Value-Added of Processed Fresh Milk and Hygiene Behavior on Pavement Milk Trader and Milk Cafe in Yogyakarta, Indonesia

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***Abstract*—The purpose of the study was to know the value-added and hygiene behavior of processed fresh milk at pavement milk trader and milk café. The study was conducted with survey method and direct observation. The number of respondents consisted of 24 pavement milk traders, 20 milk cafes being collected by judgmental sampling method. Data were analyzed with value-added, descriptive analysis. The result showed that the added-value of processed fresh milk on pavement milk trader was 2841.60 IDR per portion and 4910.35 IDR per portion on milk café trader. There were 87.50% of pavement milk trader had practiced good aspect of hygiene and less good for the rest (12.50%), meanwhile 100% of milk café had practiced all of good aspect of hygiene. The conclusion of this study were value-added of fresh milk processing product at milk café was higher per portion compared to those on pavement milk trader and all of the milk café had conducted good hygiene behavior, while most of pavement milk trader (87.5%) had applied good hygiene behavior; the rest of 12.5% was still less good of hygiene behavior.**

***Index Terms*—value-added, hygiene behavior, processed fresh milk, pavement milk trader, milk café**

I. Introduction

Fluid milk consumption in Indonesia in 2007 was only 18%, while in Europe countries it was nearly 100%, USA 99.7%, India 98%, Thailand 88% and China 76.5% [1]. Milk drinking culture of Indonesia society has to be changed gradually, activated to drink fresh milk or fluid milk which not only will enhance milk consumption nationally, but also will create fresh milk market opportunity besides milk processing industry. On the other side business of milk booth at this moment is of course to be one of the efforts having much interesting people it is from the pavement milk booth to milk café equipped with facilities which make consumer more convenient. At this time there is a tendency to provide various beverages with fresh milk as raw material. These milk cafes have a market target for the young and student but it is also for the older. With attractive designed café, convenient place and various milk products which full of innovators; those are very attractive to the consumers to come. A lot of the milk cafes are hoped to be an alternative fresh milk market, besides milk processing industry. The other positive side pavement traders and milk cafes there will be an added value produced by the fresh milk process. The need of high national milk is indeed stimulation for increasing in country milk production so that to be able to compete imported milk. Demand of milk and milk product are always increase from year to year with the more increase in the number of people and their awareness of nutrient. This condition is of course very delightful, since it is hoped to enhance fluid milk consumption, but there is something must be realized that is the way to serve, not only for pavement milk booth it is even also at milk cafes. Especially according to the cleanness or hygiene point of view, as it is a critical point for a glass of milk either from a pavement booth or milk cafes. Because of this explanation, so this problem needs to study.

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II. Literature Reviews

A. Value Added

Manufacture process is able to enhance the advantage of commodity form. The consumer readiness pay the output agro industry price on the relatively high price is an incentive for the manufacture enterprises to produce agro industry output. In creating this advantage form was needed processingcost. One of concept that was often used to explain manufacture was added value [2]. Added value is explained as: 1. the output size of a work (effort) after it is decreased by expenses, 2. The last value number of a product is increasing at every step of production, 3. Output value is subtracted by input value of a bought standard material and depression value which is separated by the enterprise. As an example, an added value of bread product is a value of the bread product (output value) being decreased by value of flower andanother input bought from other enterprise (input value) (Terminology dictionary of Cooperative Minister and small- middle enterprise 2000-2008, cited by [3].

According to [4], there are two kinds of added value, those are innovation and coordination. Innovation activity is an activity improving available process, procedure, product and service or creating something new by using or modifying configuration of the available organization, whereas the meaning of coordination is

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harmonization of function on the whole system. Those are an opportunity to enhance product coordination, serving information.

B. Milk

Milk is defined as a fluid produced by *mammae* gland of female animal. Another milk definition is a white coloring fluid secreted by *mammae* gland of female *mammae* animals as a foodstuff and nutritious source for their springs. Most of milk, consumed by human comes from cattle. AS a whole, what is called milk that is cow milk, whereas the other animal milk those are usually accompanied with the name of the animals such as buffalo milk, goat milk, camel milk and so on [5].

C. Milk as Human Foodstuff

Milk as a foodstuff is having a high nutritive value because it contains a complete nutritive as lactase, fat, protein, various vitamin and minerals. Milk compositions were 87% water, 4% fat, 4.7% lactose, 3.5% protein, 0.8% mineral [6]. According to [7], the milk was a combination of water, fat, lactose, protein, minerals (calcium, phosphate, and natrium) and various kinds of vitamins. It is said that milk has a high biological value or high nutrition since milk is a foodstuff that being able to provide protein with complete essential amino acid.

