Landscape scale re-bound effects of policy on local actors' interactions: an agent based model approach*

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Introduction

- Provision of Ecosystem Services (ES) by rural landscapes
- Policy to protect ES (CAP), logic:
  - ES: externality - based on farmers' costs
- But ES benefits farmers themselves:
  - ➢ Provision of ES by farmers is rational
  - Coordination failures
  - Uncertainty about values of ES: novel activities (rural tourism)
- Different policy approach?
  - Conservation policies might create indirect effects: to trigger feedback loops in farmers' choices

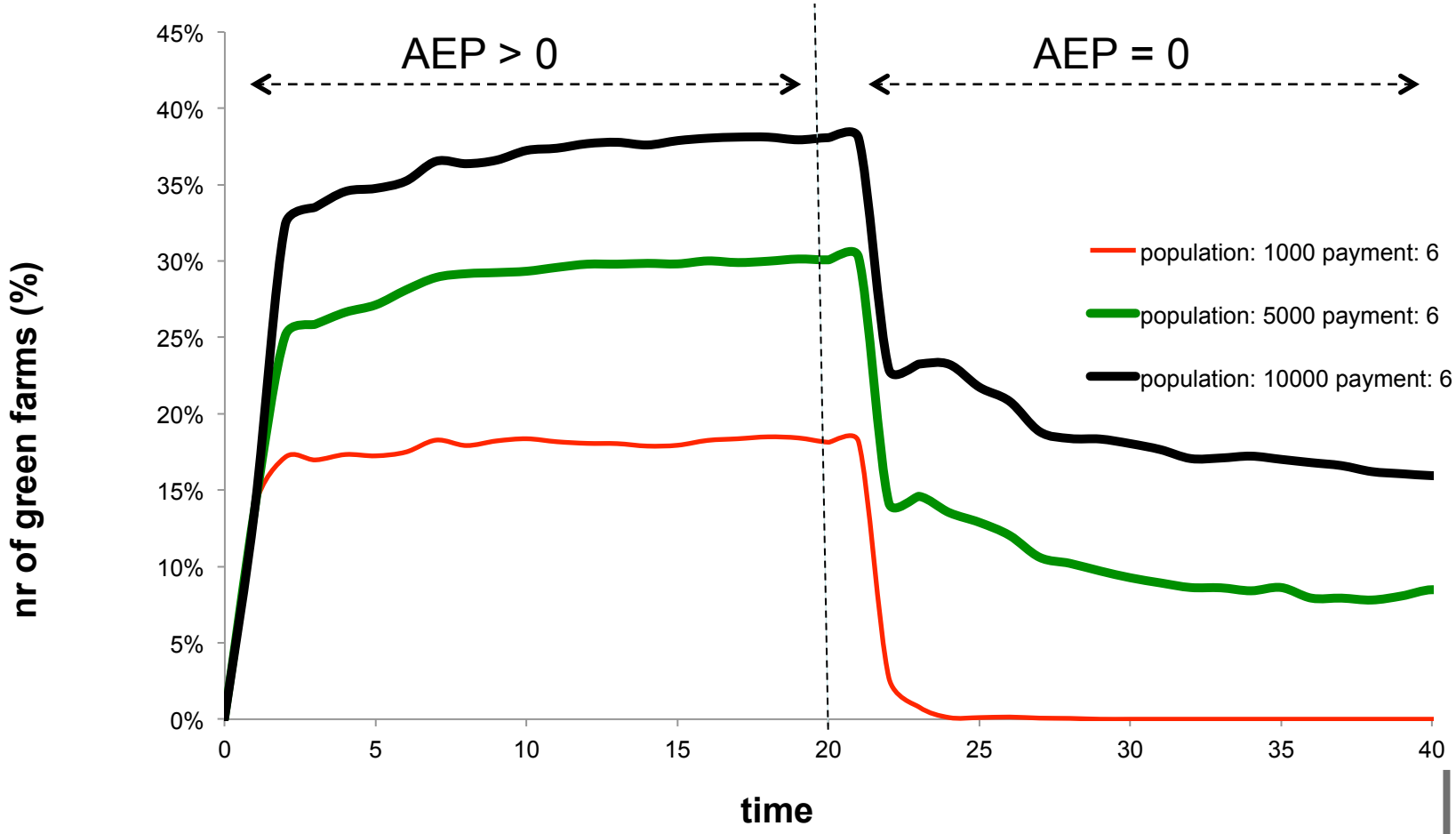
Objectives

- Modelling framework:
  - Agent Based Model
  - Landscape and rural tourism
- Interactions among:
  - farmer decisions
  - landscape structures
  - rural tourists
  - sequencing of agri-environmental payment (AEP)
- Assessment of the conditions for the emergence of voluntary efforts for landscape conservation
- Applied to Ferrara rural landscape

