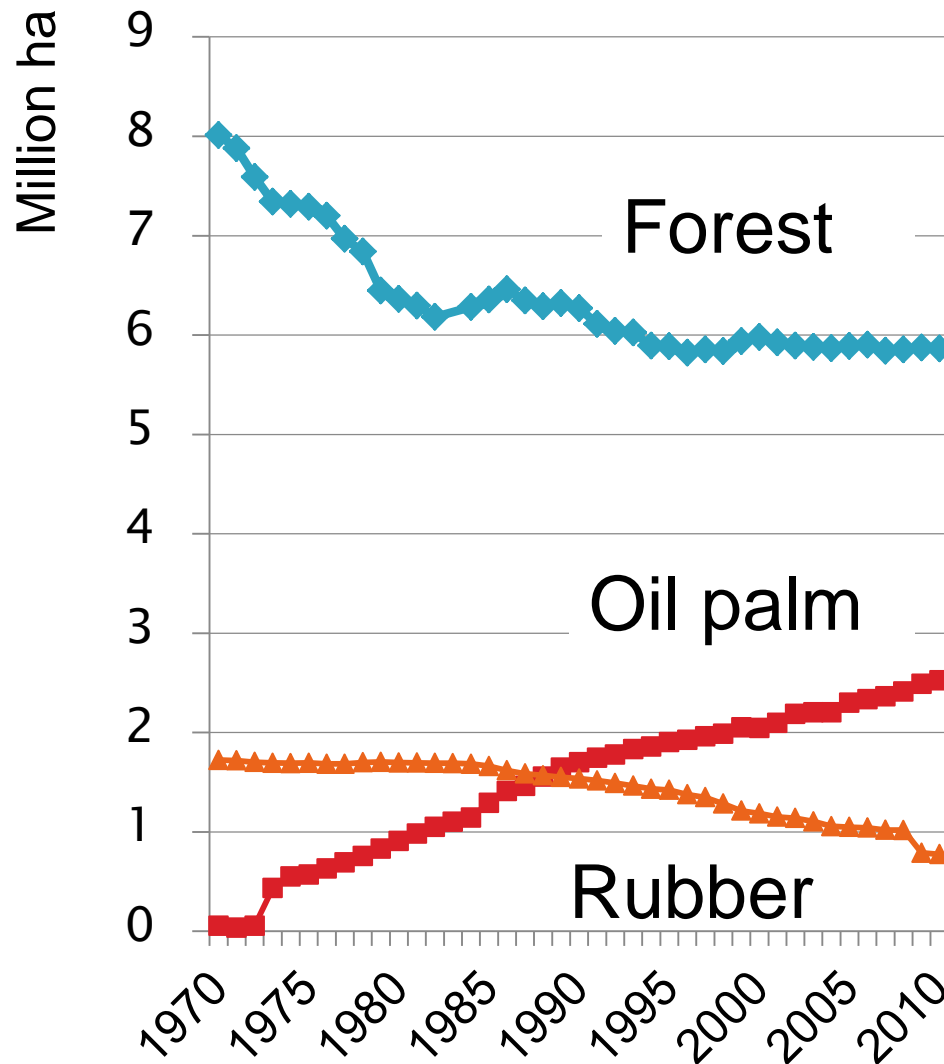# Causes of forest cover change in Peninsular Malaysia

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Objective

- To examine the process and causes of forest cover change in Peninsular Malaysia, 1970–2010.

Forest cover change in Peninsular Malaysia

Forest decreased sharply in the 1970s.

