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Cost and Benefit Analysis of One Tambon One Product: A Case study of Rattan and Bamboo Wickerwork Products Group of Bantungfak, Thailand

Pathompong Kookkaew
(Faculty of Business Administration and Information Technology, Rajamangala University of Technology Suvarnabhumi, Thailand)

Abstract: The purposes of this research study were cost and benefits analysis of Rattan and Bamboo Wickerwork Products Group. Qualitative study was employed to collect and analyze data using in-depth interview. Interview questions were related to costs and benefit, and return on investment analysis — Net Present Value: NPV, Internal Rate of Return: IRR, Benefit and Cost Ratio: B/C Ratio at Discount Rate of 7% of 10 years of project life. The results reveal that Net Present Value (NPV) was 137,391 Baht, Internal Rate of Return (IRR) was 30.89%, Benefit and Cost Ratio (B/C Ratio) was 1.04. Financial return is in capital investment decision criteria.

Key words: cost; financial return; net present value; internal rate of return; benefit and cost ratio
JEL codes: M11, G11

1. Introduction

Since Thai government has set the monetization policy to the Thai citizens in order to maintain traditional knowledge locals for improving and highlighting uniqueness of local products. This is consistent with local culture of each province which enables locals to sell local products in national and international markets (Salakruthai Somrit, 2012).

Thai locals living Tungfak,Supanburi province is a small community gathering in a group to make Wicker from Rattan and Bamboo aims to make appliance and accessories to use within households underlying One Tumbon One Products and supported by the Thai government in terms of budgeting and training about designing patterns. However, the group needs to have basic knowledge about operation including cost analysis, expenses, and return on investment, revenue from selling products.

Research purposes are to analyze cost and profit from finance of Bamboo Wicker, Ban Toongfak, This is to see return on investment of the local products of the group and information is used to support investment decision in future. In order to support careers and maintain local products made from Bamboo Wicker with locals and community.

Pathompong Kookkaew, Lecturer, Faculty of Business Administration and Information Technology, Rajamangala University of Technology Suvarnabhumi,Thailand; research area/interest: finance. E-mail: kookkaew2526@hotmail.com.

2. Literature Review

2.1 Cost Management

Cost refers to all expenditures spent on producing products which it consists of variable costs and fixed costs (Chalermkhun Krootboonyong, 2012). Cost classifies as follows;

1) Variable costs mean to cost varies according to volume of production or sales. If production volume is high, total variable cost is also high (Trongvit Charoenkittanalap, 2011). Variable costs are materials, labor, and overheads including utilities, and/or miscellaneous expenses

2) Fixed costs refer to all expenses that are stable based on volume of production of business within a certain period of time. No matter how much products are produced, costs are paid stability (Pensri Jamsuwan, 2015). Fixed costs are factory, building, equipment, machines, and/or tools used to support production processes.

2.2 Return on Investment

Return on investment is a business tool that helps evaluate business performance and decision-making relating to investments. This includes investment on business expansion — size of business, machine replacement, and/or updated equipment. A business considered investment from several factors supporting decision-making such as cash flow that needs to be considered through project life. This includes cash inflow, cash outflow, and net cash flow. With this study, return on investment or income from sales refer to sale volume per year which is analyzed to seek cost and benefit using financial analysis tool and based on financial return on investment (Natdanai Yajantuk, 2009), as follows:

1) Net Present Value: NPV refers to different results between total present value of cash inflow and present value of project's investment. Business makes investment decision when net present value is positive.

$$NPV = \sum_{t=1}^{n} \frac{B_t}{(1+i)^t} - \left[\sum_{t=1}^{n} \frac{C_t}{1+i)^t} + C_0 \right]$$

NPV = Net Present Value

B_t = Return at year, t (t = 1, 2, 3…, n)

C_t = Cost of a year t (t = 1, 2, 3…, n)

C_0 = Cost of first year

i = Interest rate or Discount rate

2) Interest Rate of Return: IRR is discount rate that creates present value of cash inflow of projects is equal to present value of cash outflow from investment. Business makes investment decisions when return rates of project is higher than opportunity costs of discount rates

$$IRR = \sum_{t=1}^{n} \frac{B_t}{(1+r)^t} - \left[\sum_{t=1}^{n} \frac{C_t}{(1+r)^t} + C_0 \right] = 0$$

B_t = Return at year t (t = 1, 2, 3…, n)

C_t = Cost of a year t (t = 1, 2, 3…, n)

C_0 = Cost of first year

r = Interest Rate of Return: IRR

3) Benefit-Cost Ratio: B/C ratio is a method of present value ratio of return per cost. It can analyse by using total present value of Present value of Benefits, PVB divides by Present value of costs, PVC. A business makes

investment decision when ratio of return per cost is more than 1 (PVB / PVC > 1).

$$\text{B/C ratio} = \frac{\sum_{t=1}^{n} \frac{B_t}{(1+i)^t}}{\sum_{t=1}^{n} \frac{C_t}{(1+i)^t + C_0}}$$

B_t = Return at year t (t = 1, 2, 3…, n)
C_t = Cost of a year t (t = 1, 2, 3…, n)
C_0 = Cost of first year
i = Interest rate or Discount rate

3. Case Study

Wanwadee Amaranont (2007) examined cost and benefit from Bamboo Wicker of Tawan Bamboo Wicker, Pabong, Sarapee, Chiangmai, Thailand found that the group had spent 608,456 Baht on investment, 1,972,250 Baht of income, 1,552,375.40 Baht of costs of good sold, and 420,400 Bath of administrative expenses, with 10 years of project life. The project had a return period of 4.52 years, net present value was 365,832.92 Baht, and actual rate of return was 15.40 per year. Moreover, other factors related to investment of the projects should be considered including source of investment and government supports in terms of knowledge development such products and management. In addition, Panor Rinkham (2008) found that operation structures of Wicker group of water hyacinth, Payao Province of Thailand had selection of boards and committees of the group. Boards and committees were voted on democratic decisions of members within the group. The community development department and cooperative office of the Province also helped and supported the members of the group to examine and analyse financial returns on investment. 7% was set as level of interest rate standard. It showed the results of financial return and enabled to support change in cost and financial return better than the group of Wicker Water Hyacinth, respectively.

4. Conclusion

The Bamboo Wicker Group, Tungfak, have sale income of a year was 532,800 Baht, costs of investment were 100,000 Baht, operation expenses were 415,000 Baht, sale and administrative expenses were 84,000 Baht. Discount Rate was 7% of 7 years of project life which was 137,391 Baht of Net Present Value (NPV) and met the criteria of investment decisions. Internal Rate of Return (IRR) was 30.89% which met the criteria of investment decisions. And Benefit Cost Ratio: B/C Ratio was 1.04 which met the criteria of investment decisions.

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