

---

# Deforestation thresholds and patterns in tropical countries

**Michael Hüttner**

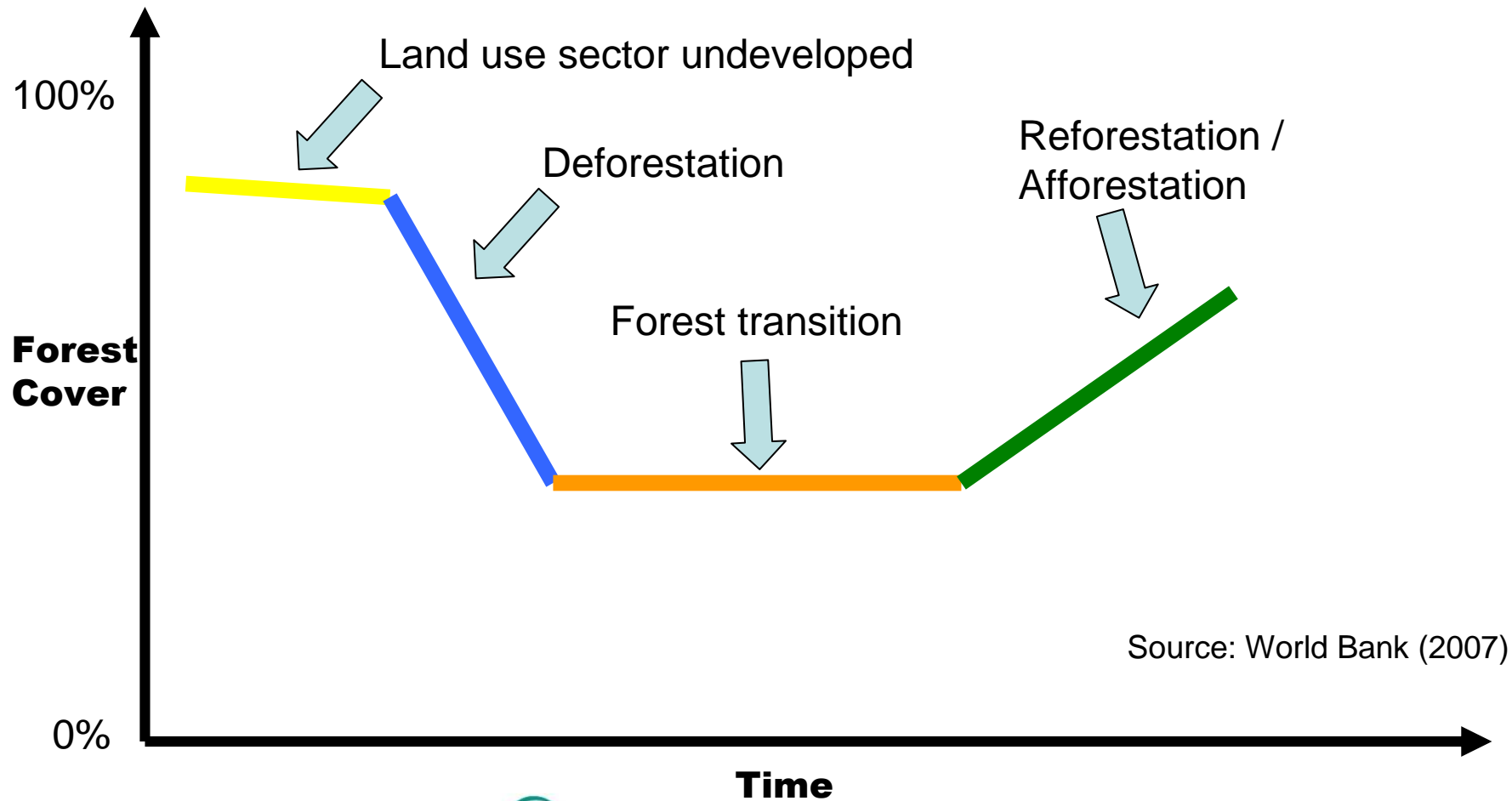
**Max-Planck-Institut für Biogeochemie  
Jena, Germany**

# Hypotheses

---

- **Threshold:** The deforestation rate is determined by the available forest area left
- **Patterns:** The deforestation rate is determined by the demand for productive land

