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Determinants of Cocoa Marketing Efficiency in Pasaman Regency, West Sumatra, Indonesia

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INTRODUCTION



- Indonesia is the third largest producer of cocoa beans in the world after Ivory Coast and Ghana. In 2014/2015, Indonesia is predicted to produce 350 thousand ton of cocoa beans or 8.4 percent (ICCO, 2015).
- Indonesia's cocoa beans production has a decreasing trend over the years, in 2005/2006 Indonesia produced 560 thousand tons of cocoa beans (ICCO, 2015).

INTRODUCTION



- Sulawesi is the island with the highest producer of cocoa beans with 64.7 percent of cocoa beans total production in 2013 and followed by Sumatra island with 21.6 percent of Indonesia's total production in the same year (Ministry of Agriculture, 2014).
- Although Sumatra island is the not the highest producer of cocoa beans, but during the years the production has increased significantly.

INTRODUCTION



- West Sumatra province is the largest producer of cocoa beans in Sumatra island with production of 56 thousand tons in 2013 and the regency with largest producer is Pasaman Regency with 13 thousand tons of cocoa beans in 2013 and most of the farm owned by small holder farmers (Ministry of Agriculture, 2014).

INTRODUCTION



- Pasaman Regency has the potency to increase the cocoa beans production in coming years. In order to increase the welfare of the farmers, efficient marketing system must be achieved. With the efficient marketing system, farmer will benefit and also the demand of the consumer will be met.
- The objective of this article is to analyze the determinants of marketing cocoa beans efficiency

LITERATURE REVIEW



- Kohls and Uhl (2002) measure marketing efficiency as a ratio of output to input and one of the marketing efficiency is the operational efficiency. Measurement of operational efficiency includes marketing margin and farmer's share.
- Marketing margin is defined as the difference between price received by farmers and paid by consumer meanwhile farmer's share is the ratio between the two variables (Tomek and Kaiser, 2014).

LITERATURE REVIEW



- Research indicates that an efficient marketing channel for cocoa beans usually involves several (two to three) marketing institutions (Firmansyah, 2012; Primadita, 2014; Dilana, 2014; Rifin, 2015).
- The farmer share of cocoa beans marketing channel ranges from 70-95 percent and the cocoa beans price differs depending whether the beans are fermented and non fermented. Fermented beans has higher price compared to non feremnted beans with the difference of Rp 2000 – 3000 per kilogram (Rifin, 2015).

LITERATURE REVIEW



- One of the method of measuring efficiency is using Data Envelopment Analysis (DEA)
- DEA was firstly introduced by Charnes and Cooper (1978) as a linear programming method in analyzing performance efficiency in a bank.
- The advantage of DEA is that the method can evaluate several measurement efficiently in order to find the relation between related variable.
- In addition, DEA can also be used in measuring multiple input and multiple output.

LITERATURE REVIEW



- Most of the research on the marketing efficiency stops until measuring the efficiency of every decision making unit (DMU). But this article continue the analysis by analyzing factors affecting the marketing efficiency of each farmers and marketing channel

METHODOLOGY



- The research is conducted in Pasaman Regency, West Sumatra province. The location is selected purposively since the location is one of the production central of cocoa beans in West Sumatra.
- The data collection is conducted in October 2014 until November 2014.
- The data collected is in the form of primary and secondary data from the field and various institutions.

METHODOLOGY



- The respondent includes farmers and marketing institutions in the area. Forty five farmers are selected purposively in the three sub-regency which is Bonjol, Lubuk Sikaping, dan South Rao.
- The farmers are selected based on the ownership of the beans and are in the process of drying their beans during the field research.
- The marketing institution is selected through snowballing process beginning from the farmers which has selected 19 marketing institution including village traders, sub-regency traders and wholesalers.