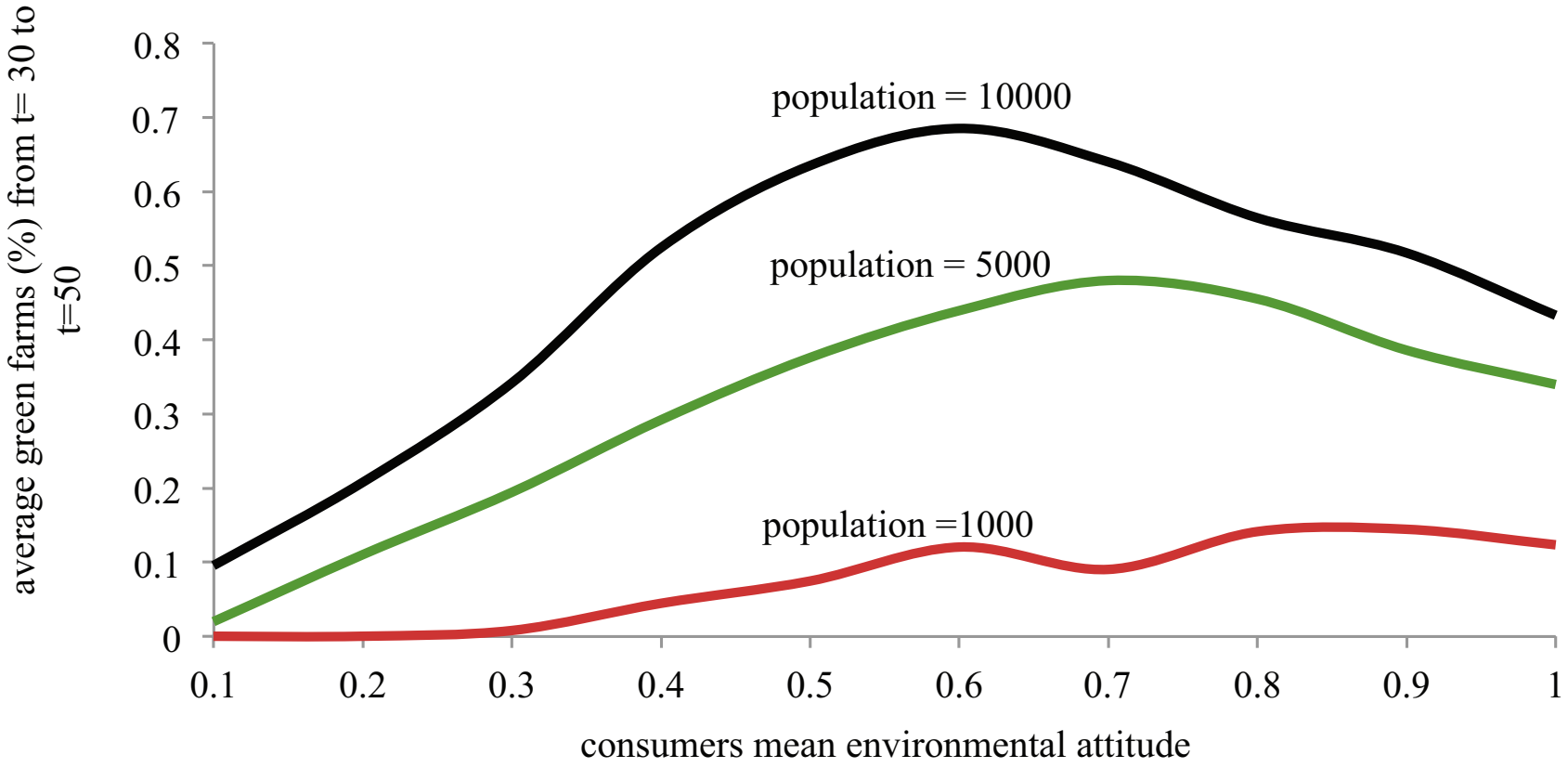
Model specification

- Farmers (Profits maximization):
  - Choice between conventional VS green agriculture (agri-environmental payment)
- Landscape quality:
  - Determined by green agriculture
  - Spillover effects
- Consumers / tourists:
  - Landscape sensitiveness index
  - Attracted by landscape quality
  - Reward farmers
- AEP: $p_t \geq 0 \ \forall \ t \leq \tau$
  $p_t = 0 \ \forall t > \tau$ and $\forall t \leq \overline{\mathrm{T}}$

Results (1)



Results (2)



Discussion

- Possible to generate virtuous cycle in landscape management (cost effective)
- Key determinants:
  - Landscape sensitiveness of consumers / tourists
  - Spatial distribution of (low) farming productivity: initial weakness becomes strength
- Caveats:
  - Simplifications
  - Behaviour analysis

Conclusions

- Conservation policies as a temporary catalyst for the adoption of green technologies, aimed at launching activities that will later be self-sustainable on the market.
- Focus on the coordination of farmers' efforts seem to be crucial
- Consumer-targeted measures should be designed together with payments

Thanks!

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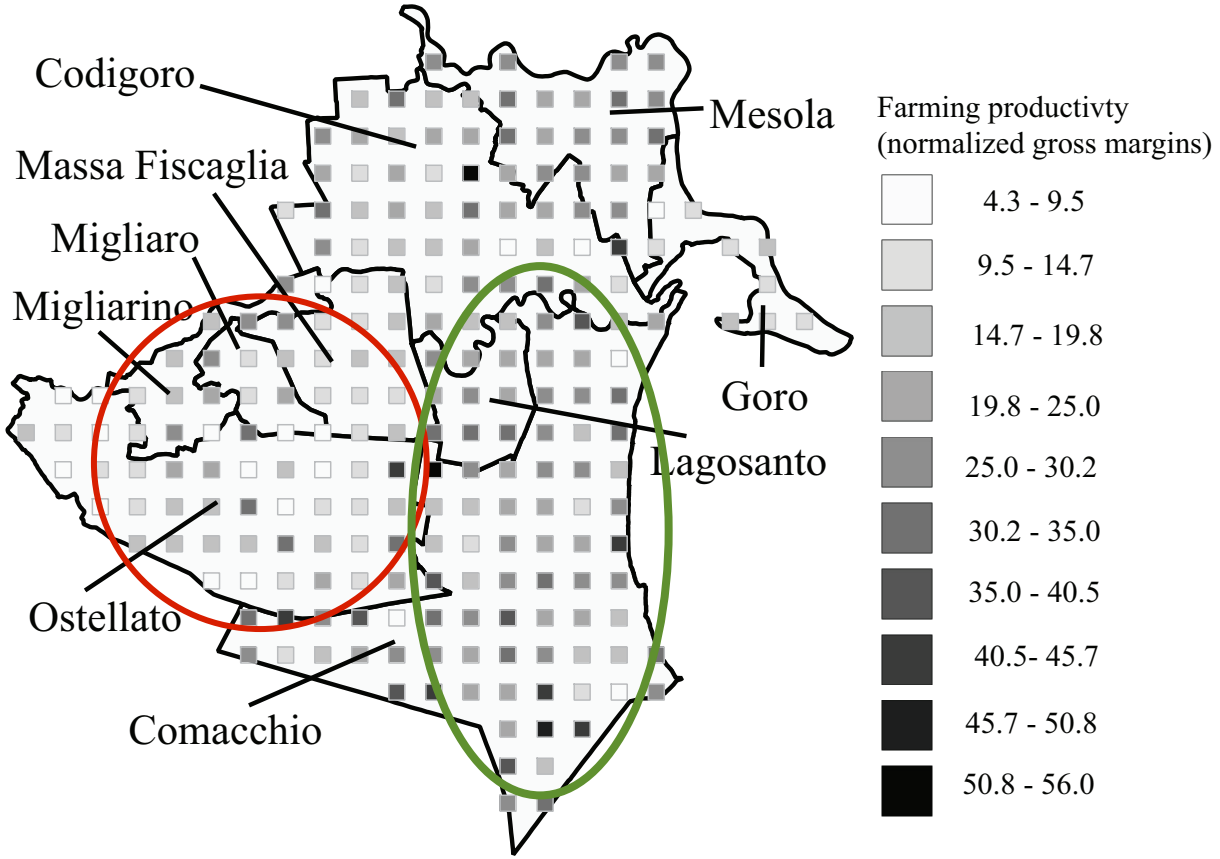