# Expected forest cover trend

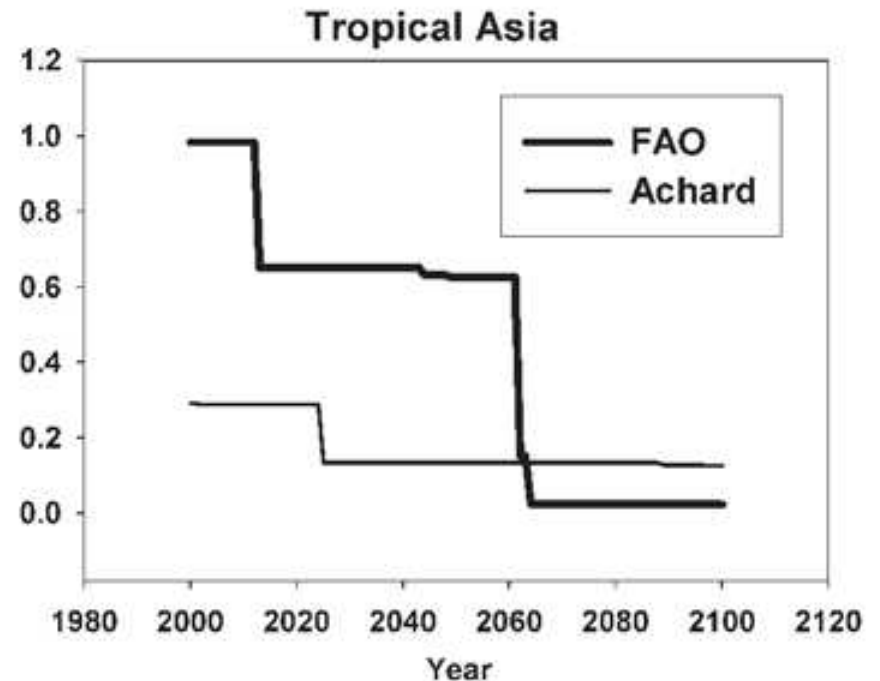
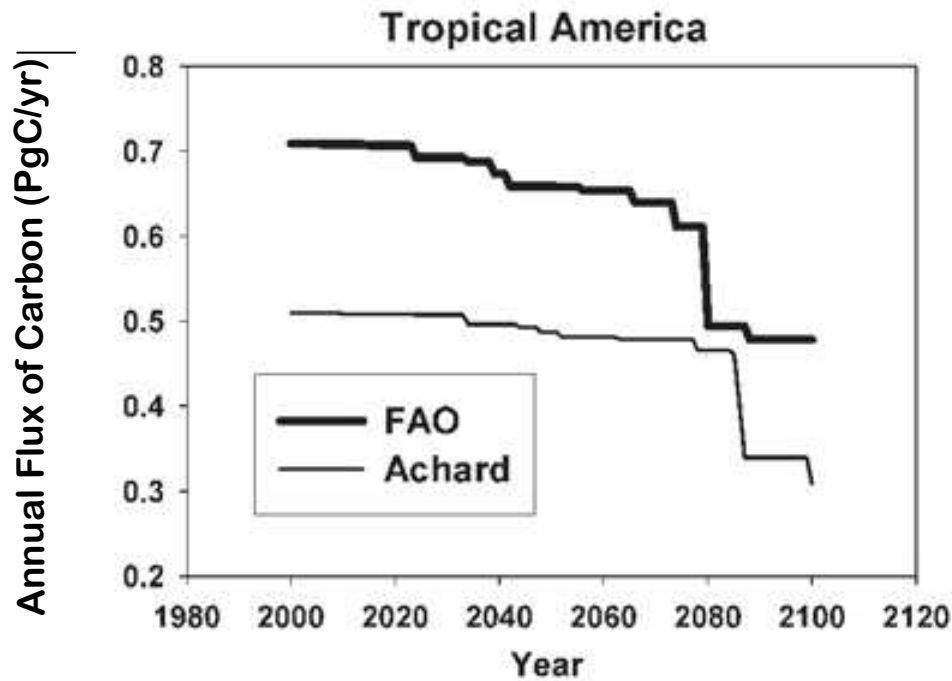


# Threshold: available forest area

---

- **Houghton`s assumption:**
  - predicts a stop in deforestation rate, when a country reaches a threshold of 15 percent of its forest area (in 2000)
  - Reason: the remaining forest is already protected or not cost-effective to clear
- Theory could provide a grouping indicator for the deforestation pathways for countries

