



Production analysis of shrimp crackers home industry based on Islamic economic principles in Indragiri Hilir Regency, Indonesia

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Abstract. Shrimp is one of the basic capture fisheries commodities in Indragiri Hilir Regency. Apart from being marketed fresh, shrimp is also processed in the form of prawn crackers. This study aimed to describe and analyze the access to financing, investment, profits, and also the financial feasibility of a shrimp cracker business using quantitative descriptive methods. This research was conducted in Tanah Merah and Tembilahan Districts, Indragiri Hilir Regency, Indonesia, in April-May 2022. The population in this study was the community of shrimp cracker craftsmen, counting as many as 30 people. The study used a survey method by directly observing the object of fish processing in the field and interviewing the processors. To study the investment in this activity, a descriptive analysis was carried out. The results showed that the processing of shrimp cracker fishery products in Indragiri Hilir Regency was in accordance with the Islamic economic principles, namely the purpose of production in the economic fiqh (interpretation of the divine Islamic law) perspective of the Caliph Umar bin Khattab, which consists of: gaining optimal profits, fulfilling individual adequacy in the family, exploring sources of economy and preparing for good use, liberation from the shackles of economic dependence. The shrimp cracker business is also in accordance with the production rules in Islam, namely producing halal goods and services at every stage of production, preventing damage to the environment and limiting pollution, maintaining harmony and availability of natural resources, producing to meet individual and community needs, and achieve prosperity.

Key Words: financial feasibility, Islamic investment, Islamic industry, revenue, Islamic perspective.

Introduction. Processing is one way to extend the shelf life and quality of a product. Marine products such as shrimp, fish and others began to undergo a process of decay since they were first caught. This greatly affects product quality and sales value. Processing extends the shelf life of fishery products, which enhances the economic and environmental properties of the product system, in terms of durability and circularity (Zhu et al 2021). Indragiri Hilir is one of the regencies with potential for fisheries and marine resources in the Riau Province, therefore the local coastal communities often turn towards the business of processing fishery. One of the main outcomes of the fishery product processing businesses in Indragiri Hilir Regency consists of shrimp crackers (CBSR 2021). Shrimp crackers are a type of snack that can be produced by the home industry which has a very important role for the economic growth of the household itself. The shrimp cracker industry is also one of the most common foods that can be found in Indonesia (Santi et al 2021). Crackers are a type of food that is favored by the community, no matter the social status. Crackers are very diverse both in shape, size, aroma, color, taste, crunch, thickness, and also nutritional value. Nowadays, the shrimp cracker processing business is growing rapidly, becoming a very profitable choice, so many people are pursuing this way. Shrimp crackers have the main ingredients of tapioca flour and fresh shrimp meat. Contain 10.76% of water, 13.81% of ash, 2.40% of protein; 2.12% of calcium (Fatoni et al 2020). Crackers are widely known by local and non-local people because they are Indonesian specialties that are often used as additional food at large events, for snacks (Rahmawati & Andriani 2022).

The production activities should be oriented towards the needs of the wider community. The production system means an inseparable series of production principles and factors of production. The principle of the halal production, in Islam, applies to all processes starting from the source of raw materials to the type of the goods or services produced. The application of a production system based on Islamic economic principles has a great potential in Indragiri Hilir Regency. This is supported by residents in Indragiri Hilir Regency, who are predominantly Muslim (CBSR 2021), so that the halalness of a product is very important. The principle of Islamic economic production when applied in the production process will minimize losses. Erwaedy et al (2021) explained that the application of Islamic economic principles in production activities will protect and preserve natural resources. Furthermore, in the Islamic economic concept, the factors of production (labor, natural resources, equipment, and capital) should be assessed proportionally and rewarded according to the value of their contribution to the production process itself (Khan 1994).

The concept of halal is interpreted as a reference that leads to Islamic provisions (Alzeer et al 2018). In this study, the halal concept includes raw materials for making shrimp crackers, the capital spent in the process of making shrimp crackers, the process of making shrimp crackers, until the end of the distribution chain of the shrimp cracker industry. Distribution is one of the economic aspects that has received attention among Islamic economists. The topic of their discussion highlighted adherence to the conventional Islamic economy framework, starting from eco-friendly transportation, good commodity handling ethics, hygienic packing, separation of halal and non-halal commodities during distribution (Aliyanti 2022). In the distribution process, Islamic methods are also considered, including the marketing process recommended by the Islam, the customer withdrawal systems and the halal origin of the product (Tukiran & Anuar 2022). The halal concept is based on Islamic principles that must be followed both in the manufacturing process and in the marketing process (Khamaludin et al 2022). The study aimed to describe the shrimp cracker processing business in Indragiri Hilir Regency and to examine the suitability of the existing production system with the principles of Islamic economic production.

