

Timor-Leste's Coffee Diversification. A Case Study of Hospitality Industry in Dili, Timor-Leste

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ABSTRACT

The study aims to identify the clients' perceptions regarding Timor coffees' diversification to enhance the value marketing in the hospitality industry (1). Also, the objective of this study is to create a prototype of Timor's coffee instant based on the client's perception (2). The population of this study is the coffee lover clients, and the undefined sample of the clients was used as simple random sampling, which is 384 participants, and the key informants are 12 informants. This study applies a mix-method study of qualitative and quantitative study. The data collection method conducted observation, in-depth interviews, and surveys using questionnaires, and the data analysis used narrative and descriptive analysis. The result of this study is that most of the informants mentioned that the good quality of coffee is arabica coffee. They mostly agreed with the coffee diversification to enhance the value of Timor-Leste coffee. Also, the good quality of coffee starts from harvesting, fermentation, roasting, and preparing the coffee. Furthermore, regarding the clients' perceptions, 86% of clients agree with the diversification of Timor-Leste's coffee to be competed in the marketing, 65% strongly agree with drinking original Timor-Leste coffee. Moreover, 57% is clients' perception regarding Timor-Leste coffee instant and herbal (ginger and cinnamon) and 87% strongly agree that this diversification could increase the coffees' farmer income. Moreover, the results of the prototype coffee of this study are Herbal drip original coffee mix with ginger and cinnamon, Timor-Leste coffee *2in1* and *3in1*, and Timor-Leste coffee capsule (ginger and cinnamon). The benefit of this study is for clients to consume Timor-Leste's coffee instant, and thus, the reduction of importing coffee instant to Timor-Leste. Also, it is beneficial for agriculture area, especially coffee farmers, to plant more coffee as it is essential for farmers, clients, and the nation's national income.

Keywords: Diversification, Timor-Leste's coffee, Clients' Perception, Hospitality Industry.

1. Introduction

Coffee is a superior product that is annually always exported to other countries through international or local companies that invest in the coffee business. Therefore, Timor-Leste's coffee requires full attention from the government. Moreover, export taxation could benefit local farmers' economic life and national income. However, the weakness is only exporting the primary coffee powder. Thus, it is needed the government supports the farmers in the rehabilitation of the coffee plantation as well, and also further investigations for coffee diversification.

Furthermore, Timor-Leste's coffee has three main essential values: historical value, identity value, and economic value. First, in terms of historical value, in 1869, all coffee plantations worldwide had died; however, in Fatubesse Matanova, a unique coffee survived. That was the mother of coffee in Timor-Leste and the world (Business Timor, 2021). Second, according to the identity value, Timor-Leste's coffee is an organic coffee that has been sold out at Starbucks and other famous companies. Therefore, the feeling of pride as a Timorese to hear our coffee is sold in famous places.

Furthermore, economic value refers to the export of coffee, which add value to the income of the nations. The coffee is exported to several countries, such as the USA 33%,

Germany 22%, and the remaining are Indonesia, China, South Korea, Japan, Singapore, Hongkong, Canada, and Vietnam (Business Timor, 2021). The information from the CCT ("Cooperativa Cafe Timor" Timor's Coffee cooperation, 2022) indicated that Timor-Leste had exported about 10-12 tonnes of primary coffee yearly. However, some companies require more coffee to purchase, and sometimes it takes time to obtain the coffee. Therefore, cooperation among the government, agriculture, and private sector requires a better program for coffee rehabilitation to produce more coffee that could benefit the community.

On the other hand, The Ministry of Agriculture of Timor-Leste has prepared the national plan about the National Coffee Sector Development Plan (NCSDP) to promote the growth and sustainability of the sector (NCSDP, 2019-2030). Also, the Minister of Agriculture has highlighted in the introduction of the national plan that the ACT (Asosiasaun Café Timor/ Timor Coffee Association) must cooperate with other sectors to develop more coffee rehabilitation in order to produce more coffees and add more value to the coffee, and to be aligned with the SDPN 2011-2030 which mentioned agriculture is one of the important pillars to be developed in Timor-Leste. Therefore, the ACT strategized many ways to cooperate with farmers and private sectors to add more value to the coffee product.