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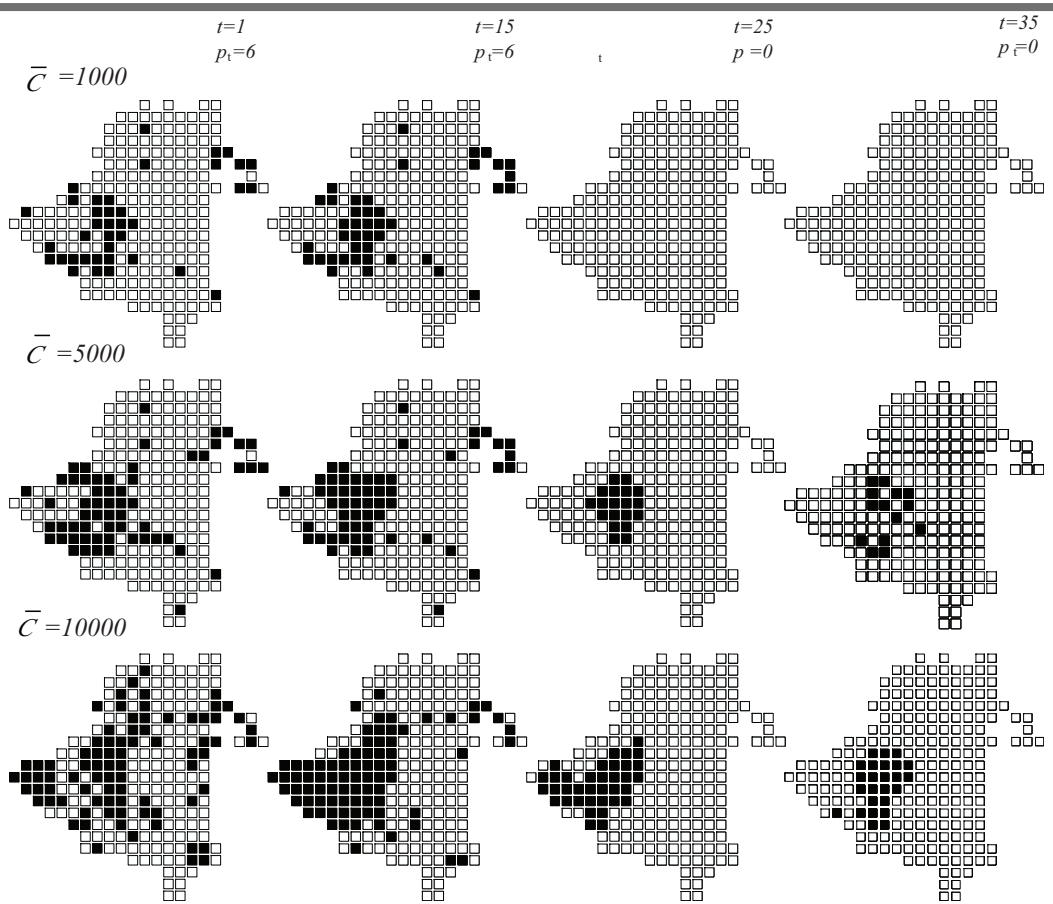