Deforestation has reduced since the 1980s.
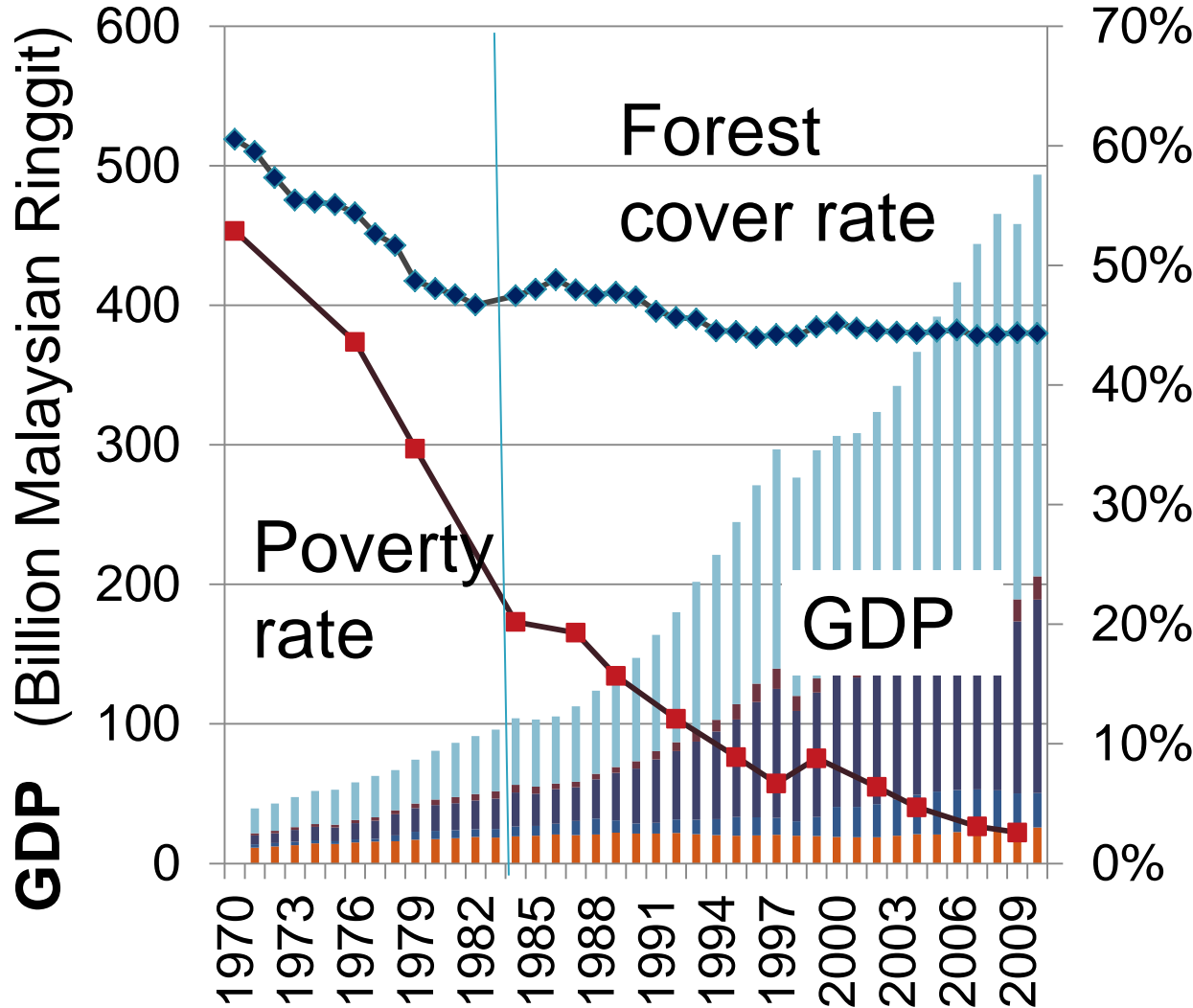
Methods to analyze factors affecting forest area

▸ Data on 22 variables for Peninsular Malaysia (1970-2010):
   + Forest area
   + Land use (oil palm, rubber)
   + Timber production
   + Socio-economic indicators (population, GDP, income, employment, poverty rate)

▸ Linear regression modeling using AIC

Results of regression modeling
Poverty rate is the principal factor affecting forest area

Best models (Top 3) to explain Forest area	Coefficient	AIC
1. Poverty rate	Pov 0.95**	307
2. Poverty rate + Construction GDP + Rubber	Pov 0.94** CG -0.29 Rb -0.30	308
3. Poverty rate + Employment in manufacture	Pov 0.87** Em -0.09	309

Poverty rate, Forest cover, GDP

GDP grew rapidly after deforestation reduced.

GDP growth did not have much effect on forest area.

Findings
Causes of forest cover change

◆ **Poverty reduction** :
principal cause of forest cover change

◆ **Oil palm expansion**
1. main proximate cause of deforestation
2. but no longer caused when poverty rate dropped substantially

◆ **Population growth, economic growth**
not major causes

Methods to analyze factors affecting poverty rate

▸ Data on 21 variables for Peninsular Malaysia (1970-2010):
  + Forest area
  + Land use (oil palm, rubber)
  + Timber production
  + Socio-economic indicators (population, GDP, income, employment)

▸ Linear regression modeling using AIC

Oil palm area had the greatest impact on poverty rate. Forestry is significant.

Best models (Top 3) to explain Poverty rate	Coefficient	AIC
Oil palm + Exports of timber products + Plywood + Construction GDP + Employment in agriculture	Pal -0.87** ; Ex -0.19** ; Pl -0.15* ; CG -0.24 ; Ea -0.22	19
Oil palm + Exports of timber products + Plywood +Employment in construction + Sawn timber production	Pal -0.73** ; Ex -0.21** ; Pl -0.12 ; Ec -0.24 ; Sa -0.11	20
Oil palm + Exports of timber products + Plywood +Employment in construction	Pal -0.71** ; Ex -0.22** ; Pl -0.19** ; Ec -0.19	21

Oil palm

Oil palm development and poverty reduction
Change in houses at FELDA village

1967

2011

Findings
Causes of poverty reduction

◆ **Oil palm development:** principal cause of poverty reduction

◆ **Export of timber products: significant**

◆ **Plywood production: significant**

Increase in oil palm and forestry activities reduced poverty in Peninsular Malaysia in 1970-2010.

Conclusions

1. Poverty alleviation was the principal factor affecting forest cover change in Peninsular Malaysia (1970-2010).

2. Oil palm development initially led to deforestation, but greatly reduced poverty.

3. Substantial decrease in poverty caused decrease in deforestation over the long term.

4. We propose poverty alleviation as a strategy for reducing deforestation.