Economic Prospects for Rubber-Timber Production in Smallholder Rubber Plantations in Southern Thailand

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JUSTIFICATION

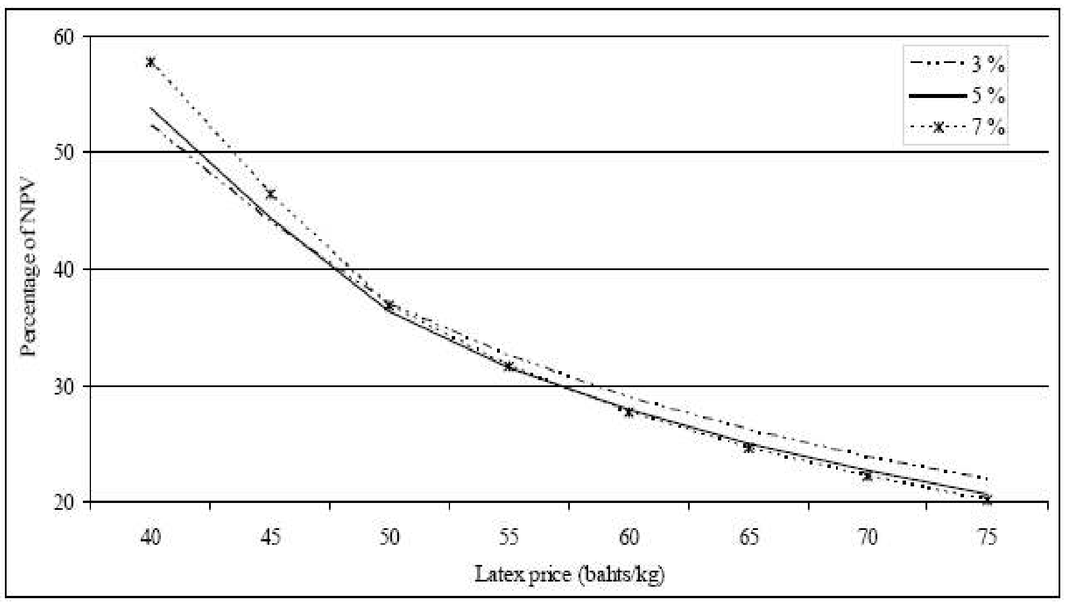
- The importance of rubber plantations as a source of timber has increased in Thailand since the logging ban on natural forest in 1989.
- Monoculture rubber is an inflexible production system due to its sensitivity to latex price, high labour requirement and relatively small farm sizes.
- Smallholder rubber producers are tied-up with rubber monoculture because of limited financial resources to diversify.
- The optimal rotation length for rubber plantations needs to be recalculated taking into account the revenue from timber.

A 19-year rubber plantation in Southern Thailand. Photo: Adrián M.

Timber harvesting from a 25-year rubber plantation in Southern Thailand. Photo: Adrián M.

METHODOLOGY

- Information about costs and revenues in smallholder rubber plantations in southern Thailand was updated to current prices.
- Information about stumpage price was collected from timber dealers in 2006.
- A model to predict stumpage price based on basal area, age and plantation area was developed.
- The Faustmann-Hartman method was used to maximize the net present value (NPV) of all cash flows, under following assumptions:
  - The maximization of NPV is not only for one but for all following rotations.
  - Plantation cycles continue infinitely.
  - Price of input and output items and relation between production costs and revenue remain constant.
  - In addition to timber, the plantations also produce other valuable products and services.



Timber value as percentage of NPV for different interest rates (3%, 5% and 7%) at changing prices.

Planks of rubber timber prepared for chemical treatment. Photo: Adrián M.

Expected price of timber from rubber plantations of different age, Southern Thailand.

Plantation age (years)	Basal area (m^2/ha)	Expected timber price (US$/ha)
19	24.25	10 569
20	25.21	11 080
21	26.00	11 516
22	26.60	11 877
23	27.02	12 163
24	27.27	12 374
25	27.33	12 510

1$ = 33.39 bahts.

RESULTS

- When timber value is included, the optimal rotation for rubber plantations is shortened from 26 to 21 years in traditional rubber production areas in Southern Thailand.
- Basal area (indicator for timber volume per unit area) is more important than plantation area at the time of determining stumpage price. This is important for smallholder farmers who normally lack resources to expand their rubber plantations.
- Change in latex price, rubber plantation area, basal area and interest rates have a weak effect on the optimal rotation period mainly because revenue from latex occurs in the earlier years of tapping whilst revenue from timber occurs at the end of the rotation.
- Improvement in the timber component in rubber plantations can be interpreted as an insurance for smallholder rubber farmers in case of low latex price and high interest rates. In such situation rubber timber could generate up to 50% of total NPV.
- The introduction of the long awaited latex-timber (LT) clones, will have an important effect on smallholder farmers' welfare. It is unclear if these farmers can benefit much from higher latex productivity of new latex clones, since labor for tapping is already a limitation in the system. However, timber from new LT clones can significantly increase income for smallholder farmers without additional cost and labor.