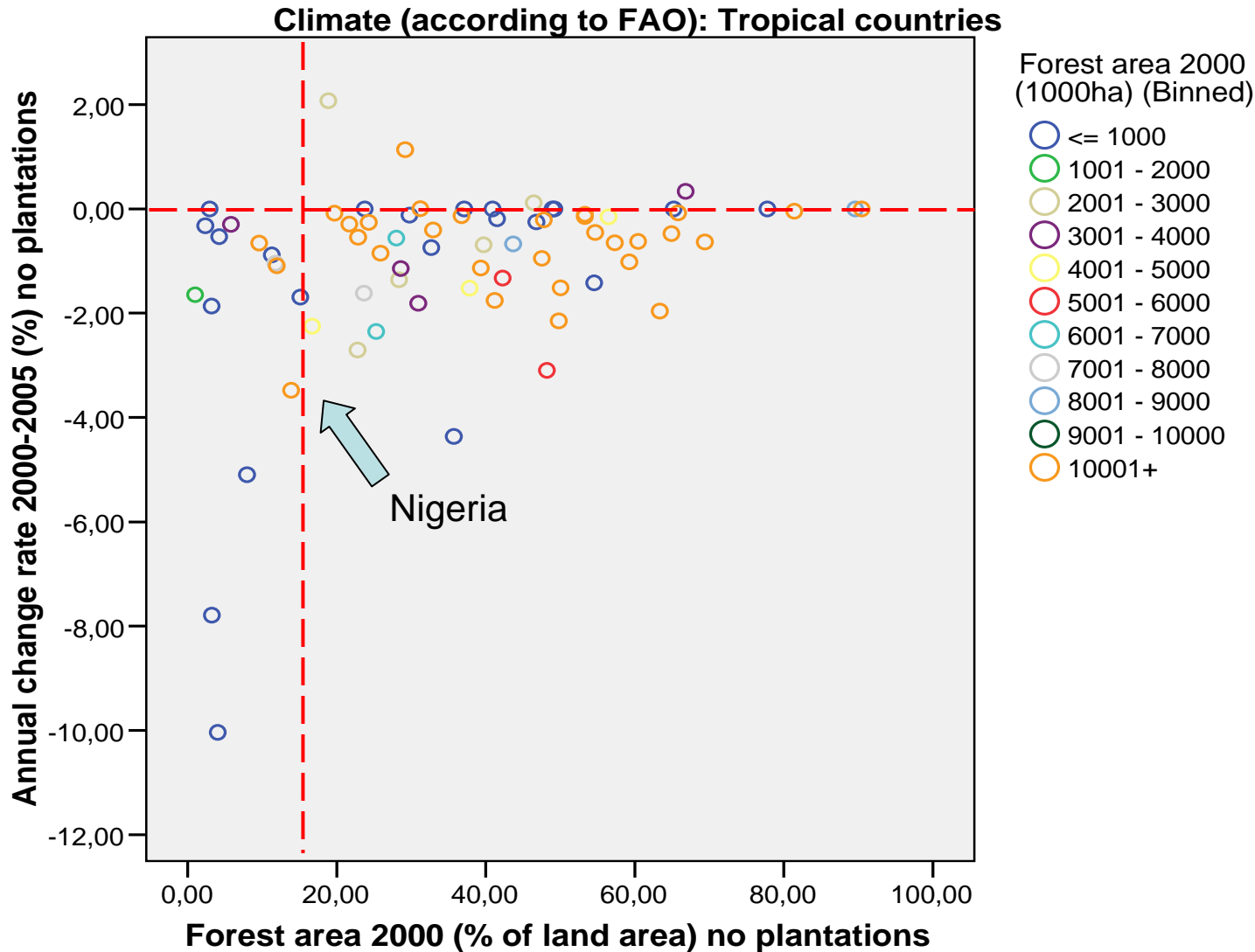
# Future emission scenarios



**Total emission of 130-87 PgC for 2000-2100**

(based on data from FAO (2001) and Achard (2004))

