

Conclusions

5.1 Summary

Foreign aid remains an important source of government revenues in developing countries. Therefore, the behavior of a recipient country's government may be crucial in understanding aid effectiveness. This PhD thesis focuses on the impact of development assistance on government expenditures and contributes to the fungibility and fiscal response literatures.

Chapter two investigates the impact of development assistance on government expenditures among 118 aid recipients in the period 1980–2012. First, I re-examine the fungibility of total aid at the aggregate level in the short- and long-term. Aid is found to be partly fungible: in the long-run, government expenditures increase by between 40% and 50% of aid, and the adjustment process is gradual as aid is highly fungible in the short run. There is no evidence that the response of government expenditures depends on whether aid is increasing or decreasing, which suggests that the governments are able to replace missing revenues to a large extent when aid is decreasing. It follows from the government budget constraint that when aid is fungible at the aggregate level, government adjusts domestic revenues or net borrowing, or that aid bypasses the budget. The results of aid's impact on government revenues indicate that own domestic revenues decrease in response to aid. In this chapter, I distinguish between off- and on-budget components of aid.

Technical cooperation is used as a proxy for off-budget aid. Since off-budget aid is not recorded in the budget, it is non-fungible if government expenditures do not change in response to aid. While on-budget aid is partly fungible, as expected, off-budget aid is found to be non-fungible. Moreover, the differences between bilateral and multilateral aid suggest that their impact on government expenditures may be different. I test this hypothesis and find that multilateral aid is less fungible than bilateral aid.

In chapter three potential endogeneity of aid is addressed. Aid may be endogenous in regressions explaining government expenditures due to at least three factors. Firstly, the recipient country's government may be allowed to determine the timing of aid disbursement and therefore the level of aid may depend on domestic revenues. Secondly, donors may target countries that fail to provide merit goods. Thirdly, some countries, possibly those with good policies, may be allowed to treat part of the aid as fungible. I use two instrumental methods from the fungibility literature. First, the difference and system GMM estimators are applied to the same dataset as was used in chapter two. I discuss advantages and disadvantages of these estimators and then apply these methods closely following the recommendation of Roodman (2009a). Aid is found to have a statistically insignificant impact on government expenditures in most specifications. However, this is not a conclusive result as I find that the instrument set is weak. Moreover, I show that unless these estimators are applied with great care, they can easily generate misleading results. In this chapter, I also replicate the results of Chatterjee et al. (2012) and show that their difference GMM estimate, and especially their system GMM, is not robust to changes in the instrument set. Second, an instrument set based on geographical and cultural proximity between the donor and the recipient is used. In the models that use dynamic specification, the aid coefficient is close to zero and insignificant. For the models without lagged government expenditures aid is statistically significant and the government expenditures increase by between 48% and 64% of aid. However, this instrument set is weak according to various specification tests, which suggests that the results may be biased.

Chapter four investigates the causal links between on-budget aid and government expenditures. I use Granger causality methods for panel data

to investigate whether on-budget aid is useful in predicting government expenditures, and whether government expenditures are useful in predicting on-budget aid. Firstly, I investigate whether Granger causality does not exist in the whole sample using the Homogenous Non Causality (HNC) hypothesis. The HNC is rejected, which means that there exist at least one country where aid Granger-causes government expenditures and at least one country where government expenditures Granger-cause aid. In the next step, the Homogenous Causality (HC) hypothesis is tested: under the null hypothesis the causality pattern is homogenous among all countries. Not surprisingly, this hypothesis is also rejected, which means that the causality patterns differ among countries. Therefore, the Heterogenous Non Causality (HeNC) hypothesis is tested for each country. I find that for most countries neither on-budget aid Granger-causes government expenditures nor government expenditures Granger-cause on-budget aid. These results suggest that aid is fungible, and that donors do not respond to the budgetary situation in the recipient country. Furthermore, these results indicate that improvements in the use of government resources due to donor involvement or lower taxes and borrowing are likely channels of the impact of aid on development indicators, rather than the financing role of on-budget aid (the quantity effect).