Another alternative, exporting coffee to an international company, requires more coffee diversification (Coelli & Fleming, 2004; Hong et al., 2020). Therefore, this is the time to diversify Timor-Leste's coffee. It is because apart from exporting Timor's coffee, Timor-Leste also imported other coffee instants such as Moca, Tugu Buaya coffee, Nescafe, White Luwak Coffee, Etc. Thus, this is the time to decrease the import by having Timor-Leste's coffee instant that has been diversified. The objectives of this study are; first, it is to identify the clients' perceptions regarding Timor coffee's diversification to enhance the value marketing in the hospitality industry. The second is to create a prototype of Timor's coffee instant based on the client's perception of the hospitality industry in Dili, Timor-Leste. The remainder of the paper is discussed the literature review, methodology, results, and discussion. Then the last is the study's conclusion, recommendation, and limitations.

2. Theoretical Background

The product development refers to the complete process of taking a product to market (Cooper, 2019). Some previous study illustrated that the product development is a series of steps that includes the conceptualization, design, development and marketing of newly created goods or services (Ulrich et al., 2008). Thus, in this study will be focused on the product development of coffee (Gemechu, 2020), particularly Timor-Leste's coffee.

Moreover, according to Ansoff (1997) and Louca & Pennell (2020), diversification is a strategy that a company conducts to add value to a product to become a new product and could be competed in the market. Also, diversification is a technique to minimize risk by allocating the investment to other areas in order to benefit the economy, industry, and other sectors (Blasi, Kruse, & Markowitz, 2008). They also added that better product diversification must be referred to the quality, quantity, and better price of a product. Diversification refers to a strategy used in the business to add more chain value to a product (Louca & Pennell, 2020). Moreover, other previous studies have found in their result of the study that diversification is an essential strategy for agroecological to support the development of local remote areas (Scoones, 1998; Ellis, 2000; Amekawa, 2011; Gliessman, 2015; FAO, 2018; HLPE, 2019). Thus, a product's diversification is essential, and its implementation could benefit clients, producers, and farmers.

Furthermore, other research studies also indicated strong evidence that diversification could enhance and ensure future food that could adapt to climate change and protect and conserve all natures (Amekawa, 2011; FAO, 2018; HLPE, 2019). On the other hand, previous studies found out in their study that coffee diversification supports the agroeconomic of farmers as it benefits them economically and socially (Perfecto & Vandermeer, 2015).

Thus, coffee diversification could help farmers and the environment in the coffee plantation.

Moreover, previous studies have explored livelihood aspects in the diversification of the smallholder coffee system (e.g., Jha et al., 2011; Jaffee, 2014; Vellema et al., 2015; Gerlicz et al., 2018). However, analyzing the clients' perceptions of coffee diversification and conducting prototype studies are still limited, especially focusing on quality, quantity, and price. Therefore, it is essential in this study to adopt some version of a sustainable livelihood framework (Scoones, 2009). Therefore, this study especially focuses on the diversification strategy based on the coffee's quality, quantity, and price, which benefits clients and farmers. This study also mentioned, "There should be different coffee qualities for internal consumption and export markets, and the enterprises should also deal with more than one coffee brand" (Hailu et al., 2020, p. 35).

3. Methods

This research adopted mixed qualitative and quantitative methods to know the respondents' phenomenon perception (Cortini, 2014). This study was conducted in Dili and Ermera for six months. The following describes the population and the sample of this research, the method of data collection, and the analysis.

3.1. The population and the sample

The population of this research is categorized as an undefined population as there is no statistical data available; thus, it is determined using a random sampling method. It means every number of populations can be the sample. Therefore, this study adopted the undefined population formula to calculate the formula. The formula was adopted from Cochran's (1977), cited in Kotrlik & Higgins (2001). The total sample is 384 customers.

Another alternative that this research used for calculating the population qualitative was purposive sampling, which means the key informants are the experts in the area referred to (Etikan & Alkassim, 2016). Thus, the key informants of this research are the managers of café and coffee companies, with 12 key informants.

3.2. Data Collection Method

The process of data collection adopted the mixed method (Qualitative and Quantitative) such:

- a) Observation (Qual): The researchers directly researched the field (Angrosino & Rosenberg, 2011).
- b) Interview (Qual): The interview method adopted the semi-structured interview, which means respondents can answer more and freely express their opinions not based on the questions prepared (Englander, 2012; Lauterbach, 2018).

c) The survey or questionnaire is as Quantitative method was conducted by delivering the questionnaire to the clients (385) participants (Blom et al., 2020; p. 171).