METHODOLOGY



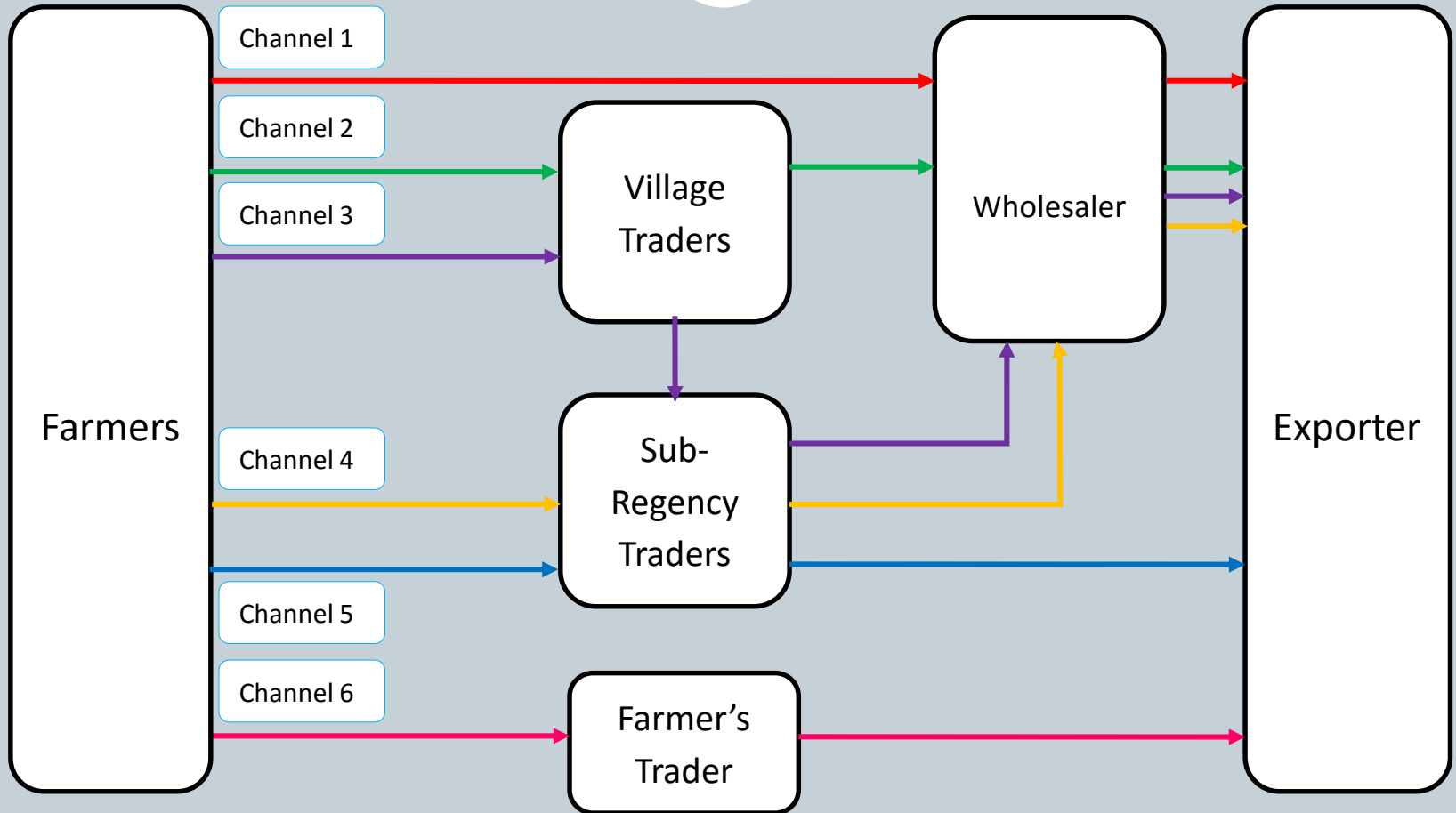
- Two analysis are utilized, data envelopment analysis (DEA) and tobit regression. DEA is utilized in order to determine the efficiency of every farmers and tobit regression is utilized in order to determine the determinants of marketing efficiency.
- Two DEA is calculated, one for the marketing channel and second for each farmers as the DMU

FARMER'S CHARACTERISTICS



No	Characteristics	No Of Farmers	Percentage
1.	Land Area		
	< 0.5 Ha	19	42.22
	0.6 – 1 Ha	14	31.11
	> 1 Ha	12	26.67
2.	Plant Age		
	< 5 years	7	15.56
	6 – 10 years	16	35.56
	11 – 15 years	21	46.67
	> 16 tahun	1	2.22
3.	Harvest frequency each month		
	4 times	34	75.56
	8 times	11	24.44
4.	Dried Cocoa beans harvest per week		
	< 10 kg	11	24.44
	11 – 20 kg	9	20.00
	21 – 30 kg	8	17.78
	➤ 31	17	37.78
5.	Selling price		
	< Rp 15000	0	0.00
	Rp 16000 – Rp 20000	14	31.11
	Rp 21000 – Rp 30000	24	53.33
	> Rp 30000	7	15.56
6.	Cocoa beans drying time		
	Wet	0	0.00
	1 day	5	11.11
	2 days	11	24.44
	3 days	27	60.00
	4 days	2	4.44