Material and Methods

Time and place. This research was conducted in Tanah Merah and Tembilahan Districts, Indragiri Hilir, Riau in April-May 2022, the fishing communities who have fish processing business activities.

Data collection techniques. The population considered in this study consisted of the community who produce shrimp crackers in Indragiri Hilir Regency, Riau, Indonesia. As many as 30 fish processors were interviewed in Tanah Merah District. This study used a survey method by observing directly the object of shrimp cracker industries in the field and by directly interviewing the processors. Interviews were also conducted with community leaders, government officials, traders, cooperative management, banks and other stakeholders. Interviews were conducted by referring to the questionnaire that had been prepared or conducted freely (deep interview) as required by the research. Secondary data is obtained from literature and scientific publications that were relevant to the research.

Investment and financing analysis. Investment and financing analysis addressing the shrimp cracker business was performed by collecting some data through a series of interviews with entrepreneurs and focused on the initial capital for starting a business, labor costs, raw materials, packaging, and marketing costs. To be able to find out the costs incurred by fishing communities in fishery processing business activities, the following formula was used:

$$TC = FC + VC$$

Where:

TC - total cost;
FC - fixed cost;
VC - variable cost.

Revenue and income are calculated using the formula:

$$TR = P.Q$$

Where:

TR - total revenue;
P - price;
Q - quantity.

$$NR = TR-TC$$

Where:

NR - net revenue;
TR - total revenue;
TC - total cost.

Financial eligibility. Revenue cost of ratio (R/C) is a comparison between revenue (revenue) and total cost. It can be expressed in the following formula:

$$R/C = \frac{TR}{TC}$$

Where:

R/C - revenue cost of ratio;
TR - total revenue;
TC - total cost.

With the following business criteria:

- a. $R/C > 1$, then the business is profitable and worth continuing
- b. $R/C < 1$, then the business suffers a loss and is not feasible
- c. $R/C = 1$, then the business breaks even

Return of Investment (ROI) is a calculation method to see the ability of a business to provide profits based on the investment. An activity deserves to be continued and developed if the ROI value > 1 . The formula used to get the ROI value is as follows:

$$ROI = \frac{\text{Benefit}}{\text{Investment}}$$

Payback period (PP) is the period required to recoup investment spending. This method is an assessment technique on the investment return period (period) of a business with the following criteria:

- Payback period value is less than 3 years in the fast return category
- Value of payback period 3-5 years medium return category
- Payback period value is more than 5 years in the slow category.

The PP formula can be seen as follows:

$$PP = \frac{\text{Investment Value}}{(\text{Profit})}$$

Results and Discussion

Business investment. In general, investment can be interpreted as spending or utilizing time, money, or energy for future profits. Investments in the shrimp cracker processing business at the research location include basins, knives, drying racks, steamers, mortars,

oil stoves, gas stoves, gas cylinders, and scales. According to Lutfiah & Rosnawati (2022), investment in the processing of shrimp crackers in the household industry, include large pans, large buckets, large and small basins, stoves, blenders, scales, stone mortars, pans, knives, and tools for drying crackers. From the data obtained, the breakdown of a typical investment in the shrimp cracker processing business can be seen in Table 1.

Table 1
Business investment in the home industry of shrimp crackers, in Indragiri Hilir Regency

No	Component	Ownership status	Unit (USD)	Volume (pcs)	Total price (USD)
1	Basin	Private property	3.4	1	3.4
2	Knife	Private property	8.4	3	25.2
3	Drying rack	Private property	0.7	13	9.1
4	Steamer	Private property	16.1	1	16.1
5	Mortar	Private property	16.8	1	16.8
6	Oil stove	Private property	11.7	1	11.7
7	Gas stove	Private property	16.8	1	16.8
8	Gas cylinders	Private property	8.4	1	8.4
9	Scales	Private property	2.0	1	2.0
	Total				84.2