Data analysis method

There are two techniques used to analyze this research. The qualitative method used narrative analysis (Herman & Vervaeck, 2019). At the same time, the quantitative method used descriptive statistics analysis (Lawless & Heymann, 2010; p. 227) and used the tools of STATA 15 (Peacock, 2019).

4. Results

The study is analyzed into two parts. First, the qualitative analysis result transcript from café managers' perceptions. Second is the quantitative analysis from the survey of the clients to support the qualitative data. The following is the table of informants, the transcription of the qualitative result, and the result of the quantitative result.

4.1. The Qualitative Results

The key informants are most the manager of the café and other positions as follows:

Table 1. Key Informants

No	Informants	Position
1	Aroma Café	Supervisor
2	Letefoho Café	Supervisor
3	Pateo	Supervisor
4	Hotel Timor	Restaurant Supervisor
5	Hotel Novu do Turismo	Restaurant Supervisor
6	Osteria Restaurant	Manager
7	CCT (Dili and Railaco)	Manager
8	Timor Global	Director
9	K2C café	Manager
10	ACT	Director
11	Atsabe Café	Manager
12	Black Box	Manager

4.1.1 Types of coffee

Most informants mentioned that *the best coffee in Timor is arabica coffee*, especially from Atsabe, Ermera. It is because of the best quality from harvesting until the serving on the cup.

They also added that this is because Timor's coffee is organic. Also, the president of ACT added that the good quality of coffee depends on the whole process, from harvesting to serving in the cups.

The best coffee ready to be diversified is the Arabic coffee from Atsabe; this coffee has been exported to seven countries, and the sample of this coffee has been tested in the USA lab as cupping testing (*informants 11*).

4.1.2. Picking up the Coffee Bean (Harvesting)

Harvesting or picking up the coffee is the essential step to determine the good quality of the coffee. The coffee that will be harvested must be already dark red or ripe to get the best quality coffee beans (all informants).

4.1.3. The Fermentation Method Process

The method of the fermentation process is the process after picking up the coffee beans. According to the informants' opinions, three types of fermentations are applied for the best coffee quality: The honey method. The process is after harvesting the coffee, fermented with water directly, peeling out the coffee, and drying directly. Second, it is called the full wash process. It is a similar process to the honey method. However, peeling out the coffee requires washing it until clean, then fermenting and drying it. The third is the natural method. This process does not require to do fermented after picking up the coffee. Then, dry it directly with the red bean (informant 1, 5,7, 9,10,11,12).

4.1.4. Roasting Method

After fermentation and drying in the roasting process, the coffee is ready for harvesting. The method in order to produce the coffee powder is roasting. *Most respondents agreed that the best roasting for good quality coffee is frying between 180 – 2000c. They added that there are three levels of coffee roasting such as level of such as light (coffee roasting for 12 minutes), medium (14-15 minutes), and dark (16-17 minutes).* Also, there are other methods of roasting using a computer. However, this research applied the second level of roasting. (Informants 2,5,7,9,10,11,12).

4.1.5. Coffee Serving Method

This method is essential as the coffee is prepared and ready to be consumed. Vice ACT, Sr. Afonso de Oliveira, added that it must be based on the standard to serve quality coffee. The quality of coffee also depends on the barista who serves the coffee. It also depends on the water temperature served with the coffee. The best temperature of the water is 90-990c. The barista must know or be able to measure the ratio between water and coffee. Normally the barista has the formula to determine the ratio between coffee and water, for example, 1: 6, 1: 10, 1: 12, 1: 16, 1: 20. On the other hand, the machine makes the coffee must be clean properly and well maintained too (Informants 9,10,11, 12).

4.1.6. Demographic Information of the Clients

Most clients are male 53%, and female 47%, with their age range mostly 36-45 years old 50%. The second group's age is 26-35, with 33%. Most clients' occupations are private sector employees with 45%, government employees with 35%, and others 20%.

4.2. The Quantitative Result

Clients' perceptions about Timor-Leste's coffee diversification:

4.2.1. Clients' Perception Regarding Drinking Timor-Leste's Coffee Original

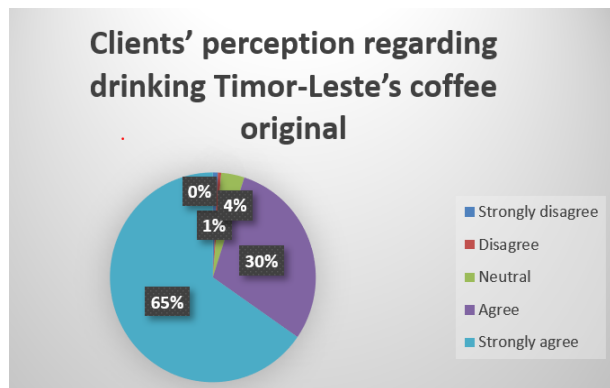


Figure 1. Clients' perception regarding having or drinking Timor-Leste's coffee original.

