

# PRODUCTIVITY *versus* DEFORESTATION IN AMAZON'S CATTLE RANCHING<sup>1</sup>

## General motivation

Possible trade-off between environmental sustainability and economic development

Cattle ranching is the most important driver of deforestation in the Brazilian Amazon

Large expected increase in demand for beef (China effect)



## Expected results

The channels through which productivity affects deforestation depend fundamentally on institutional context. When a specific set of policies is put in place the economic development x environmental conservation trade-off can be eliminated, at least up to a certain point



## Research problem

Under which institutional and technological conditions can increased productivity lead to less deforestation?

Relevant unresolved debate in the literature: rebound effect. Whenever the efficiency of use of a given natural resource increases, a rebound effect tends to lead to an increase in the use of that resource (rather than to a decrease)



## Methods

Econometric analysis + primary data collection & analysis + agent-based simulation



Technology, institutions and the relation between deforestation and economic development in the Brazilian Amazon

The cattle herd has expanded dramatically when large government subsidies were taken away and when high inflation came to an end. It has been the strongest vector of deforestation during the last 15 years.

One of the most advocated solutions for the resulting environmental degradation is the rapid increase in productivity, so that the growing demand for beef be supplied by intensive production gains, not by conversion of new land into pastures. But scholars such as Philip Fearnside believe this strategy may worsen the situation, because of strong rebound effects (back fire).

Thus the question: under which conditions does an increase in cattle ranching productivity have a negative effect on deforestation in the Amazon?

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