# Natural Resource Dependence in Rural Mexico

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*Poster prepared for presentation at the Agricultural & Applied Economics Association 2010 AAEA,CAES, & WAEA Joint Annual Meeting, Denver, Colorado, July 25-27, 2010*

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## Introduction

- The relationship between poverty and natural resources is complex and the empirical evidence to date is inconclusive.

- The main purpose of this work is to empirically identify the effects of income (and its distribution) on natural resource extraction and dependence in rural México.
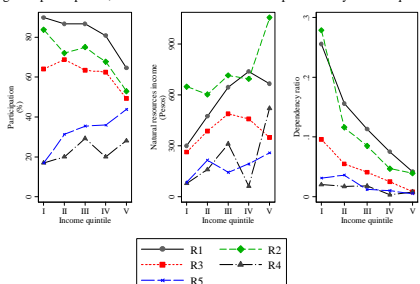
## Data

- To measure dependence we follow the most common measure used in the recent literature: the share of natural resource income in a household's total income.

- We use data from the Mexico National Rural Household Survey (ENHRUM). The survey includes more than 1,600 households from 80 communities in 14 Mexican states along 5 regions.
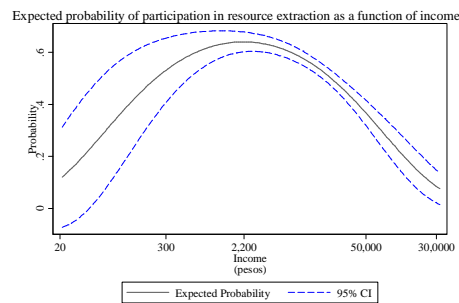


R5
R4
R3
R2
R1

- Given the important differences in terms of both income generating opportunities and natural resource availability across Mexico, it is important to look at dependency and resources extraction participation at the regional level.

- The next figure shows how participation, income and dependence on natural resource extraction vary across income quintiles at the regional level.

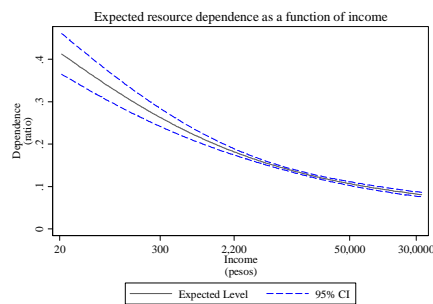Regional participation, natural resource income and dependence by income quintile



## Estimation at the national level

- As a first approach to analyze the households' decision to participate in resource extraction we run a simple probit model. The relationship between income and probability of participation in resource extraction is the following:

Expected probability of participation in resource extraction as a function of income



— Expected Probability    - - - 95% CI

> Probability of participation reaches 64% at around 2,200 pesos (close to the average income of households in the lowest quintile).

- To construct the expected dependency ratio for the households that participate in extraction we estimate a simple tobit model with income as dependent variable.

Expected resource dependence as a function of income
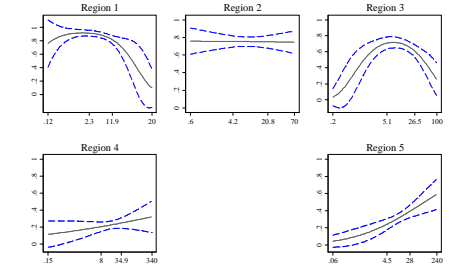


— Expected Level    - - - 95% CI

> Resource dependency decreases with income, from close to 40% of income for the poorest households to less than 10% for the richest ones.

## Estimations at the regional level

- To underscore the regional differences we estimate probit and tobit models for each region (including a set of control variables).
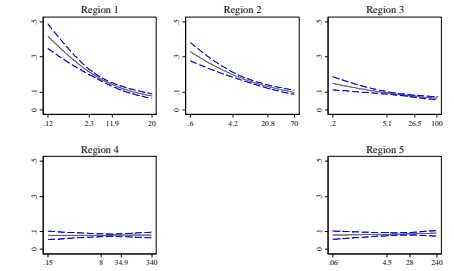
Expected probability of participation in resource extraction as a fucntion of income



Note: Horizontal axis of each panel shows total income (in thousands of pesos) on a log scale.

> The probability of participation varies over regions and there is a clear inverted-U shape relationship for Regions 1 and 3.

Expected resource dependence as a function of income



Note: Horizontal axis of each panel shows total income (in thousands of pesos) on a log scale.

> Dependence diminishes as income increases in Regions 1 and 2. In regions 4 and 5 dependence is independent of the income distribution.

## Conclusions

- In rural Mexico, natural resource extraction is predominantly an activity of poor households.

- There are important differences across Mexico. The south has high participation rates and relatively high dependence. The north has low participation (increasing with income) and very low dependence.

- More research is necessary on differences in resource extraction behavior between rich and poor households to inform public policies aimed at achieving both sustainability and poverty alleviation in rural areas.