RESULTS



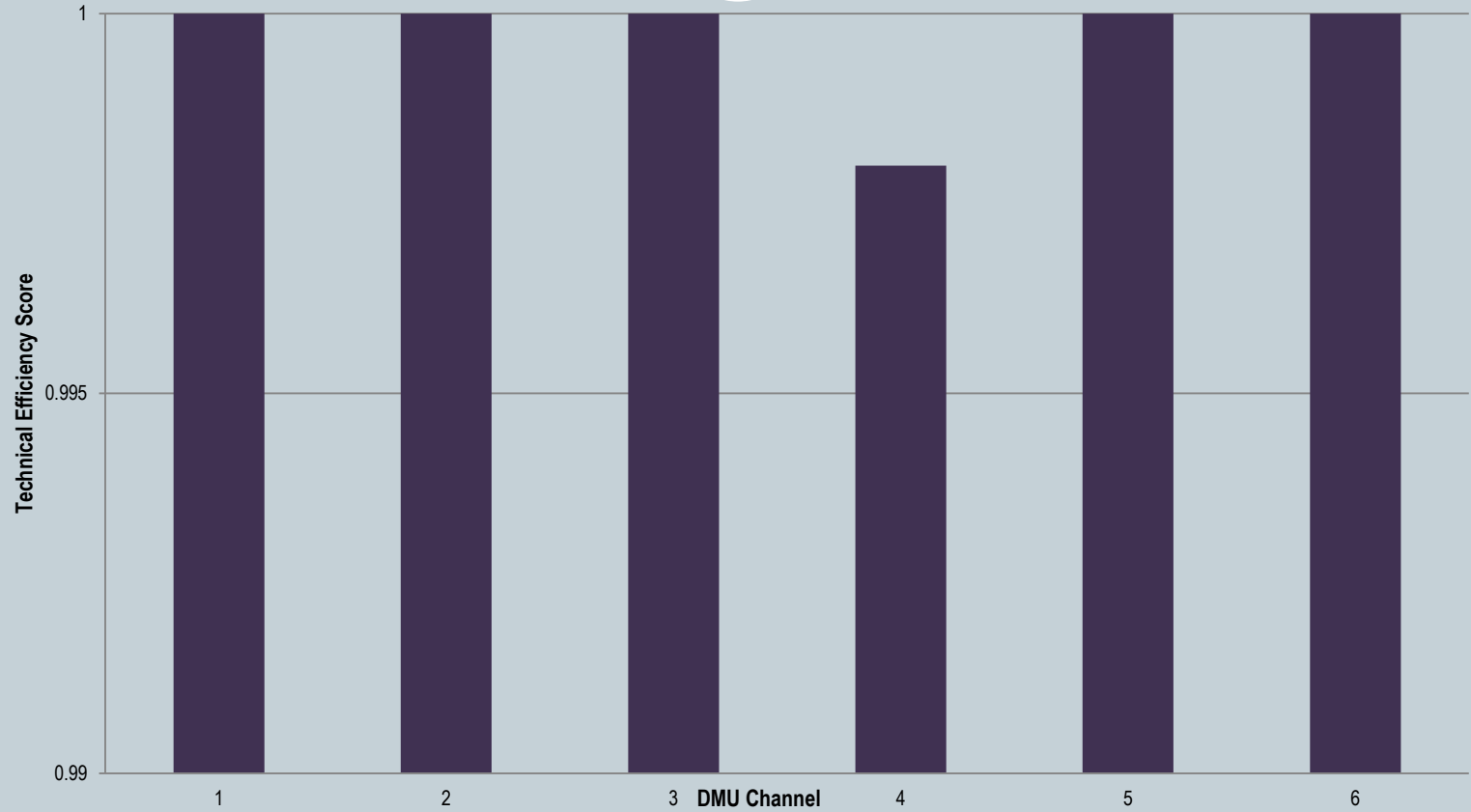
Marketing Channel of Cocoa Beans in Pasaman Regency, West Sumatra

RESULTS



- For analyzing the efficiency of each marketing channels output and input for each marketing channels are utilized
- The output variables are profit, farmer's share and profit and cost ratio meanwhile the input variables are marketing margin and marketing cost

