Environmental Reserve Quotas in Brazil’s New Forest Legislation

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Brazil’s New Forest Code

Legal Reserve (LR)
Permanent Protection Areas (APP)
Small farms amnesty (SFA)
Environmental Reserve Quota (CRA)
• Legal Reserve varies from 20% to 80%; properties with forest < LR will have to recompose the forest in 20 years

• Otherwise, he can, within the same biome:
  • Donate to the government an area within conservation unit, still not regularized with previous owners
  • The same owner can compensate with LR in another property
  • Environmental servitude – owner voluntarily renounces his right to explore part of the forest

• **Buy Environmental Reserve Quotas (CRA)**

• Outside the same state, the compensation has to be in priority areas (according to state or federal government)
Environmental Reserve Quotas
Agent’s Decision

- Demand side - recompose LR versus buy CRA:
  - If he decides to buy CRA
    Reward 1 = Revenues – Production Costs – Risk Adjustment – CRA Price
  - If he decides to recompose LR
    Reward 2 = - Reforestation Cost (Passive or Active) + Forest Revenue (?)
  - If he decides to do nothing
    Reward 3 = Revenues – Production Costs – Risk Adjustment
    - Expected Fine x Probability of being caught

Decision to Buy: Reward 1 > Reward 2 and Reward 3

- Supply side – sell CRA or use commercially:
  - If he decides to sell CRA
    Reward 3 = CRA Price
  - If he decides to explore
    Reward 4 = Revenues – Production Costs – Risk Adjustment

Decision to Sell: Reward 3 > Reward 4
Challenge Ahead – Need for Market Solutions

- Government budget for environmental actions
Environmental Reserve Quotas

Environmental Debts and Surpluses (2010)

Potential surpluses from Amazonas, Amapá and Roraima were not considered
CRA in GLOBIOM

- CRA in GLOBIOM considered:
  - Simulation areas with larger LR surplus will sell CRA first
  - Simulation areas with larger LR deficits will buy CRA first
  - Market operations are completed till surplus or deficits reaches zero
  - In general crop areas are more profitable
    - We considered a scenario in which only LR deficits in crop areas buy CRA
    - Only LR surplus in non-crop areas sell CRA

- Need to integrate GLOBIOM optimization structure with econometric models for estimation of \([\text{Revenues} - \text{Production Costs} - \text{Risk Adjustment}]\)

- Need spatially explicitly information on restoration costs

- Market equilibrium for supply in demand within different markets
GLOBIOM-Brazil projections for forest regrowth

Figure 40: Projected forest regrowth for different scenarios in Brazil, Amazônia, Cerrado and Mata Atlântica in Mha.
Thank you very much!

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