Can conservation be pro-poor? Evidence from an impact evaluation of a REDD+ program in Sierra Leone
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Protecting Tropical Forests is key in reducing global warming and loss of biodiversity. This is of special concern in Africa, where deforestation rates are twice that of the rest of the world (FAO 2010). Deforestation is seen as an important cause of global warming (Fearnside 2000). For this reason, reducing deforestation is high on the agenda for a range of international actors. One worldwide approach to reducing deforestation are the Reduced Emissions from Deforestation and forest Degradation (REDD) programs. REDD programs are aimed at conserving forest areas to offset carbon emissions. However, conservation programs often have implications for the livelihoods of surrounding communities, potentially weakening economic indicators. REDD+ programs therefore also aim to provide support to the communities affected by the conservation efforts.

Land is an increasingly scarce resource in Sierra Leone, where deforestation is caused by agricultural expansion, logging, and mining activities. In eastern Sierra Leone, the Gola REDD+ project conserves the forested area of Gola Rainforest National Park (GRNP). In total, the area comprises of 68,515 ha of original tropical forest. In 2014, the program commenced with a range of livelihood activities supporting 114 impoverished communities directly surrounding the forest. Activities included agricultural training programs, cocoa production support, and the establishment of savings and loans associations.

In 2014, we collected baseline data for a sample of 30 non-project communities and 29 REDD+ project communities. During March 2019, we collected a new round of data. Presently, May/June 2019, we are processing and analyzing the data. We then aim to analyze the impact of the REDD+ program on communities using a difference-in-difference approach, during summer 2019. In total, we have panel data on 651 households in 59 communities. With the help of pre-baseline data from the same communities, collected in 2010, we can provide supporting evidence for the parallel trends assumption. We estimate impact on two families of outcomes: economic outcomes and conservation outcomes. Each family consists of a range of relevant outcomes, which are assessed independently and grouped in their family in order to provide a better understanding of the potential trade-off between conservation and livelihoods.

Few papers have rigorously examined the impact of conservation programs on economic and conservation outcomes. Within conservation science there are calls for increasing the number of impact evaluations of conservation projects (Baylis et al. 2016; Ferraro 2002). Evaluations to date either make strong identifying assumptions (Miranda et al. 2016; Sims 2010) or are related to conditional cash transfers (Jayachandran et al. 2017). Our paper thus makes a significant contribution by using fewer identifying assumptions and considering an unconditional program.

In addition to measuring the impact of the REDD+ program, we conducted a priors survey, asking local policy makers, NGO staff, and experts in economics, conservation what they expect the impact of this program to be. This allows us to explore how realistic and accurate

the expected effect of experts in the field are compared to the actual effect. Secondly, a comparison across different types of experts can be informative, as the project attempts to achieve two often opposed domains, i.e. conservation versus economic development This exercise thus gives insight into how these two larger goals are perceived by academics from the different backgrounds. Even more so, this exercise can reveal potential competing views between policy makers, academics, and implementers and thereby offer some new perspectives for designing similar programs in the future.

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