1. INTRODUCTION

In the run-up to the global financial crisis, development aid increased markedly, reaching a peak around the Gleneagles summit in 2005 (Figure 1). However, the strains caused by the 2008–09 downturn on public finances in donor countries raised concerns that the supply of aid would decline. Although the immediate impact of the crisis on aid flows was not as deleterious as expected, the risk that development aid will fall is still looming. Given the prolonged recession and uncertain economic prospects facing a number of leading donor countries, it is natural to ask whether aid flows are at risk of being cut in the near future. To answer this question, we must examine the link between aid flows on the one hand, and macroeconomic fluctuations in donor and recipient countries on the other.

We empirically assess how donor- and recipient-country macroeconomic conditions affect foreign aid flows, focusing on both “normal” business cycle fluctuations and “unusually large” adverse shocks. Specifically, we provide answers to the following questions: To what extent does the business cycle in donor countries influence their aid outlays? Has this impact been large and persistent during past recessions? Similarly, how do macroeconomic conditions in aid-dependent countries influence their aid receipts? What happens to aid flows during synchronized recessions—in which both the donor and the recipient experience large negative shocks? We tackle these questions using an empirical aid allocation model to which we add a wide range of business cycle variables and measures of large macroeconomic shocks. Our dataset represents bilateral (country-pair) aid flows from 22 OECD donors to 113 aid recipients over 1970–2005.

We find that foreign aid is on average procyclical with respect to the donor and recipient output cycles, rising during expansions and falling during recessions. In particular, donors reduce aid outlays significantly during periods of severe economic stress. But bilateral aid becomes countercyclical when aid recipients are hit by large adverse shocks, increasing significantly during sustained episodes of negative growth and terms-of-trade (TOT) collapses. These effects tend to be persistent. When both the donor and recipient country experience large negative macroeconomic fluctuations, there is no additional impact on aid flows. Our results are robust to alternative definitions of aid flows and across specifications and estimation techniques.

We estimate an empirical aid allocation model using a rich panel dataset with information on country-pair aid flows and country characteristics. The three-way nature of the panel affords us a number of advantages over standard donor- or recipient-level models employed in the literature. First, bilateral data provide a rich amount of variation, allowing us to estimate the model on sample sizes of almost 90,000 observations and increasing the precision of our estimates. Second, we can

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estimate the business cycle effects on aid disbursements while controlling for time-invariant unobserved heterogeneity in the donor-recipient relationships (which is subsumed into country-pair fixed effects). Third, the data enable us to assess the impact of country-level variables such as negative economic shocks that simultaneously affect the donor and the recipient. Fourth, bilateral data help reduce concerns regarding reversed causation that plague traditional country-level panel regressions because the dependent variable captures pair-level information while many regressors vary at the country level.


The recent crisis has spurred new work on the link between conditions in donor countries and aid flows. Using donor-level regressions, Dang et al. (2009) show that aid falls substantially after systemic banking crises after controlling for their impact on output. Frot (2009) estimates that banking crises in donor countries cause reductions in aid by 13% on average (level effect) and by 5% yearly after the onset of a crisis (trend effect). Mendoza, Jones, and Vergara (2009) find that stock market volatility in the United States of America—a proxy for financial stress and economic uncertainty—is associated with lower aid disbursements. We expand this line of research by showing that there is a robust and systematic average relationship between donor country conditions and aid disbursements. We also document interesting heterogeneity in donor behavior by showing that donors’ tendency to disburse procyclically relative to their own cycle is inversely related to the quality of their aid-related activities.

With respect to the recipient-country cycle, most of the existing evidence, including ours, suggests that foreign aid is procyclical with respect to output and revenues. For instance, Pallage and Robe (2001) show that in half of developing countries and in most African economies there is a high positive correlation between the cyclical component of aid receipts and that of domestic output. As Svensson (2000) shows analytically, this procyclical result can be explained by moral hazard arguments: in the second-best equilibrium with unverifiable government actions, the donor ties aid disbursements to the recipient country’s macroeconomic performance because they cannot distinguish whether downturns are caused by exogenous shocks or by macroeconomic mismanagement.


2. DATA, DEFINITIONS, AND DESCRIPTIVE STATISTICS

(a) Data and definitions of aid and business cycle variables

We construct our dataset starting with OECD-DAC information on bilateral aid flows from 22 donors to 113 recipients over the period 1970–2005, giving us about 90,000 observations. Our dependent variable is real bilateral foreign aid, defined as bilateral official development assistance (ODA) net of principal repayments. From this aggregate we subtract humanitarian emergency aid, emergency food aid, and debt forgiveness grants, since these may be primarily driven by shocks in recipient countries and hence not have the same cyclical properties as regular development flows.

A potential problem with using bilateral flows is that the data contain many zero entries. Dropping these observations may bias our results if such entries were nonrandom, for instance by reflecting unobserved characteristics of the donor-recipient pair. Following Arndt, Jones, and Tarp (2010), we retain these zeros since they mainly represent unreported null values rather than absent data. In addition, we adopt a semi-log transformation of the form:

\[ \text{aid}_{ijt} = \text{sign}(\text{aid}_{ij}) \log(1 + |\text{aid}_{ij}|), \]

where \( \text{aid}_{ij} \) denotes real bilateral aid from donor \( i \) to recipient \( j \) at time \( t \). With this transformation of the dependent variable,
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