In Table 1 it can be seen that the fixed investment issued by the owner in carrying out the shrimp cracker processing business is 107.42 USD. The components of the shrimp cracker processing business consist of a basin, knife, drying rack, steamer, mortar, oil stove, gas stove, gas cylinder, scales. While the non-fixed investment (working capital) for the first month is 227.4 USD. Thus, the total investment in shrimp cracker processing is 336.3 USD. In Table 1 it can also be seen that the tools used to process shrimp crackers are private property and are still simple tools. The results of this study indicate that the capital used is not a loan from a bank or other party but is the savings of the business owners themselves from the results of fishing or farming. This means that the business capital used is lawful and obtained from good sources and does not contain elements of usury, according to the sharia law (Al-Roubaie 2019).

Financing structure analysis. Total costs are the sum of fixed costs and variable costs of each business activity. Fixed costs (depreciation) are the costs of discounting a tool, due to a continuous use until it is no longer economically and technically usable (Chen et al 2022). The variable costs (not fixed) are costs that run out in one production period (Liu & Tyagi 2017; Otumawu-Apreku & McWhinnie 2021). The variable costs in this study were: shrimp, tapioca flour, labor wages, gas costs, electricity costs and assorted spices, as Munthe (2022) variable costs in the shrimp cracker production business in Tanjung Leidong Village such as raw materials in the form of shrimp and tapioca flour, labor and other costs. The costs required in the shrimp cracker industry are shown in Table 2 and Table 3.

Table 2
Total variable cost of home industry shrimp cracker business in Indragiri Hilir Regency

No	Component	Unit cost	Number of units	Total variable cost (USD year ⁻¹)
1	Shrimp (kg)	1.7	360	603.6
2	Tapioca flour (kg)	0.8	420	338.0
3	Labor wages (USD)	133.5	12	1601.6
4	Gas cost (USD)	2.0	12	24.1
5	Electricity cost (kg)	6.7	12	80.5
6	Assorted spices (kg)	6.7	12	80.5
	Total variable cost (USD)			2728.4

Table 3

Total fixed cost of home industry shrimp cracker business in Indragiri Hilir Regency

No	Component (pc)	Cost (USD)	Economic life (years)	Total fixed cost (USD)
1	Basin	3.4	11	0.3
2	Knife	5.0	6	0.8
3	Drying rack	8.7	6	1.5
4	Steamer	16.1	11	1.5
5	Mortar	16.8	11	1.5
6	Oil stove	11.7	11	1.1
7	Gas stove	16.8	11	1.5
8	Gas cylinders	8.4	11	0.8
Total cost of shrimp cracker processing business (USD year ⁻¹)				2737.4

From Table 2 it can be noted that the total cost incurred by shrimp cracker entrepreneurs is 2,737.4 USD. Variable costs can change when business activity decreases or increases. Meanwhile, fixed costs are defined as costs that are viewed as a whole, neither increasing nor decreasing when business conditions experience instability (Liu & Tyagi 2017; Otumawu-Apreku & McWhinnie 2021). Capital or financing in the shrimp cracker business comes from own sources. If business conditions are deteriorating to the point that they require to borrow capital from others, then business operators borrow from the tauke with projected returns. However, it should be noted that the loan does not apply interest and this is in accordance with Islamic law. In this way both parties avoid what is called usury in Islamic law. The capital is used properly and is structured by shrimp cracker entrepreneurs so that this business in Indragiri Hilir Regency rarely experiences book closures or lack of capital.

The purpose of production in Islamic economy. The purpose of production in the perspective of Islamic economics, more precisely the fiqh of the Caliph Umar bin Khattab is to create optimal profits. The production objective of the fish processing business is in accordance with the production objective in the Islamic economy, namely to produce an item that has a higher selling power. The purpose of production in the perspective of Islamic economics is to make an item useful that is in accordance with the needs of the community and has a high selling power (Musa 2020; Abror 2021). Achieving maximum profit is not the main goal of the company. Providing benefits to the community around the company is an invaluable advantage. However, this goal is different from capitalist understanding which seeks to achieve the greatest possible profit. Conversely, the shrimp cracker processing business in Indragiri Hilir Regency aims at creating optimal profits, while production and distribution are carried out in a halal manner, without prioritizing the element of big profits.

