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The United States Agency for International Development and forest loss: A cross-national analysis of environmental aid[☆]

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ABSTRACT

Among scholars of international development, there is a debate regarding the effectiveness of bilateral aid to improve the natural environment. Here we focus on evaluating whether United States Agency for International Development's (USAID) aid in the environmental sector reduces forest loss. Little empirical evidence exists on this question, partly because of the challenge of modeling such a relationship, given the problem of endogeneity whereby the same social, political, or economic processes that affect forest loss may also be correlated with a nation receiving aid from international donors. We contribute to this debate by utilizing a two-stage instrumental variable regression model to analyze cross-national data for a sample of 74 low and middle income nations. After controlling for potential endogeneity, we find that higher levels of USAID's aid for environmental protection correspond with lower rates of forest loss. We also find that a forest's proximity to infrastructure, agricultural and forestry exports, agricultural land area, and tropical climate are related to increased forest loss.

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1. Introduction

The United States Agency for International Development (USAID) has provided low and middle income countries bilateral aid in the environmental sector over the past twenty years. In 1990, when it first institutionalized such aid, it supported approximately \$125 million of projects in the environmental sector (AidData, 2016). By 2000, its aid for environmental protection doubled and, in 2010, it was approximately \$380 million (AidData, 2016).

The aid supports projects and efforts that improve the natural environment, like limiting forest loss. This aid in the environmental sector can take on a number of forms. In some instances, projects involve “strict” conservation efforts with the intention of completely protecting areas of forest and enforcing such efforts with patrols and boundaries (Miller, 2014). In other instances, however, projects involve “mixed” conservation efforts that integrate livelihood concerns of local people while protecting forests (Miller, 2014). Mixed conservation efforts entail creation of buffer zones that allow limited extractive activities like farming or fuelwood collection. There is also attention given to clearly defining property rights and land tenure systems (Bryant & Bailey, 1997). Given the variety of types of projects and approaches to conservation, it is incumbent upon scholars to better understand what factors drive forest loss or reduce it by bringing empirical evidence to bear on this question.

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However, to our knowledge, there is no cross-national research that evaluates the effectiveness of USAID aid concerning forests. This is somewhat surprising for a number of reasons. First, social scientists have long called for research that evaluates how international organizations impact the natural environment. For instance, Young (1992) calls for efforts to determine if international organizations are able to achieve their intended goals and, if so, elaborate on why that does occur. Similarly, Buttel (1996) questions whether international organizations that support environmental projects and programs are effective or simply “window dressing.”

Second, there is a nascent but growing literature that examines how bilateral aid in the environmental sector impacts forests. For example, Arvin and Lew (2009) find that higher levels of bilateral aid in the environmental sector correspond with increased forest loss. Bare, Kaufman, and Miller (2015) reports a similar finding for in Sub-Saharan African nations and contributes it to programs creating protected areas that displace local people, who go on to clear forests elsewhere. However, Bare et al. (2015) argues that the empirical findings may arise as a result of not addressing donor selection bias, examining only one geographical region, or using a measure that includes aid from several bilateral donors, which may have differing effects on the environment. Hermanrud and de Soysa (2017) begin to address such issues in their study by using a two stage model to control for potential donor selection bias. Using this approach, the authors find that Norwegian bilateral aid in the forestry sector has no impact on forest loss.

Third, it is now possible to obtain data on USAID's aid (AidData, 2016). The information available includes recipient nation, amount, sector, and approval date (AidData, 2016). There is also a brief project description available in many instances (AidData, 2016). By utilizing this information, more detailed analyses are possible to perform, yielding greater specificity in our empirical assessments of different aid projects.

These three points provide the justification and starting point for our study in which we extend the research frontier in novel ways. First, we focus *solely* on the USAID and how its bilateral aid in the environmental sector affects forest loss. We do so in an attempt to isolate the impact of this one donor's aid for the environment on forests, seeing as bilateral aid institutions may pursue differing policies guided by their own institutional mandates. Second, we do not restrict our analysis to only one region, but rather include all low and middle income nations according to the World Bank's (2016) classification for which data are available. We expand the population of interest because forest loss is not concentrated in only one geographical region of the world. Third, to address the potential impacts of donor selection bias when evaluating the effects of bilateral aid on forest loss, we use a two stage instrumental variable regression model (Easterly, 2005).

We now turn to a discussion of USAID and why its aid in the environmental sector may be associated with less forest loss. We then go on to discuss the variables and methodology that allows us to address potential problems with selection bias. We conclude by discussing the find-

ings along with the theoretical, methodological, and policy implications.

1.1. The United States Agency for International Development and forest loss

USAID has been financing projects that support environmental protection to some extent since the 1970s (Brockington & Duffy, 2011). However, the projects it funded were relatively small scale and ad hoc in nature (Bower Kux, 1991). By the late 1980s, however, it began taking environmental issues seriously (Corson, 2010). This change came in part as the result of a number of factors. First, the institution responded to a highly publicized campaign in the United States Senate by non-governmental organizations, who critiqued and raised awareness against the World Bank for its role in causing forest loss in Brazil (Rich, 1994). There was concern USAID's funding might be compromised because it also supported projects in the region, leading it to develop its focus on environmental protection (Goldman, 2005). Second, the United Nations World Commission on Environment and Development's publication, *Our Common Future*, renewed concern about environmental issues and their potential impact on economic growth (Bryant & Bailey, 1997). In response, the United States Congress passed an appropriation bill requiring USAID to fund \$4 million worth of biodiversity and conservation projects annually (Bower Kux, 1991). By 1990, the agency was providing \$125 million of bilateral aid to support the natural environment. At the turn of the century, this figure doubled to \$250 million worth of aid in the sector (AidData, 2016).

Its earliest efforts often involved establishing forest borders as a first step in conservation and environmental protection (Adams & Hutton, 2007). The money would be spent to demarcate protected areas and monitor them for illegal logging (Miller, 2014). In many instances, this bilateral aid greatly increased the recipient government's spending on the environment (AidData, 2016). For example, USAID provided a \$5 million grant to Sri Lanka during the 1980s to create a system of wildlife parks (United States Agency for International Development, 1995). The program declared certain activities – including grazing, logging, and hunting – illegal in the protected areas. The guards who were trained as part of the grant enforced the ban (United States Agency for International Development, 1995). There were similar programs put in place in Costa Rica, Jamaica, Madagascar, Nepal, and Thailand (United States Agency for International Development, 1995). In the end, these programs relied on the tactics of “guns, fences, and fines” to promote forest conservation (Kangalawe & Noe, 2012).

However, such programs were soon criticized because local people were excluded from protected areas by armed patrols (Bryant & Bailey, 1997). While “environment-first” rather than “people-first” projects remain a staple of USAID's conservation efforts, the agency now seeks to reduce pressure of forests by providing alternative sources of income to local people (Adams & Hutton, 2007). This idea follows from recommendations from the study, “People and Parks: Linking Protected Areas with Local Communi-

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