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# Analysis of Company Productivity Using The American Productivity Center Model (APC Models) Approach

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**ABSTRACT**

Today, industrial competition is increasingly competitive and complex, along with advances in science and technology that are increasingly integrated. So like it or not, every company competes to continue to improve the company's performance so that it continues to exist in the competitive arena. The classic problem experienced by each company is the limited human resources and technology they have, so optimizing the conversion of resources such as: Labor, Raw Materials Energy Capital and technology should be the main focus in company policies so as to create a life cycle and company performance that is healthy so that it can provide maximum benefits and have high competitiveness. Productivity analysis using the American Productivity Center Model (APC Model) approach is a productivity analysis based on index numbers that can provide an overview of the company's productivity and profitability growth and can provide information to company management about which resources or inputs are not optimal in conversion. which causes a decrease in company performance so that improvement steps can be taken early and continuously. Research results at PT. Mirasa Indo Food Industry which is located at JI. Munggur No. 2 Ambar Ketawang, Mungkid, Magelang. During the period 2002 to 2003, it turned out that in 2003 productivity decreased by 3.34% while profitability increased by 23. 22% in 2003 there was also an increase in the total input of 1.266%. From the results of the research that has been done, it can be seen that the productivity level has decreased and the profitability has increased.



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## 1. INTRODUCTION

With the implementation of the Common Ejfektiva Vrefhuutl <anf «'HPT} scheme within the framework of AFTA (Asean Free Trade Area), yarn, the establishment of a free trade area in the ASEAN region in 2003, international trade will become very open. This not only includes opportunities but also challenges, resulting in more competitive competition. Many competitors and increasingly fierce competition in the business world must be a major concern for business people in determining company strategies so that they are not less competitive and can exist. Along with developments and increasing market demand, product competition is becoming increasingly competitive. Especially with the rise of the oierk . new me;k which is more creative, innovative in

terms of performance, quality and more lag. supported by vigorous promotions, so they want to try and determine the best choice according to them, in terms of quality and price which is not too high. With limited resources and the capabilities that are owned, it is imperative for every company to optimize the conversion of resources effectively and efficiently. efficient, so companies and companies still exist and can be relied upon in the competitive arena. Measuring productivity and profitability levels has proven to be effective in assessing company performance. Analysis of company productivity is an effective method that underlies more realistic planning and is very meaningful for determining company strategy. Productivity measurements that are carried out regularly and continuously will provide information about the pattern of company growth in a period. which can then be projected into future periods. In its development, companies often experience constraints in certain sectors, for example: labor, raw materials, energy and capital which can cause a decrease in productivity levels. This problem must be overcome by knowing the level of productivity above all, then analyzing it. Productivity analysis based on the American Productivity Center Models (APC model) approach is one of the productivity measurements based on an index number approach that can provide input and information as well as an overview for company management regarding the level of productivity and profitability that the company has achieved. By measuring the level of productivity,

## 2. RESEARCH METHOD

### 2.1 Research Object

The object of this research was conducted at PT. Mirasa In-.io Food indjsiri, .Vkmelami which produces sweet, salty and spicy sweet potato chips.

### 2.2 Data source

In collecting data to compile this research, the following research methods and research techniques and data collection techniques were used:

a. Primary Data, namely data obtained from the company, these data are in the form of planning processes, production processes and distribution.
b. Secondary data, namely data obtained from references or other sources in the form of documents obtained by researchers from the company can be used as a reference for data processing.

### 2.3 Method of collecting data

a. Library Research (Decision Research)
   Is a method used to obtain information regarding the theoretical basis for solving from Literature and reference books (handbooks). Used as an overview of the underlying theory for the application of real research.
b. Field Research (Field Study)
c. This study was conducted to make observations and collect data on research objects. This study was conducted to obtain primary data related to this research. This data collection technique can be done by:
   a) Interview
      Namely the method of collecting data through direct interviews with related parties. The data taken are: general history of the company. production systems and production processes.
   b) Direct observation Namely the method of collecting data by making direct observations of the data needed in measuring company productivity. The data taken are: production systems, production processes and company input-output data for the period from 1999 to 2003. Financial reports to obtain detailed data on each income and expenditure. The company's annual production data. In this data collection, identification of elements in the company's financial and accounting structure is carried out so that all input and output elements of the company can be identified.