The figure 1 shows that 65% of customers strongly agree to drink the original Timor-Leste coffee. It means the customer requires or wants the original coffee of Timor-Leste to be consumed.

4.2.2. Clients' Preferences of Drinking Coffee Herbal.

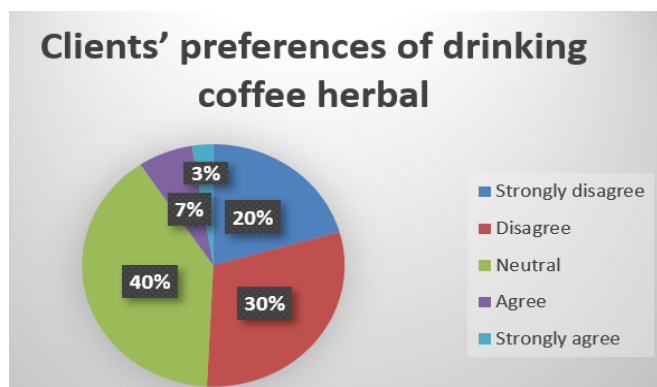


Figure 2. Clients' Preferences of Drinking Coffee Herbal

This figure 2 illustrated that most clients' preferences as neutral, with 40% drinking herbal coffee. It means it is possible to produce the herbal coffee and offer it to the customer to be tested for better feedback.

4.2.3. Clients' Perceptions of Drinking Timor-Leste's Coffee that has been Diversified.

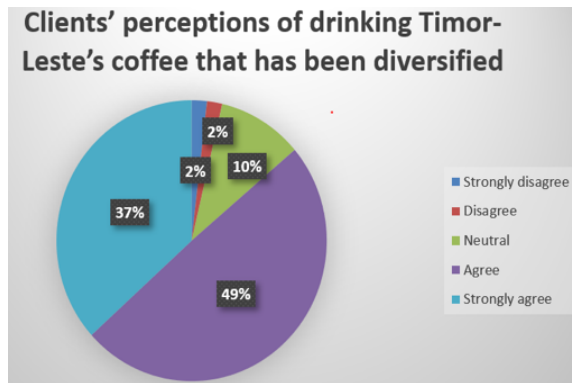


Figure 3. Clients' perceptions of drinking Timor-Leste's Coffee that has been diversified

This figure 3 illustrated that most respondents agree to drink Timor's coffee, which has been diversified with 49% and strongly agrees with 37%. It means Timor-Leste could minimize the import of instant coffee from other countries to Timor-Leste, for example, Nescafe, White coffee, Etc.

4.2.4. Clients' Perceptions of Drinking Timor-Leste's Coffee that has been mixed with ginger and cinnamon

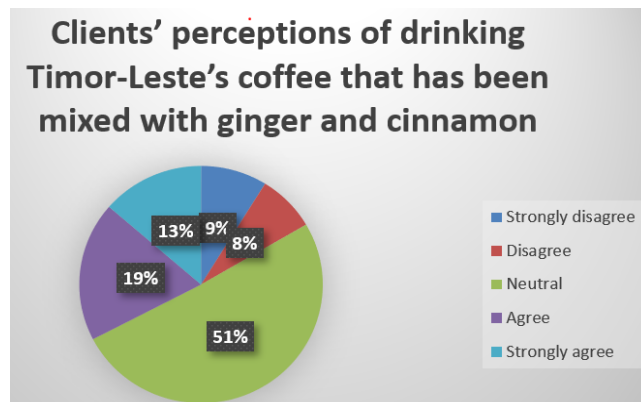


Figure 4. Clients' Perceptions of Drinking Timor-Leste's Coffee that has been mixed with Ginger and Cinnamon

This figure 4 illustrated that most clients agree, 19% strongly agree 13% about drinking coffee herbal that mix with ginger and cinnamon. Thus, it could be developed as Timor-Leste's instant coffee to diversify it and compete in the market.