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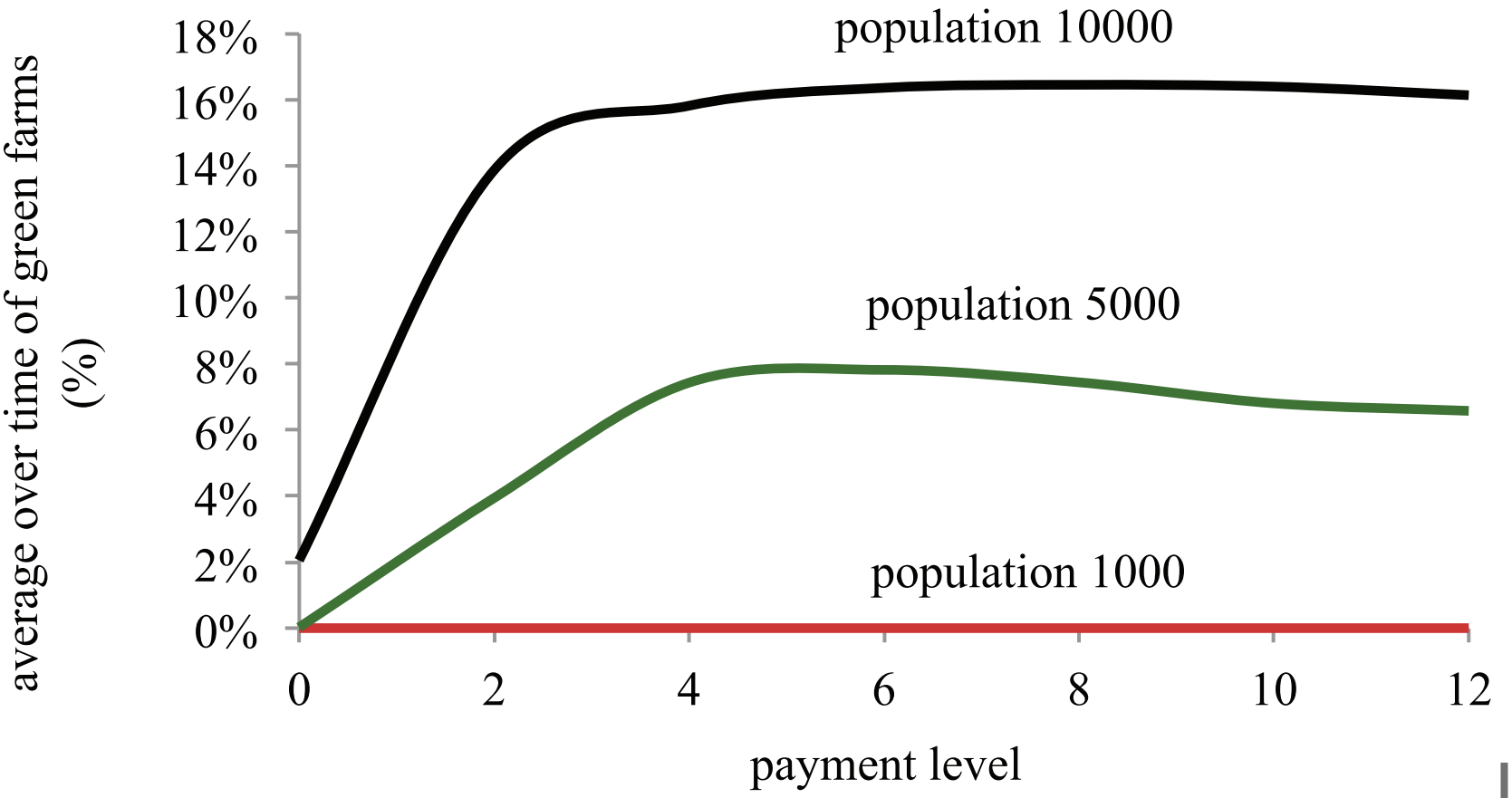