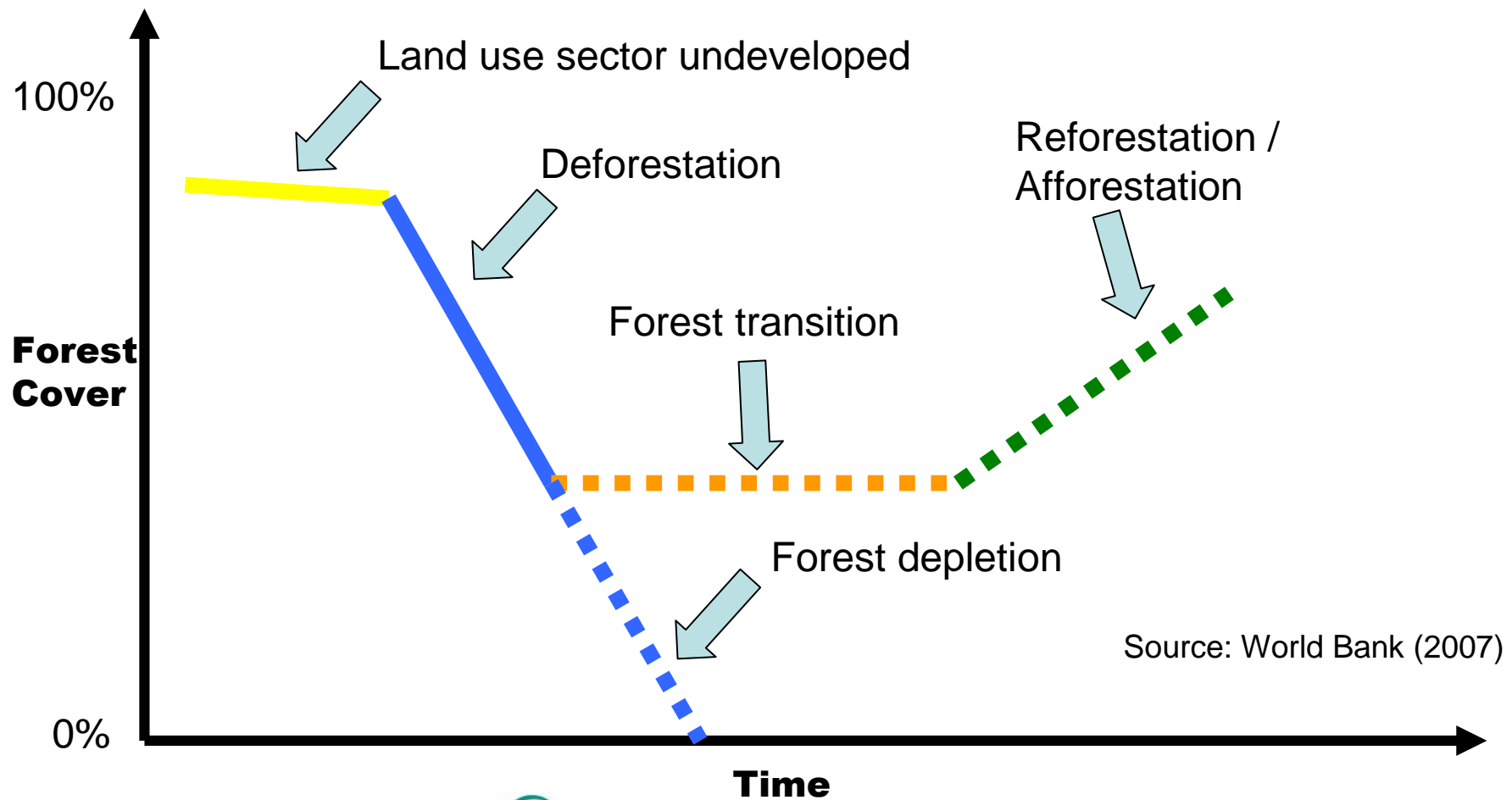
# Deforestation rates 2000-2005 against relative forest cover in 2000



Source: FAO FRA (2005)

Michael Hüttner

# Expected forest cover trend



# Discussion

---

- **The deforestation trend is not necessarily dependent on the relative forest cover in tropical countries**
- **A theory-based clustering is not appropriate, instead accept country-specific pathways**
- **Deforestation thresholds are determined by country-specific factors**
- **Predictions or scenarios based on relative forest cover could underestimate the deforestation and emission potential**

# Pattern: Demand for productive land

---

- Are there other indicators which help to understand deforestation trends?
- Indicators for the demand for land: agriculture, cattle ranching, infrastructure, forestry....