The income or profit can be examined statistically by performing data analysis. Income is the net result after deducting all costs incurred in business activities (Deada & Serrano 2021). The size of the revenue is influenced by the products sold (Taleizadeh et al 2021). The total revenue of shrimp cracker production is 3,798.8 USD year⁻¹. The production of prawn crackers from beginning to end is carried out in two cycles per month. The average total production is 30 kg cycle⁻¹ or 60 kg month⁻¹ with a market price of 5.4 USD kg⁻¹. Production costs and selling prices will determine the profits. The higher the amount of production, the greater the profit that will be obtained. The production costs could have a negative effect on the level of profit, meaning that the higher the cost of production, the lower the profit earned (Lestari et al 2020). The financial benefits of shrimp cracker business in Indragiri Hilir Regency can be seen in Table 4.

Table 4

Net Revenue from home industry shrimp cracker business in Indragiri Hilir Regency

No	Component	Total USD (year ⁻¹)
1	Total revenue	3,798.8
2	Total cost	2,737.4
	Net revenue (USD year ⁻¹)	1,061.4

To find out whether a business development is financially feasible, it is necessary to conduct a financial analysis. According to Sacchelli et al (2021), financial analysis is the process of evaluating business, projects, budgets and other financial related transactions to determine the performance effectiveness. Usually, financial analysis is used to analyze whether an entity is said to be stable or profitable enough for investment. In this study, the financial feasibility of the shrimp chips business was calculated through the analysis of several financial aspects such as Revenue Cost Ratio, Return on Investment (ROI), payback period (PP), and net present value (NPV) investment criteria.

Revenue cost ratio. The revenue cost ratio analysis (Table 5) shows that the R/C ratio value of the shrimp cracker business is 1.4 (>1). If the R/C ratio value is more than 1, then the business is profitable. The R/C value above 1 also illustrates that the business being managed is in accordance with the market demand or the market share (Haryanti et al 2020; Amit et al 1998).

Table 5

Revenue Cost Ratio (R/C) of an average shrimp cracker business in Indragiri Hilir Regency

No	Component	Total (USD year ⁻¹)
1	Total revenue	3,798.8
2	Total cost	2,737.4
	R/C	1,4

Return of invesment (ROI). The Return on Investment (ROI) is the Ratio between earnings after tax and total asset, which can be calculated by dividing the net income after tax by the total assets (Hanafi 2004). According to Hartono (2017), ROI, often called return on asset (ROA), is the company ability to compare the profitability with the company's realized effort. The results of this study showed that the ROI level of the shrimp cracker business in Indragiri Hilir Regency was >1 (Table 5). This means that business investments can generate profits. Devarakonda (2019) stated that a business is feasible if the amount of investment is able to generate profits. Return of Investment aims to test whether the investment is feasible or not (Lal et al 2020).

Table 5

Return of investment in home industry shrimp cracker business in Indragiri Hilir Regency

No	Component	Total (USD)
1	Total profit	1,061.4
2	Total investment	336.4
	Return of investment	3

Payback period (PP). Payback period of shrimp cracker business is less than 3 years (Table 6). This means that this business is feasible because it is in a fast return position. According to Haramaini et al (2019), a faster payback period will provide an opportunity for processors to maximize the present value of the accumulated net benefit (profit). It is an effective method in estimating the value of existing business feasibility (Chacón et al 2019).

Table 6

Payback Period in home industry shrimp cracker business in Indragiri Hilir Regency

No	Component	Total (USD)
1	Total profit	1,061.4
2	Total investment	336.4
Payback period		0.317

Other purposes of business in Islam. One of the business goals, from the Islamic culture's perspective, is the business priority for covering the needs of the family. The profit obtained from the shrimp cracker business is prioritized to meet the daily needs of the family. However, these results can also be shared with the closest family and neighbors. The results of the study show that the results of the shrimp cracker business can meet the needs of the entrepreneur's household and can even provide employment for other people. Therefore, the processing business of fishery products in Indragiri Hilir Regency fulfills production goals in the perspective of Islamic economics or Caliph Umar bin Khattab. Caliph Umar bin Khattab, as the second caliph of Islam after the death of the Prophet Muhammad in Medina, as taught in Islam does not allow someone who is able to work to beg from others. By doing business processing shrimp crackers, salted fish, shrimp paste, dried shrimp, the processors or producers no longer rely on other people to meet their needs, because the profits obtained from processing fishery products are sufficient to meet their daily needs. In Indragiri Hilir Regency, fishery products are not only used in the form of fresh fish, but also processed into other forms such as prawn crackers, salted fish, shrimp paste and dried shrimp. These activities provide benefits for both business owners and workers from local communities, fulfilling the objectives of production in the perspective of Islamic economics.

