COST AND EARNING STRUCTURE OF THE SWIFTLET FARMING INDUSTRY

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Introduction

Information on cost and earning structure of an economic activity is useful to the operators and economic planners. An analysis of cost and earning structure could help identify the major cost components of the domestic swiftlet farming industry. The farmer could use this information to raise the efficiency in the financial management of his business operations. This could help in managing and in reducing the production costs. With this information, operators could set their sale and marketing strategies by responding to market prices and inadvertently receive an acceptable level of profits.

Economic planners and regulating government agencies can use the information on costs and earnings to understand the general operations of the domestic swiftlet industry. Planners and regulators are interested on any supply instability facing important commodities that may have an impact on the regular consumption of the community and citizens and on industries that are dependent on the commodities. For instance, a decrease in domestic swiftlet bird's nest prices arising from uncertain international prices, would influence supplies of raw and processed bird's nest. These circumstances if not checked by regulators would affect the interests of domestic producers.

Also an analysis of earnings will give some indications of profitability to potential investors and entrepreneurs in the swiftlet bird's nest industry. This information would help these potential investors and entrepreneurs to identify the type of business along the value chain in the domestic swiftlet bird's nest industry to venture into.

Objective

This paper highlights the analysis of the costs and earnings structure of swiftlet farming in the country. The analysis involves identifying the elements of the fixed and variable cost and the quantification of the sales earned by swiftlet farmers. The rates of profit were computed.

Methodology

A survey was conducted on swiftlet farmers to obtain a quantitative assessment of the various components of production cost – investments, fixed costs and variable costs, and of sales. These require:

i) Data on the physical units of:
   - fixed inputs acquired - land, building and equipments,
   - variable inputs utilized – labour, materials, and utilities, and
   - raw swiftlet bird's nest.

ii) Data on prices per units of the above fixed inputs, variable inputs and the different types of products.

The multiplication of the number of units of fixed and variable inputs, and various types of products by their respective per unit prices provide the components of fixed and variable costs, and sales. Deducting all the fixed and variable costs of swiftlet bird's nest farming from their sales respectively allows the computation of the profit margin. From this

exercise, it is then possible to provide an average estimate of the breakdown of the fixed and variable production cost, sales and profit indicators of swiftlet farming.

The profit indicators include profit margin, percentage profit over production cost, and percentage profit over sales. The profit margin provides information on net returns in absolute terms. This measure is very much influenced by production scale. Profits over production cost could measure the ability of entrepreneurs to generate profit as a percentage of the level of inputs utilized while profits over sales could measure the proportion of gross income that could be apportioned as profits to the entrepreneur.

Study Site and Sampling

Ideally, the survey should involve interviewing a random sample of the population of swiftlet farmers. Unfortunately, there is no complete population list of swiftlet farmers. Hence, the survey relies on the snowball sampling technique whereby an initial respondent surveyed led to the identification of other potential respondents. The number of samples of swiftlet farmers surveyed in 2012 and its distribution is provided in Table 1.

Table 1: Number of samples of swiftlet farmers surveyed in 2012 and its distribution

State	District	Respondents	
		No	%
Kedah	Alor Star & Kulim	5	9.1
Pahang	Pekan & Rompin	13	23.6
Penang	Kepala Batas & Nibong Tebal	9	16.4
Perak	Sitiawan & Taiping	2	3.6
Perlis	Kuala Perlis & Kuala Sanglang	4	7.3
Sarawak	Sarikei & Kuching	11	20.0
Selangor	Batang Berjuntai	1	1.8
Terengganu	Kuala Berang, Kuala Terengganu & Marang	10	18.2
Total		55	100.0

Findings

General Characteristics

The swiftlet farming is from the species *Aerodromus fuciphagus.* This species is different from the production of the cave EBN or locally called black nests. Hence, the *A. fuciphagus* EBN is called white nests in Sarawak. From the survey, it is found that many of the swiftlet farmers were initially Chinese throughout the country but many Malays have joined the industry within the last five years.

Investment costs

Initial capital investments for a swiftlet farm vary depending on the scale of production. There is a wide range of initial investments being made among the operators, from as low as RM7,294 to as high as RM2,046,000. The lowest case is a swiftlet house built on the upper floor with a dimension of 10 x 16 x 9 ft providing a breeding floor area of 160 sq ft. The highest case involved a dedicated 4 storey swiftlet house constructed with a dimension of 60 x 110 x 12 ft providing a breeding floor area of 26,400 sq ft. The average investment costs for swiftlet house EBN collection is about RM294,800. This involved the conversion of a terrace 2 storey shoplot with a dimension of 50ft X 20ft X 20ft providing a

breeding floor area of 2,000sq ft. The breakdown of the average capital investment costs for swiftlet farming is given in Table 2. The major average investments were on the construction of the swiftlet farm of RM284,681 that took up 96.6% of the total cost. To attract the swiftlets to the house it requires installing an intricate sound system that involves an average investment of RM4,301 or 1.5% of the total. Another essential investment was the attachment of Meranti planks at certain distances apart on the ceiling of each floors for the swiftlets to hang on to build their nests. This took up another RM4.156 average investments or 1.4% of the total. The investments on humidifiers, exhaust fans and licences to operate and export the bird's nest were considered very minor.