# Regions used in the FRA 2005



## Africa

- Eastern and Southern Africa
- Northern Africa
- Western and Central Africa

## Asia

- East Asia
- South and Southeast Asia
- Western and Central Asia

## North and Central America

- Caribbean
- Central America
- North America

## Oceania

## South America

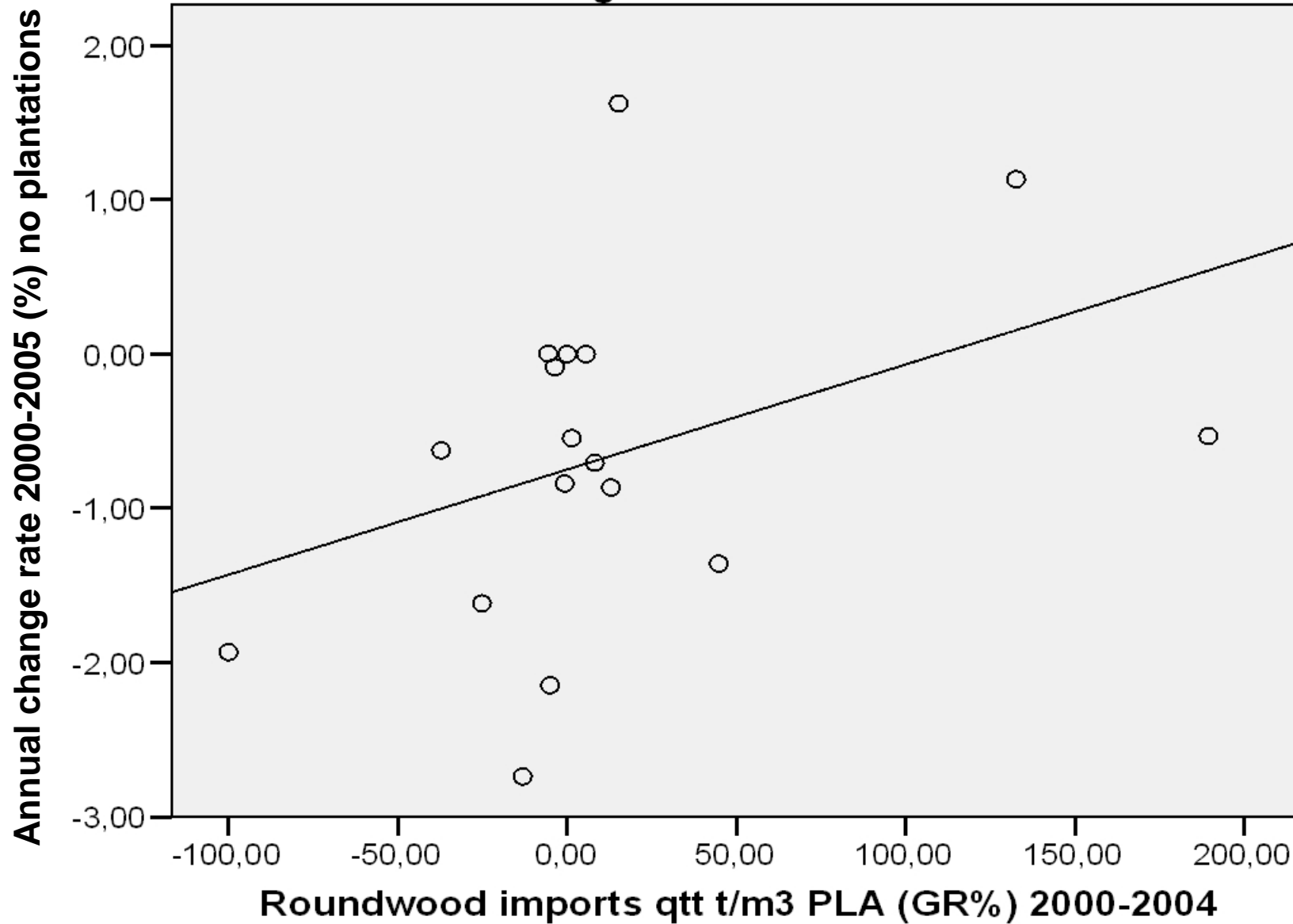


# Pattern: Results

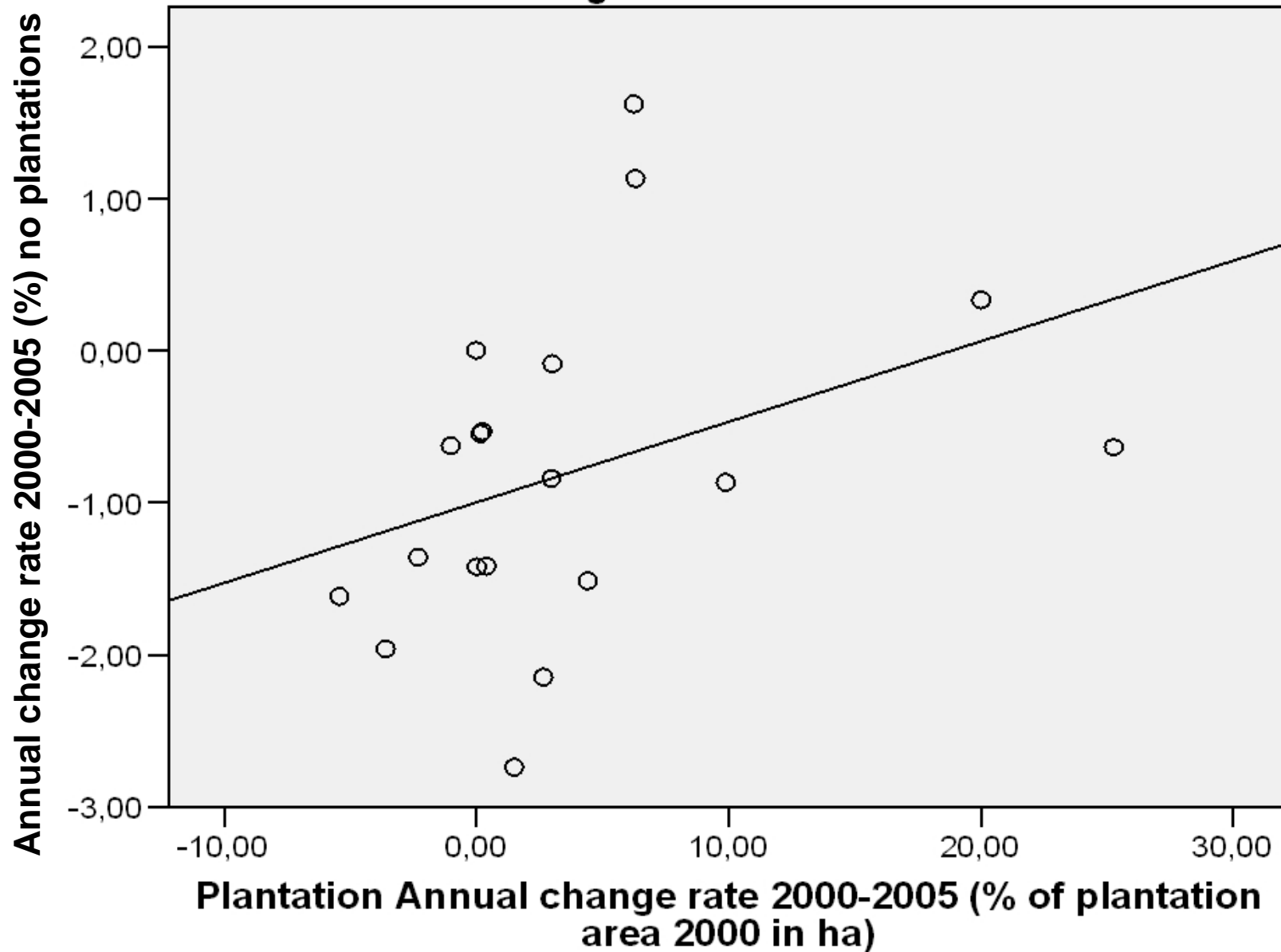
---

- **All tropical countries: no meaningful correlations**
- **Regions: example of S SE Asia for roundwood imports and plantation change**

region: South and South-east Asia



## region: South and South-east Asia



# Conclusion

---

- low data quality
  - heterogeneity of land use
  - inappropriate scale
- 
- → better national and sub-national data would be necessary to investigate direct deforestation drivers statistically

### Climate (according to FAO): Tropical countries