In summary, in this PhD thesis I have used various econometric techniques to investigate the impact of aid on government expenditures using extensive recent dataset. Aid is found to be partly fungible and each additional euro of aid increases government expenditures by around 40 to 50 cents. Off-budget aid is found to be non-fungible, while on-budget aid partly fungible. Moreover, the fungibility of bilateral and multilateral aid differs. I believe that a potential bias coming from endogeneity of aid in this regression is small. However, I also show that two instrumental methods used in the fungibility literature are unlikely to provide reliable, unbiased results. Moreover, as expected in a large sample of countries, the impact of aid on government expenditures is heterogenous. Overall, these results suggest that part of aid is financing other projects than intended by the donor and that the amounts spent on earmarking are at least partly wasted. As noted in the introduction, fungibility is not necessarily bad for development. Recipient countries may allocate aid to more needed investments and aid may decrease taxes, which are often

distortionary. Therefore, partial fungibility of aid means that at the macro level, aid's impact is a sum of increased spending, increased private consumption and savings (due to tax decreases), and potential improvements in the structure and quality of government expenditures due to the donor involvement.

5.2 Further research

As in many other applied fields of economics, there is an enormous discussion about instruments in aid effectiveness studies. However, there seems to be insufficient discussion about the data quality. The Development Assistance Committee (DAC) of the OECD is the main source of foreign aid data. Despite their big effort to harmonize donor practices and standardize reporting methodology, the dataset of foreign aid across countries is still not without problems. Aggregate aid consists of many different types of aid: grants and loans, cash transfers, goods etc. Therefore, the impact of aggregate aid, both in fungibility and aid-growth studies, reflects the influence of many different factors. This would indicate that disaggregated data should be used to estimate the impact of aid. However, while some dimensions of disaggregation are available (e.g. loans and grants, or bilateral and multilateral aid), many important aspects are missing. For example, as discussed in chapter two, there is no information on whether aid is channeled through the budget, or whether it bypasses the budget and directly reaches ultimate beneficiaries. Moreover, information on the sectoral allocation of aid is incomplete for many years in the Credit Reporting System of the OECD (see e.g. Van de Sijpe 2013b). Also, non-DAC members like China and Saudi Arabia are becoming increasingly important aid donors and the information on their activities is incomplete (see e.g. Manning 2006 or Dreher et al. 2010). Data on private donations are also largely incomplete, and for some donor countries, especially the US, private donations may account for a significant proportion of total development assistance. Furthermore, the data on government finances are of dubious quality (see e.g. Morrissey 2012). For example, the IMF WEO database contains only very limited information about tax revenues. Data on net borrowing and lending are not collected, but are calculated as a difference between estimated government expenditures and estimated government revenues (as

discussed in chapter two). These data problems not only hinder investigation of various channels that could increase our understanding of aid effectiveness, but also increase the probability of reaching invalid conclusions because of the noise in the data that are available. Nevertheless, the quality of the aid data seems to be improving, for example the coverage of CRS data from the OECD has substantially increased, and new initiatives like AidData research and innovation lab (<http://aiddata.org/>) give hope that more comprehensive and reliable data will be available in the future. As I show in chapter three, the validity of earlier results from the literature should be tested with the most recent data and new econometric techniques. The case study literature describing budgetary processes in developing countries is mostly ignored in econometric studies of fungibility. The impact of aid on government expenditures depends on the information about the amount, composition, and timing of aid disbursement the recipient country's government possess. For example, the fungibility of aid may depend on the uncertainty with regard to the exact amount of aid disbursement in the coming year. It is likely that the models used in aid effectiveness studies miss potential channels of aid impact. Qualitative research could contribute to better understating the determination of government expenditures and the role the donors play, and hence it would be possible to improve existing theoretical and empirical models.