RESULTS



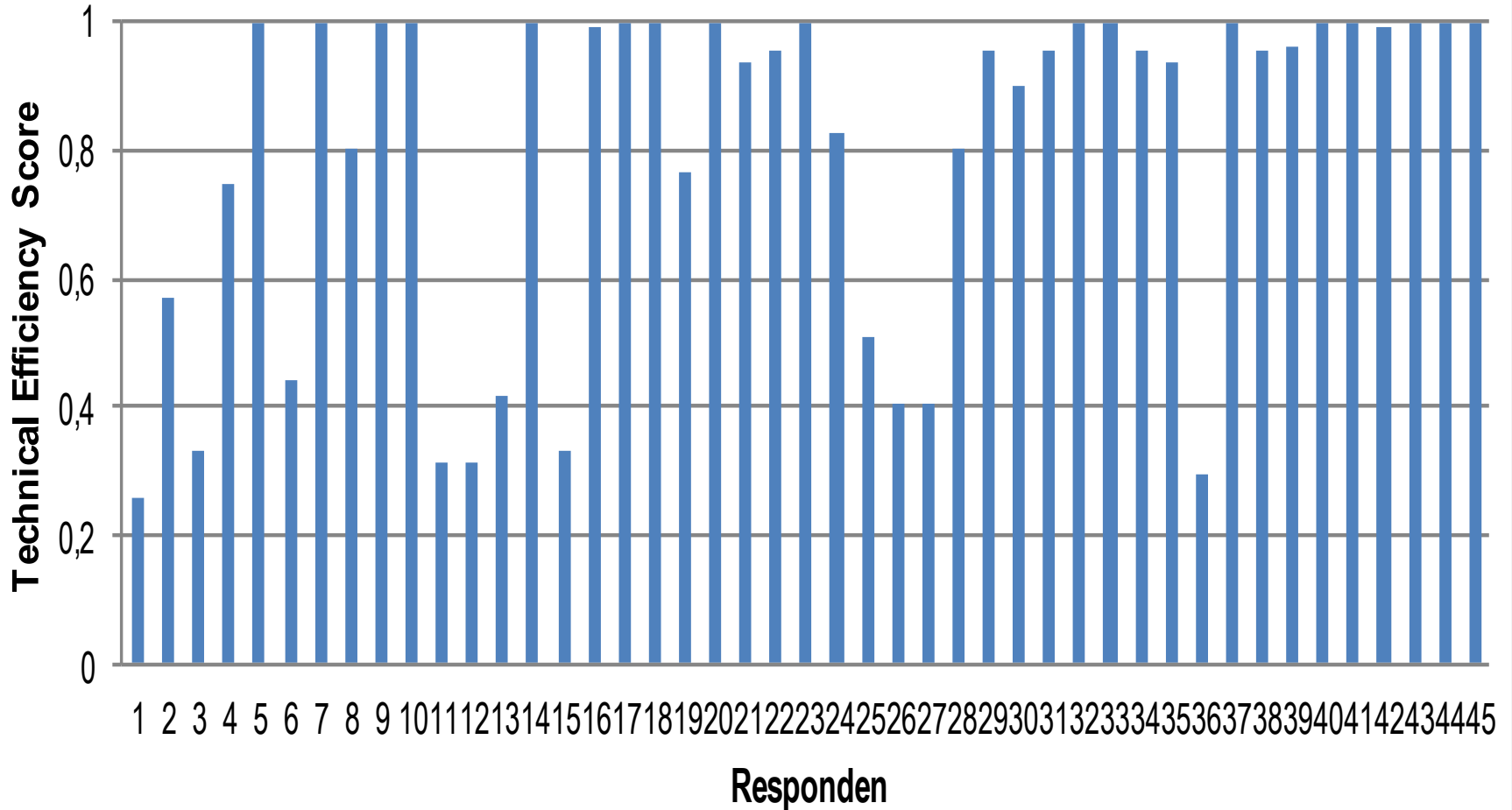
Marketing Channel Efficiency

RESULTS



- The next step is to determine the efficiency of each farmers using data envelopment analysis (DEA).
- The output used in the calculation is profit, farmer's share, profit cost ratio and sales, meanwhile the inputs are water level, marketing cost and location from farm to selling point.

RESULTS



Marketing Efficiency Score for Farmers

RESULTS



- 13 are efficient in selling their cocoa beans, these farmers sell to village traders, sub-regency traders and farmer's trader.
- Farmer selling to wholesaler is not efficient since they sell in small volume, high water level therefore lower price receive and bare the transportation cost

DETERMINANTS OF MARKETING EFFICIENCY



Variables	Coefficient	p-value
Constant	-0.228	0.363
Age	-0.004	0.202
Experience	-0.003	0.748
Education	-0.003	0.746
Main Occupation	0.229	0.026
Land Area	0.000	0.020
Price	0.000	0.000

CONCLUSIONS



- There are six marketing channels occurred in Pasaman Regency with five channels are efficient
- There are 13 farmers (29 percent) are efficient. Meanwhile main occupation, land area and price are variables that has significant affect on efficiency.
- In order to be efficient, farmers must increase the quality of their beans or fermented the beans in order to have higher price



THANK YOU VERY MUCH