Table 2: Capital investment costs for swiftlet farm

Forms of Capital Investment (RM)	**Value (RM)**	**Percentage**
Bird house	285,044	96.6
Meranti planks	4,156	1.4
Humidifiers	1,407	0.5
Exhaust fans	105	0.0*
Sound system	4,301	1.5
Operational and exporting license	150	0.1
Total	295,164	100.0

*is less than 0.05%

Production Cost Structure

The average annual production cost incurred by swiftlet farmers were RM35,658. On a per weight basis, the respective average annual production cost incurred was RM2,182/kg. Production costs comprises expenditures on fixed and variable inputs. Swiftlet farmers faced proportionally greater fixed costs on the construction of the swiftlet house which took up 57.75% of production costs and a relatively lower proportion on the variable cost components of 42.25% of production costs (Table 3).

Table 3: Cost structure of the swiftlet farming

Items	RM/year	%	RM/kg	%
Average fixed cost	20,592.67	57.75	1,260.12	57.75
Average variable cost	15,065.78	42.25	921.92	42.25
Average total cost	35,658.45	100.00	2,182.04	100.00

Breakdown of Fixed Costs

The average fixed cost involved in swiftlet farming was RM20,593/year or RM1,260/kg (Table 4). For this EBN operation, the major fixed cost components were on the swiftlet house whose depreciation over fifteen years was on average valued at RM19,003/year or RM1,163/kg. This major component took up 92.3% of the average total fixed cost. The other substantial fixed cost item was expenditures on audio system that is needed to amplify certain music out into the sky to attract the swiftlets to the house, and to amplify music inside the house to retain the swiftlets already in the house to feel comfortable and remain in it. The investment was RM860/year or RM53/kg which took up only 4.18% of the total average fixed cost. The other components such as the Meranti planks nailed at the ceilings for the swifts to attach to, humidifiers, exhaust fans and EBN operating and exporting licenses took

up small percentages of the average fixed costs. The latter, license fees were incurred mainly as permit to run a business rather than a fee related to rearing swiftlets and for the collection of the raw bird's nests.

Table 4: Breakdown of the average fixed cost of swiftlet farming

Items	RM/year	%	RM/kg	%
Bird house[1]	19,002.95	92.28	1,162.84	92.28
Meranti planks[1]	277.08	1.35	16.96	1.35
Humidifiers[2]	281.38	1.37	17.22	1.37
Exhaust fans[2]	21.02	0.10	1.29	0.10
Sound system[2]	860.24	4.18	52.64	4.18
Operational and exporting license	150.00	0.73	9.18	0.73
Total	20,592.67	100.00	1,260.12	100.00

[1]Computed using a depreciation period of 15 years

[2]Computed using a depreciation period of 5 years

Breakdown of Variable Costs

The average variable cost of swiftlet farming was RM15,066/year or RM922/kg in terms of per unit production (Table 5). The main component was salary and wages taking up RM14,054/year or 93.4% of the average variable cost. The median of the swiftlet houses was run by one worker but on average 1.35 worker were employed to run the swiftlet house. The rest of the variable cost components were on utilities.

Table 5: Breakdown of the average variable cost of swiftlet farming

Variable cost components	RM/year	%	RM/kg	%
Salary & wages	14,053.09	93.28	859.95	93.28
Water	485.02	3.22	29.68	3.22
Electricity	527.67	3.50	32.29	3.50
Total	15,065.78	100.00	921.92	100.00

Earning structure

To obtain the total sales received from collecting raw swiftlet bird's nest requires information on its production and prices. The average gross sales per year is given in Table 6. The average annual sales of raw bird's nest from a swiftlet house was estimated to be RM63,198. The average yield was estimated to be 16.34kg per year or about 1.36kg per month.

The profit allocation system in swiftlet farming is straight forward with the net returns shared among all investors of the swiftlet houses. The swiftlet houses are often located in places easily accessible. Among partnerships where trust is not well entrenched yet, it is not uncommon to observe that the doors to the swiftlet house were locked with multiple locks belonging to the partners. Any harvesting of the raw bird's nest would require the presence of all owners. Under this situation, there will be no mistrust over theft and inequitable distribution of earnings.

Table 6: Income earned from swiftlet farming

Production scale	Swiftlet farming

Average price (RM/kg)	3,867
Production (kg/year)	16.34
Annual sales (RM)	63,198

*8 months production period per year

To evaluate the performance of swiftlet farming, the average annual profit margin, profit over production cost, and profit over sales were calculated using information on the cost and earning structure above. The average annual profit margin for swiftlet farming RM27,540/year (Table 7). The profit margin for swiftlet farming is influenced by the difficulty to attract and retain the swifts inside the bird house. Increasing population of swifts in a bird house takes time, usually several years before the capacity of the bird house is fully utilised.

Table 7: Financial performance of swiftlet farming

Performance measurements	Swiftlet house
Annual sales	63,198.32
Annual production cost	35,658.45
Annual net sales	27,539.87
Profit rate over sales (%)	43.58
Profit rate over cost (%)	77.23

* Base on a 5,000 bird colony

The average rates of profit over sales for swiftlet farming was estimated at 43.58% (Table 7). While the average rates of profit over production cost was estimated at 77.23%. Within swiftlet house collections, the operator has a relatively large profit margin and efficient in utilizing the factor inputs invested. The profit structure obtained by the swiftlet house operator is considered very viable by industrial standard.

Conclusion and Policy Implications

This paper has described the cost and earning structure for swiftlet farming in Malaysia. In general, the fixed cost component is large and form an essential investment for a swiftlet house. Swiftlet farming is undeniably a lucrative means of securing a long term returns, given that the bird house requires large investments. Swiftlet farming could obtain high returns from their efforts and investment, provided they are able to attract and retain the swiftlet colonies into their bird houses.