The rules of production in Islam. Producing halal goods and services at every stage of production is one of the methods of production in Islam. All tools and materials used in producing prawn crackers, salted fish, shrimp paste and dried shrimp are halal. Preventing damage to the earth, including limiting pollution, maintaining harmony, and the availability of natural resources. Damage to fishery resources is closely related to fishing technology. The fishing gear the most widely used by fishermen in Indragiri Hilir Regency are fishing rods, crab pentos, gillnet splints, traps, togok (static fishing gear trapping fish and shrimp that enter the ghoul bag with the help of currents) and throwing nets. All of these fishing gears can be categorized as environmentally friendly fishing gear, thus meeting the requirements of Islamic sharia. In addition, the most widely used fishing fleet is fleet ships with a size of 1 Gross Tonnage (GT). Traditional fishing technology is increasingly supporting and helping the fisheries sustainability (Grazia et al 2018). The fishing gear and the fleet used by fishermen in Indragiri Hilir Regency show that the technology used can be classified as environmentally friendly.

Production is intended to meet the needs of individuals and society and achieve prosperity. Processing of fishery products by processors in Indragiri Hilir Regency is able to make processors economically independent. It can even become a source of income for workers who help in the processing. The resulting product is halal and it has a high nutritional content. Production in Islam cannot be separated from the goal of the people's independence. The tools and materials used for processing fishery products such as fish crackers, salted fish, shrimp paste and dried shrimp are the property of the producers or processors themselves. This is in accordance with the principles of production rules in Islam, with the aim of self-reliance and empowering of the ummah (designation for adherents of a religion), enabling the production of useful products with their own abilities and efforts, for their benefit, extended to the community. In addition, economic independence from this processing has also been achieved (Abror 2021).

Natural resources in Islamic economic perspective. According to the Islamic culture, natural resources (as raw materials in the production process of shrimp crackers in Indragiri Hilir Regency), namely marine shrimp, have been created by God and

humans can use them without destroying the species, which is realized through an environmentally friendly fishing gear. Sabrina (2022) stated that Islam recognizes ownership of existing natural resources by always seeking a sustainable use and maintenance of these resources. According to the principles of production in Islamic economics, the natural resources in question must be utilized for the welfare and prosperity of mankind. Labor is closely related to the human resources involved in the production process of fishery products. According to the principles of production in Islamic economics, the success of a production lies in the performance of the committed human resources. The work rights, including the work counterpart (wages) and the duration, are clearly stipulated in the terms of the work contract resulted from a mutual agreement (Bahri 2020). In addition, the welfare of the workforce must also be considered: facilities have been provided to the workers, such as places to stay and eat.

Based on the status of capital ownership, the tools and materials for making prawn crackers are private property. This means that in terms of capital for this business, it is free from usury. This is in accordance with the perspective of the Islamic economics. The management of this shrimp cracker business also seems to be in accordance with the perspective of Islamic economics (Maqashid Al-Shari'ah). The wastes generated during the production process have been properly treated. The Department of Fisheries together with the Department of the Environment routinely conduct monitoring and evaluation. The technology used is relatively simple because it is a home industry whose production amount is still limited, so that the generated waste is reduced accordingly. A Muslim does not only work to achieve the benefit of the human community but he is obliged to work for the benefit of all living things, including animals. Islam really maintains the balance of the environment because both animals and plants have the right to live (Rahman et al 2018; Awan & Rahim 2018).

Conclusions. The processing of prawn crackers in Indragiri Hilir district is in accordance with the production objectives in the perspective of the Islamic economy or fiqh of the Caliph Umar bin Khattab, consisting of: realizing an optimal profit, generating adequate relationships between individuals in the family and community, building economic independence and exploring economic resources in an environmentally friendly way. The shrimp cracker processing business is in accordance with the production rules in Islam, namely producing halal goods and services at every stage of production. Production factors consisting of natural capital, labor, financial capital, management, technology, and raw materials are in accordance with the principles of Islamic economic production based on Maqashid Al-Shari'ah.

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