### **ABSTRACT #467**

**Presentation or session title**

Does sustainable use of forest resources and new agroforestry-business opportunities allow for better livelihood? The case of the DECOFOS project in Mexico

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**Theme**

Understanding what works

**Objectives/aims**

The territory of Mexico is one of the most diverse in terms of biodiversity and different landscapes in the world. Forest area covers about 30% of the territory (World Bank, 2015), and once all types of wildland are included it accounts for about 73% of the entire territory (Conafor, 2012). Forests serve important ecological and environmental functions: Mexican forest ecosystems bear 10% of the world’s biological diversity and play a stabilizing function in soil and water regimes as well as an important role in the global carbon balance. From an economic perspective, sustainable forest management can provide a reliable source of income and subsistence products to indigenous and non-indigenous communities through the supply of direct economic goods such as timber and other wooden forest products and a whole set of non-timber forest products (Cavatassi, 2004).

Nonetheless, starting from the '80s, Mexico has experienced one of the largest deforestation rates in Latin America due to a number of complex socio-economic and political reasons which have reduced incentives to the sustainable use of forests with negative consequences for their long term conservation (Segura, 2000). According to Segura (2000), the efficiency of the forest community enterprise is a function of the degree of the internal organization of the community, and is related to the importance the community assigns to the forest resource.

As a response to the country forest deforestation and degradation, in March 2011, implementation began of the project Desarrollo Comunitario Forestal en los Estados del Sur (DECOFOS), an initiative financed jointly between IFAD, the Global Environment Facility (GEF) and the Government of Mexico. The project had the dual goal of improving the livelihood of people living in poverty and extreme poverty in degraded or marginalized areas and of contributing to climate change adaptation and mitigation through the restoration and revitalization of degraded lands and deforested areas as well as by supporting, both technically and financially, the implementation of sustainable productive activities. This dual goal is in line with policies and programs for poverty reduction that have been promoted in the country during the last 30 years and, most recently, with the "Cruzada Nacional Contra el Hambre" which is the main social policy strategy of the Government to eradicate hunger in Mexico. Moreover, project's objectives are also aligned with national policies and programs aimed at promoting the reduction of the negative effects of climate change through increased mitigation and adaptation. The project lasted five years in total and was completed in September, 2016.

**Methods**

This ex-post impact assessment relies on a quasi-experimental mixed method approach. Employing both qualitative and quantitative data, the ultimate goal is to create an appropriate counterfactual to be compared to those who received the intervention. For the project under study, the evaluation methodology must address two rounds of selection bias: first, the targeted selection of communities, and second, the self-selection of community members. Thus, both the sampling strategy as well as the econometric approach were chosen with this challenge in mind. For the identification of the control group, the selection process for the impact assessment sought to mimic to the greater extent possible the process and mechanisms applied for the selection of project's beneficiaries among community groups inside eligible municipalities. At the start of the process, there were a number of eligible but non-beneficiary ejidos in the project areas, allowing for control-communities to be selected. We compiled the complete list of potential control communities/ejidos with the help of local implementers. At this point, a propensity score matching approach using data from the National Institute of Statistics (INEGI) from the Censos Ejidal and using variables that proxy the criteria used for selection of villages by the projects[[1]](#footnote-1) was implemented. Applying this methodology, the probability of each community to be selected and to self-select into the project was predicted using a linear probability model. The generated probabilities were then used to apply a Nearest-Neighbour algorithm to match each treatment community to the closest three control communities in terms of propensity score.

While the Propensity Score Matching approach solves the self-selection issue based on observables characteristics, it does not control for unobservable. For this reason, a validation procedure was conducted through expert consultation.

In order to avoid selection on unobservable characteristics, the matched villages have been validated through ad hoc meetings organized in each project state with key knowledgeable people of the local realities and of the project. These meetings had the objective to identify among the full list of potential controls matched with treated villages those communities/ejidos that are as similar as possible to the treated.

Once the selection of treated and control villages had been completed after matching and validation with groups of local expert, a second level of sampling at villages level was conducted for households to interview.

In the treated villages, participants households were selected from a list provided by the project implementers. However, since about 20-25% of households did not participate in the project, we also selected a group of non-participants in participant villages which we call indirect beneficiaries. As for the indirect beneficiaries in each treated village we selected about of 25% of the total sampled households from the list of inhabitants that did not directly participate to the project. Last but not least, a community survey was conducted with a selection of community leaders in every survey location. The sample comprised of a total of 110 communities/ejidos (half treatment and half control) and 2,200 households.

Empirical analysis is conducted using different types of matching estimators which show very robust results across.

**Main findings**

The Decofos project presents different nuances tailored to the diversity of the three Mexican States where it has been implemented. Consequently a richness of heterogeneity is expected across the three states, whereby higher impacts are expected from better and larger use of forest and forest resources in the most forested areas namely Chiapas and Campeche, whereas a stronger focus on agribusiness activities and agro-forestry is expected in the State of Oaxaca. With regard to indirect beneficiaries, results suggests that the project facilitated specialization in the local economy: whereas project participants focussed on the use of forest and non-timber forest products through the use of permits and on starting or strengthening micro-business enterprises, indirect beneficiaries seem to strengthen agricultural activities. Economic mobility is positive across participants. Income, dietary and crop diversification is also a result of the project across the three states. Analysis has also been run controlling for climatic variables and variation to ensure that higher and more diverse forest resources where not linked to more favourable climatic patterns. Impacts on vegetation index have also been assessed. Last but not least, social capital before and after the start of the project was also assessed.

1. Namely population, number of eijodatarios, share of arable land, share of forest, share of degraded area, road, infrastructure, poverty, income sources, etc. [↑](#footnote-ref-1)