4.2.5. Clients' Perceptions of Timor-Leste's Coffee Diversification Could Enhance the Local Economy Income.

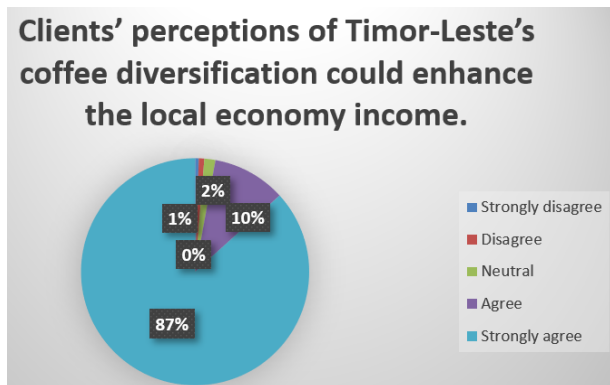


Figure 5. Clients' Perceptions of Timor-Leste's Coffee Diversification Could Enhance the Local Economy Income.

The figure 5 shows 87% of respondents strongly agree that this coffee diversification could enhance the local economy's income. Therefore, it could be recommended that the farmers keep planting coffee as it could benefit their future economic life.



Figure 6. Coffee Drip, Coffee Capsule, and Coffee 3in1 and coffee 2in1

5. Discussion

The result of this study indicated that most clients' perceptions agree with drinking Timor-Leste's original coffee and Timor's coffee diversification to be ready to compete in the market. Also, the result showed that the diversification of coffee could enhance local economic income. The result of this study is consistent with the previous research done by several authors regarding coffee diversification (Amekawa, 2011; Ferreira et al., 2012; Hailu et al., 2020; HLPE, 2019). It means that the diversification of Timor-Leste's coffee could enhance the local economic income, specifically and generally the nation's income. Therefore, to complete the informants' ideas and clients'

perceptions, the researchers produced the prototype of good quality Timor-Leste coffee capsule, coffee drip, coffee 3in1, and coffee 2in1 mixed with ginger and cinnamon to compete in the market.

This trial of the prototype is a method used in research to find the result of a new product. The new products, such as coffee drip, coffee capsule, and coffee 3in1 and coffee 2in1, use a better quality of s of coffee from Atsabe, Ermera.

5.1. Coffee Drip

Producing the coffee drip is done after roasting the coffee, and then the grinder is used in the machine. Also, separately roast the ginger and cinnamon. Separately put the ginger and cinnamon into place, then mixed ginger with the coffee and put in the drip bag with a weight of 15gr. The compositions are as follows:

Coffee Drip Ginger 15 gr

(Coffee) 13 gr

(Ginger) 2 gr

Coffee Drip Cinnamon 15 gr

(Coffee)13 gr

(Cinnamon) 2 gr

5.2. Coffee Capsule

For the coffee capsule, there is the same process as the coffee drip above. However, the weight is different. The coffee capsule has only 7gr. The compositions are as follows:

Coffee Capsule Ginger 7gr

(Coffee) 6 gr

(Ginger) 1 gr

Coffee Capsule Cinnamon 7gr

(Coffee) 6 gr

(Cinnamon) 1 gr

(Note: coffee capsule is produced in Bali, as there is no machine in Timor-Leste to produce it).

5.3. Coffee 2in1 & 3in1

Coffee 2in1 and 3in1 are coffee instant that would be commercially sold. The coffee commercial is cheaper than the coffee special (coffee drip and capsule). The process of producing it is the same as making a coffee drip and a coffee capsule. The difference is that sugar and milk powder must be added to it with a weight of 15gr. The compositions are as follows:

Coffee 2in1 (15gr)

(Coffee) 8.3 gr

(Sugar) 6.7gr

Coffee 3 in 1 (15gr)

(Coffee) 6 gr

(Sugar) 5gr

(Milk Powder) 4gr

The result of this study is having a new product, namely "coffee lovers," with two main target markets. The particular

coffee of drip and capsule would be sold in the hospitality industry. Moreover, commercial coffee would be sold to the public at a lower price.

