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## **Is contract farming in the Indonesian oil palm industry pro-poor?**

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# Is Contract Farming in the Indonesian Oil Palm Industry Pro-poor?

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## Introduction

- In order to increase participation of the poor on oil palm development the government has enforced contract farming. Now, about 40 % of total oil palm area are owned by smallholders either independently or under contract with companies (MoA 2010)
- There is a debate on pros and cons of the impact of contract farming (Glover, 1984) in the oil palm industry (Rist et al, 2010)

## Objectives

- To assess the effect of contract farming on oil palm smallholders' well-being.
- To analyze the implication of contract farming in the oil palm industry for poverty reduction

## Methodology

### Data collection

Data were collected randomly from 245 smallholders (126 contract and 119 non-contract smallholders) in the District of Merangin, Province of Jambi Indonesia.

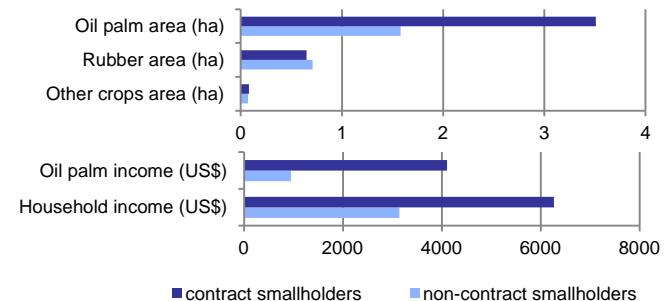
### Model

$$\begin{aligned}
 Y_h &= \alpha X_h + \delta P_h + \mu_h \\
 X_h &= \text{Household characteristics} \\
 P_h &= \text{dummy of participation} \\
 P_h^* &= \beta Z_h + \varepsilon_h \\
 Z_h &= \text{covariates of participation} \\
 P_h &= 1 \text{ if } P_h^* > 0, \text{ otherwise } 0 \\
 \mu_h &= \text{error term of household income} \\
 \varepsilon_h &= \text{error term of participation}
 \end{aligned}$$

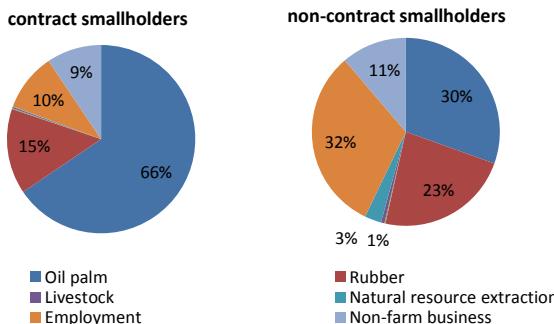
Endogeneity exists if  $\mu_h$  and  $\varepsilon_h$  are correlated. A treatment effect model is employed in order to deal with the endogeneity.

## Results

### Comparison of household characteristics



## Comparison of income portfolio



## Comparison of poverty headcount

Contract smallholders	Non-contract smallholders	Total
23,0 %	49,6 %	35,9%

Note: \*Calculated using the US \$ 2 consumption poverty line (PPP)

## Econometric Results

Variable	Model 1		Model 2	
	Overall sample		Poor	Non-Poor
	1 <sup>st</sup> stage Participation	2 <sup>nd</sup> stage Income	2 <sup>nd</sup> stage Income	2 <sup>nd</sup> stage Income
Age of household head	0.03**	0.04**	0.04	0.02
Age square of household head		-0.00**	-0.00	-0.00
Household size	0.07	0.07***	0.07	0.09***
Ratio of potential labor	0.68	-0.16	-0.23	-0.18
Education of household head	0.01	-0.01	-0.04*	-0.01
Allocated land	-0.29	-0.05	-0.21	0.03
Social capital	-0.01	0.01**	0.01*	0.01*
Origin dummy	-1.11**			
Size of oil palm area	0.29***	0.16***	0.29***	0.14***
Size of rubber area	-0.03	0.07***	0.11**	0.05*
Size of other crop area	-0.01	0.07	-1.08**	0.10
Age of oil palm		0.02	0.03	-0.00
Age square of oil palm		-0.00	0.00	-0.00
Off-farm	-0.33	0.31***	0.28	0.36***
Planted in 1989-1994	3.26***			
Planted in 1995-2000	1.63***			
PARTICIPATION		0.47*	-0.86*	0.63**
Constanta	-3.44***	8.19***	8.05	8.74***
Lambda		-0.12	0.63**	-0.19
No. of observation	245	245	88	157

Note: \* p < 10 %, \*\* p < 5 %, \*\*\* p < 1 %. Source: own calculation

## Discussion

- Contract smallholders appear to be wealthier than non-contract smallholders.
- Participation in a contract can be explained by the age of household head, origin (migrant or indigenous), size of oil palm plot, and time of plantation establishment.
- Overall, contract farming in the oil palm industry has a positive impact on smallholders' income.
- Running a separate model for poor and non-poor group underlines the equity effect of contract participation. A significantly positive income effect can be shown for the non-poor group only.
- Poorer smallholders tend to lose from contract farming. They might be less able to apply input in the required manner and often cannot meet the strict credit repayment scheme.
- Propensity score matching was also applied, however the results are sensitive to hidden bias.
- Policy makers should review the contractual schemes and encourage oil palm companies to offer suitable contract terms for poor smallholders.

## References

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