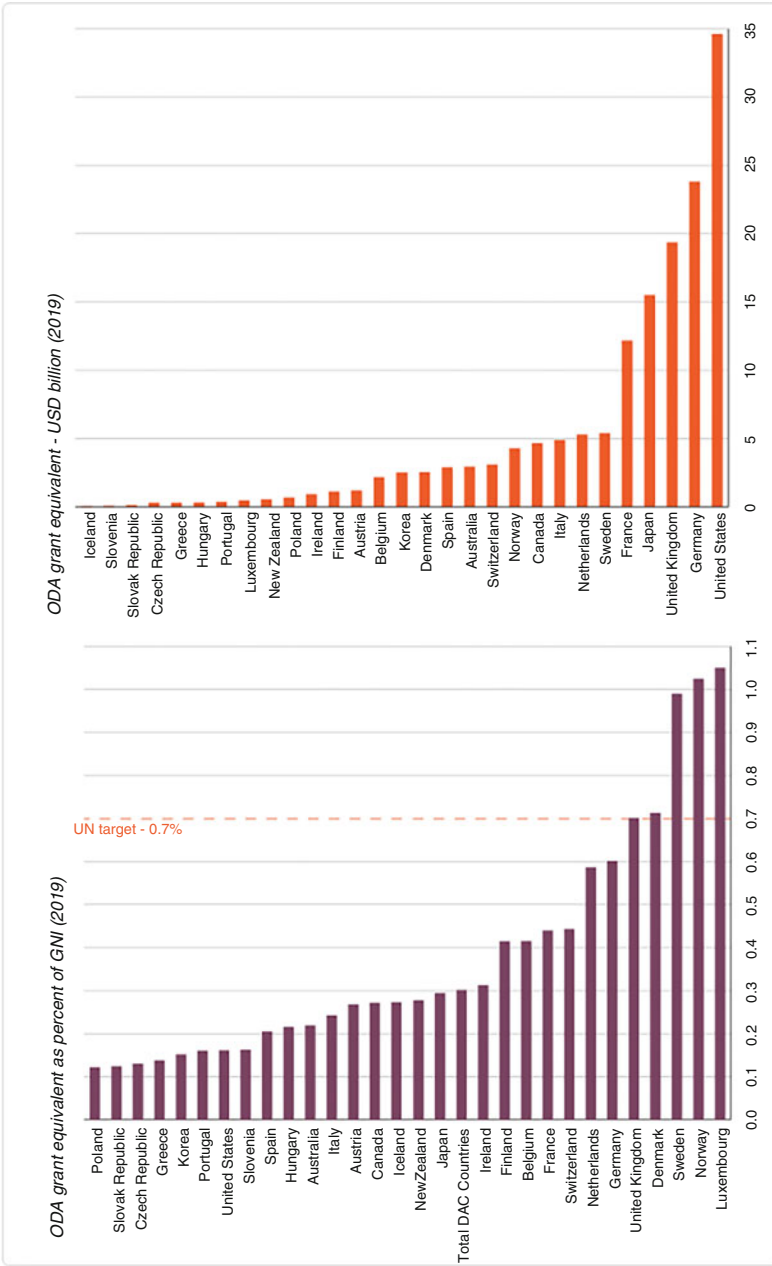
We conclude by mentioning the issue of foreign aid in the context of the Covid-19. The current global pandemic has led to an economic crisis in most countries in the world. It is the worst economic crisis since the Great Depression. The most vulnerable and less developed countries suffer from the economic and health crises more than the developed countries. Achieving the post-2015 Sustainable Development Goals becomes more and more difficult in a worldwide crisis environment, whereas most of the donors do not meet the amount of ODA equal to 0.7% of GNI targeted by the United Nations (except for Luxembourg, Norway, Sweden, Denmark, and the United Kingdom as shown in Fig. 4).

For most of the poorest countries, the Covid-19 crisis is revealing and exacerbating their existing vulnerable situations, and they need more than ever foreign aid. Therefore, this current crisis has important implications for foreign aid budgets and donors' priority. Questions arise to the aid policy carried out by donor countries: What do we expect from donors during and after the current world crises? Do such crises lead donor countries to reduce foreign aid?

The joint statement by the OECD Development Assistance Committee (DAC) in Avril 2020[9] recognized that the Covid-19 pandemic "does not respect national boundaries" and "demands a strong, coordinated, inclusive and coherent global response. International and multilateral cooperation is more important now than ever." There are reasons to expect that statements made by the OECD DAC members will be honored and foreign aid would not be cut in the next years. Moreover, as assessed in OECD (2020),[10] ODA flows in its 60-year story have been the most stable external resource for developing countries and resilient to economic crises. When considering economic and health crises as global public bad, it is important to stabilize or increase foreign aid budgets allocated to developing countries since it is in all countries' interest to control and eliminate global crises. Donor governments may also have support from citizens in their countries during the crisis period if presenting foreign aid as a strategic policy for the global public good, not as a charity program (Kobayashi et al., 2021).

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[9] OECD (2020), "COVID-19 Global Pandemic: Joint Statement by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD)", OECD, Paris, https://www.oecd.org/dac/development-assistance-committee/DAC-Joint-Statement-COVID-19.pdf.

[10] OECD (2020), "Six decades of ODA: insights and outlook in the COVID-19 crisis", OECD Development Co-operation Profiles 2020, OECD Publishing, Paris. https://doi.org/10.1787/2dcf1367-en.

Fig. 4 ODA from members of the OECD's Development Assistance Committee in 2019. (Source: OECD.org)

OECD (2020), DAC 1 - Total fficial and private flows

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