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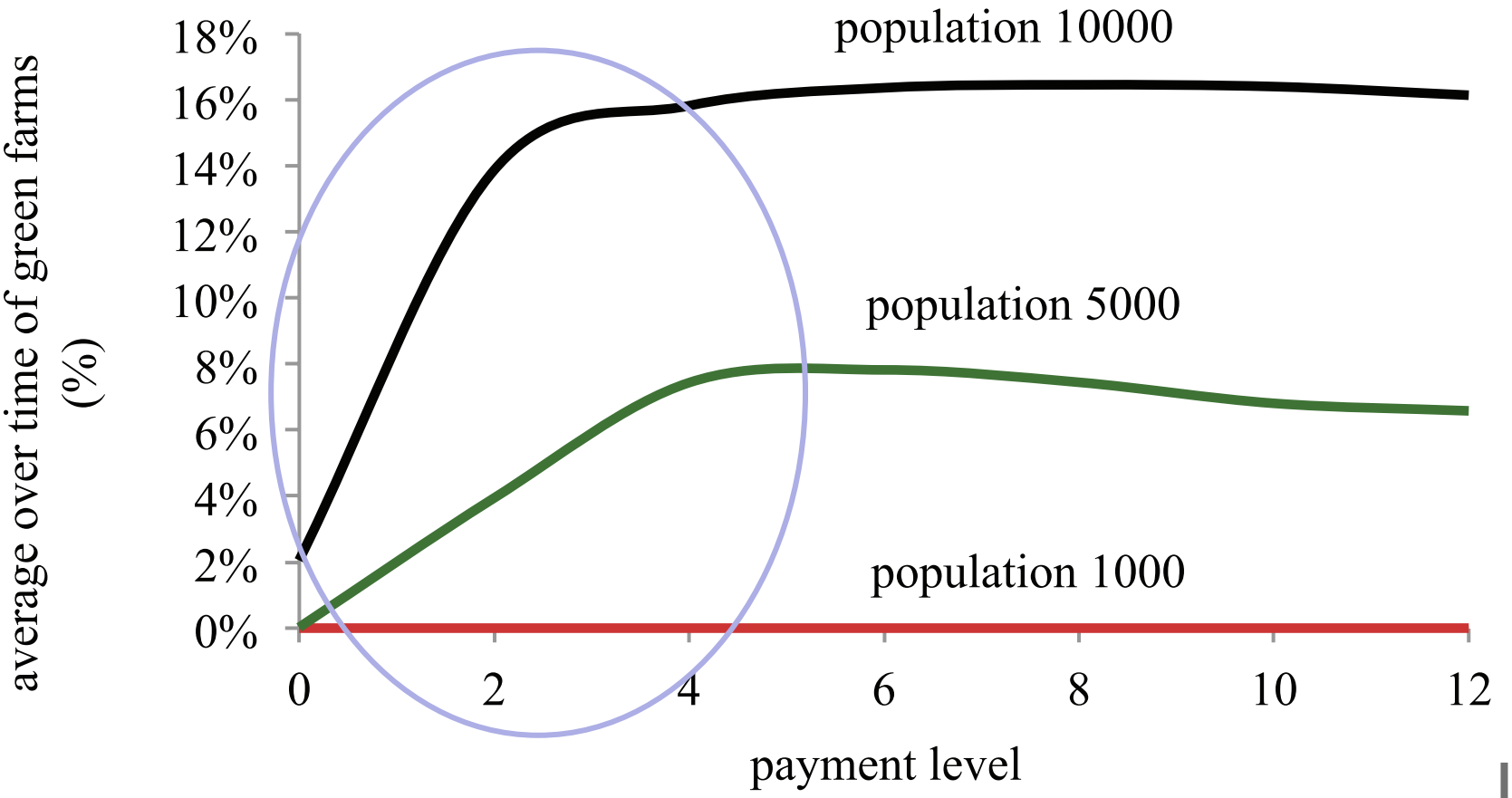

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