6. Conclusions and Implications

The objective of this study is first to identify clients' perceptions regarding Timor coffee diversification to enhance the value marketing in the hospitality industry. Second, this study aims to prototype Timor coffee instant based on the client's perception of the hospitality industry in Dili, Timor-Leste. Therefore, it could be concluded that the best quality of coffee diversification is coffee arabica, with the method of roasting in the medium at 180-200 Celsius degrees for 15-16 minutes roasting). Also, the preparation method to serve the coffee depends on the barista and the degree of the hot water. The hot water degree must be between 99 and 100 Celsius, which is better to mix with the coffee.

On the other hand, in terms of customer preferences, most clients strongly agree with Timor-Leste coffee diversification to enhance the coffee value in the market. Also, customers prefer to drink the original Timor-Leste coffee, and clients prefer the herbal coffee mixed with ginger and cinnamon. Lastly, it concerns customers' perceptions that coffee diversification would increase the local economy's income.

Furthermore, a new good quality coffee diversification product, called "coffee lovers," was produced based on the informants' ideas and opinions. This new product is based on the whole process from roasting to serving in coffee cups. The new product, such as coffee drip, coffee capsule, and coffee 3in1 and 2in1, uses better quality exceptional coffee from Atsabe, Ermera.

7. Theoretical Implications

This study's theoretical implications can be strengthened from two perspectives. First, this study is the first studies that found out clients' perceptions regarding Timor-Leste's coffee diversification, particularly in the hotel industry in Timor-Leste. Second, the prototype of coffee diversification is produced in order to be reference for the academic. Therefore, future studies can extend this research by investigating on this phenomenon. This theory enables customers, farmers and producers in order to get knowledge regarding the coffee.

8. Practical implications

The result of this study could be beneficial practically to especially to the Ministry of Tourism and the Ministry of Agriculture of Timor-Leste should have a policy for reducing

the import of coffee instant from other countries to Timor-Leste. The reason is that there is a better-quality coffee in Timor-Leste now. Also, it can compete with imported products.

Furthermore, the government relevant should invest in the machine of coffee instant. Therefore, the coffee instant could be directly produced in Timor-Leste and compete with other imported coffee instant from other countries.

There is firmly recommendation to the private sector (the company that does business with coffee in Timor-Leste) to cooperate with coffee farmers regarding coffee diversification. Therefore, the farmers could plant more coffee and conduct coffee rehabilitation to produce more coffee. It could benefit the farmers because Timor-Leste's coffee is internationally well-known, has organic characteristics, and is preferred by foreign customers.

9. Limitations and recommendations for future research

There are some limitations as follows:

- a) This research has been limited to coffee roasting and serving on the cup to the customer. Thus, it is recommended that future research also cover planting coffee, ways of picking it up, rehabilitation of the coffee, and fermentation.
- b) This study has produced coffee mixed with ginger and cinnamon only. Thus, it is recommended for future studies to mix with vanilla and other herbals.
- c) It must be further tested for the laboratory test to get the food healthy and the food expiration date.
- d) This study applied a mix method in analysis. There is might be better with one method for the future studies.

Even though this research has its limitations, there are some strengths that Timor-Leste has its own new coffee instant product that could compete with the imported coffee instant from other countries.

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Annexes:

Semi structure interview questions to the informants:

1. What is Timor-Leste’s best coffee?
2. Where did you buy Timor-Leste’s coffee most, and why did you buy from them?
3. How is the process of harvesting the coffee?
4. How is the process of fermentation of the coffee
5. How is the process of roasting the coffee? How many degrees Celsius for roasting the coffee?
6. What is the process of serving in the cup the coffee? How is the water degree better for preparing the coffee?
7. What do you think of Timor-Leste’s coffee diversification? Do we need it? Why?
8. What ingredients, compositions, and better aromas for coffee diversification? Is it better to use herbal coffee? Why?
9. How is the better packaging process of coffee? What is the better packaging

Part A: Demographic Information

Gender: M _____ and F _____ Age: _____ Educational level: _____ Occupation: _____.

Part B: Clients’ perceptions

Notes: (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, (5) Strongly agree

Clients’ Preferences	1	2	3	4	5
I prefer drinking Timor-Leste’s original coffee.					
I prefer drinking coffee mixed with milk.					
I prefer drinking original coffee rather than herbal coffee.					
I prefer to drink herbal coffee (ginger and cinnamon).					
I prefer to drink the imported coffee instant “ <i>three in one 3in1</i> ”					
I prefer to drink Timor-Leste's coffee, which has been diversified like Nescafe, white coffee, etc.					
Client's perceptions of Timor-Leste's coffee diversification could enhance the local economy's income.					