Besides, by consuming milk it couldfulfill calcium need for the body. The need of calcium accumulated in the bone got 500mg/day, so it was suggested to consume 1.500mg calcium per day. It was also the need of riboflavin, vitamin B_{12}, magnesium, phosphor, and iron kept high [5]. According to [6] milk as fluid containing a high nutritive matter, yet it was a good media for the growth of microorganism that made milk easily to be rotten. Various milk processes had been done to enhance the efficiency and affectivity of keeping and processing milk in order it was in long duration to be consumed.

D. Hygiene Character of Food Processor

According to World Health Organization (WHO) epidemiology data the food borne disease affected millions people every year, either in the developed country or in the developing country [8]. In the European Union (EU) one third (36.40%) of the epidemic reported it was transferred by way of food, unprepared food in the household, and restaurant, café, bar, hotel (20.60%), school and kindergarten (5.50%) [9]. According to [10], food borne disease was one of society health problem that was the greatest and the most harvest which was ever encountered in the modern age. The disease brought about many victims to the human life and caused a great number of sufferings especially in baby circle, children, adult and those with disturbed immunity. About 70% poisoning case in the world caused by a ready eaten food that was a readymade food by the seller or tradesman.

The important factor playing the main role on the food poisoning occurrence interlaced with food management was knowledge, attitude and hygiene practice [11]. Training program was important to enhance the knowledge of food management. Notwithstanding if the food management was good, but the food security was in practice not always towards positively to the alteration of food management behavior [12]. Several researches on knowledge, attitude and a practice of food manager had been conducted in several part of the world wide [13].

III. Hypothesis

The value-added of processed fresh milk at milk café is higher than on pavement milk trader. The hygiene behavior of milk café is better than pavement milk trader.

IV. Materials and Method

The study was conducted in Yogyakarta, Indonesia. The number of respondents consisted of 24 pavement milk traders, 20 milk cafes being collected by judgmental sampling method. Research instruments were a questionnaire guide already prepared containing about aspect of value-added and the hygiene behavior of pavement milk trader and milk café manager. There were consisted of descriptive analysis and quantitative analysis. Data were then statistically descriptive analyzed, as average and percentage. The analysis used to current value-added was also applied by [2] as in Table I.

TABEL I. Value-Added Calculation

OUTPUT, INPUT, PRICE	FORMULA
Product (glass/day)	A
Raw material (glass/day)	B
Laborer (man-days worked)	C
Conversion factor	A/B= M
Laborer coefficient	C/B= N
Product price (IDR/glass)	D
Average wages (IDR/man-days worked)	F
INCOME	**FORMULA**
Raw material price (IDR/glass)	F
Other input contribution (IDR/glass)	G
Product value (IDR/glass)	M x D=K
Additional value (IDR/glass)	K – F – G = L
Additional ratio (%)	(L/K) x 100 % = H%
Laborer income (IDR/glass)	N x E = P
Part of laborer (%)	(P/L) x 100 % = Q %
Enterprise income	L – P = R
Enterprise degree income	(R/L) x 100 % = O %

V. Result and Discustion

A. Analysis of Processing Value-Added

Value-added of processing product is additional value got when the product is processed because of the influence of processing and technologyapplied. Whit this research value-added that was analyzed only for the processing of boiled fresh milk with sugar which was the kind of very simple processedmilk, although there were very much variations of processed milk in this study, those were 20 kinds of milk café and around 17 kinds of pavement milk trader. The result of value-added analysis is summarized in Table II and Table III.

In Table II and Table III were shown that the value-added of milk processing that was boiled fresh milk café to be higher compared with on pavement milk trader namely 4,910.35 IDR per glass and 2,841.60 IDR per glass for pavement milk trader. The value-added ratio was also higher at milk café of 71.35% and 56.79% for

pavement milk trader. It happened since the average volume of boiled fresh milk at café was 270.00ml per glass, while that on pavement milk trader was 304.16ml per glass. In general the boiled fresh milk at café was served with cup, while those on pavement milk trader kept with glass. The selling price was also higher at milk café namely 6, 882.35 IDR per portion, while those on pavement milk trader was 4, 833.33 IDR per portion, whereas the volume at café was a bit less compared with it on pavement milk trader.

TABLE II. VALUE-ADDED CALCULATION OF FRESH MILK ON PAVEMENT MILK TRADER

OUTPUT, INPUT, PRICE	FORMULA
Product (glass/day)	56.41
Raw material (glass/day)	56.41
Laborer (Man-days worked)	1.34
Conversion factor	1
Laborer coefficient	0.023
Product price (IDR/glass)	4,833.33
Average wages (IDR/Man-day worked)	40,342.16
INCOME	FORMULA
Raw material price (IDR/glass)	17.41
Other input contribution (IDR/glass)	250.00
Product value (IDR/glass)	4,833.33
Additional value (IDR/glass)	2,841.60
Additional ratio (%)	56.79
Laborer income (IDR/glass)	927.87
Part of laborer(%)	32.65
Pavement milk trader income (IDR/glass)	1,913.73
Degree income of pavement milk trader (%)	67.35

TABLE III. VALUE-ADDED CALCULATION OF FRESH MILK AT MILK CAFÉ

OUTPUT, INPUT, PRICE	FORMULA
Product (glass/day)	112.63
Raw material (glass/day)	112.63
Laborer (man-days worked)	7.01
Conversion factor	1
Laborer coefficient	0.062
Product price (IDR/glass)	6,882.35
Average wages (IDR/Man-days worked)	30,889.76
INCOME	FORMULA
Raw material price (IDR/glass)	1,620.00
Other input contribution	352.00
(IDR/glass)	6,822.35
Product value (IDR/glass)	4,910.35
Additional value (IDR/glass)	71.35
Additional ratio (%)	1,913.16
Laborer income (IDR/glass)	38.96
Part of laborer (%)	2,997.19
Enterprise income (IDR/glass)	61.96
Enterprise degree income (%)	

Although the value-added was higher at milk café compared to pavement milk trader, but the portions accepted proportionally by the milk café owner was smaller compared with those accepted per portion by pavement milk trader. This condition happened because there was many more and various activity at milk café compared to on pavement milk trader. The serving on pavement milk trader was simpler either in number or the variety.

The increase of value-added of objects can be economically conducted by way of transformation of form (form utility), place (place utility), time (time utility) and possession (possession utility).

To be evident that this business of fresh milk processing either it was done by the pavement milk trader or milk café it was able to move the economical activity of domestic milk industry to be more ambition. If so far fresh milk market of dairy farmers especially people farmers were only milk processing industry there was appearance of another market opportunity which was enough potency. As it was mentioned above this financial value-added was not only got by milk processor but also got by dairy farmer as raw material producer, fresh milk trader and cooperative as a raw material supplier to the processor and even to laborer absorbed by fresh milk processor. Besides consumer receive economically added-value. Only added-value got by farmer was not optimum because most of the pavement milk trader (62.5%) took fresh milk from cooperative, 25% from fresh milk trader and the remainder 12.5% from dairy farmer. While milk café took fresh milk from cooperative (52.94%), 23.53% from fresh milk trader and 23.53% from the farmers. The result of study showed that fresh milk selling price from farmers to cooperative was I3,800.00 IDR to 4,000.00 IDR per liter. Cooperative sold the fresh milk to the pavement milk trader and milk café of 5,000.00 IDR to 6,000.00 IDR per liter. The fresh milk trader bought it from farmers round about 5,000.00 IDR to 6,000.00 IDR per liter and sold it to the pavement milk trader and milk café on the price of 6,000.00 IDR to 6,500.00 IDR per liter. This condition needs to be coordinated or guided in order the created system to be more harmonious.

B. Hygiene Behavior of Pavement Milk Trader and Café Processor

The result of observation is summarized in Table IV.

In Table IV shown that the behavior of milk café processor in executing milk to be served to the consumer had followed 100% the hygiene behavior or applied the whole aspectof good hygiene behavior. While pavement milk trader only applied 87.50% of the hygiene behavior aspect, and the reminder of 12.50% was not yet done. This condition indicated that the milk café entrepreneur was more professional in managing the business. Mean time for the pavement milk trader still needed instruction in this matter.

TABLE IV. HYGIENE BEHAVIOR OF PAVEMENT MILK TRADER AND CAFÉ PROCESSOR

Hygiene behavior parameter	Pavement milk trader	Milk cafe
Good (%)	87.50	100.00
Less good (%)	12.50	0.00

A food business that had good grown and developed, if it did not apply hygiene principles and food sanitation, at a moment would suffer a loss. This matter had much happened on some food businesses which got bankrupt

caused by food poisoning or food born disease after consuming their food product [14].

VI. Conclusion

From the study it can be concluded that:

1) Value-added of fresh milk processing product at milk café was higher per portion compared with those on pavement milk trader.

2) Most of pavement milk trader (87.5%) had applied good hygiene behavior; the rest of 12.5% was still less degree of hygiene behavior. While all of the milk café had conducted good hygiene behavior.

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