### 2.4 Research stages

a. Literature review
   This literature study was conducted to find and find problems that will be the topic of the final project.
b. Formulation of the problem
   After finding the problem, the next step is to formulate the problem so that a problem formulation can be formed. In this case the formulation of the problem is: Examining how much the level of productivity that runs within the company. Looking for factors that influence the level of company productivity. Looking for alternative solutions to increase company productivity.
c. Determining the title and place of research From the formulation of the problem above it is clear that the title that can be determined is "Analysis of Company Productivity Using the American Productivity Center Model (APC MODEL) Approach". The place of research is PT.Mirasa Indo Food Industry, Magelang.
d. Data collection
   In this stage what is done is to collect the data needed to analyze the level of company productivity. The data needed are the output of each product, labor input, material input, capital input and energy input.
e. determine the method of measuring productivity
   In this stage, the most suitable method is determined according to the pattern of data obtained from the company.
f. Calculating the level of productivity
   Processing data obtained from the company to determine the level of productivity of the company using the method that has been selected.
g. Evaluate productivity levels
   From the results of the data processing above, it can be seen whether the existing level of productivity increases, decreases or remains the same in each period. After that we can determine the factors that cause changes in the level of productivity of the company.
h. Productivity improvement planning
   Once the factors causing the decline in company productivity are identified, productivity improvement planning can be carried out. The planning must be SMART (Specific, Measureable, Result oriented and Time related), meaning that the planning carried out must be specific, can be measured quantitatively, the desired results can be achieved (not dreams) and action can be taken and choose a specific schedule for the program increased productivity.
i. Conclusions and recommendations
   After analysis, it can be concluded from this research. So that it can also be proposed possible suggestions to be implemented for improvement and increase in company productivity.

## 3. RESULTS AND DISCUSSIONS

### 3.1 Results of Data Processing

In accordance with the purpose of this study, the analysis of productivity levels is intended to determine the level of productivity that has been running in the company in several periods. From this analysis we will find out fluctuations in the company's productivity level and then evaluate and plan to increase productivity. According to D. Scott Sink (1998), the productivity of a company is said to increase if:

a. Output increases, input decreases
b. Output increases, input tends to decrease
c. Output increases, input increases but the increase is slower
d. Output tends to stay the same, input decreases.

Based on the calculations that have been carried out the level of productivity and profitability of PT. Mirasa Food Industry has experienced a decrease in productivity but its profitability has increased. This shows that there are still factors that need to be improved in the company. The

results of these calculations can be seen in table 1

**Table 1.**Productivity index and profitability index of total inputs
FT. PT. Mirasa hood Industry, for 2 periods

| Year | 2002 | 2003 |
|---|---|---|
| IPT | 100 | 97,288 |
| IPFT | 100 | 123,216 |

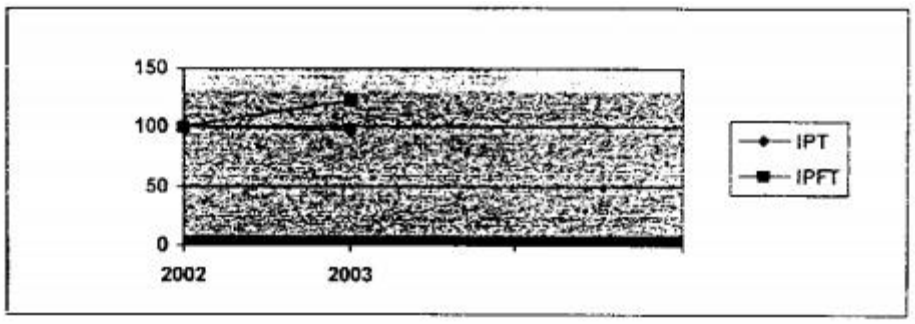


**Figure I**Graph of productivity index and total profitability index
PT. MirasaKood Industry for 2 periods

### 3.2 Productivity Level Evaluation

a. Evaluation of 2003 Productivity Levels with 2002 Base Period

From tabe! IV.1 it can be seen that at PT. Mirasa Kood Industry during the two periods saw an increase in labor productivity of 50.43%, because the number of unemployed workers could be minimized and also because the production process was not too difficult. However, for materials or raw materials, energy productivity has decreased by -9.1%, -41.47%, respectively. The decrease in material productivity is due to the wastage of raw materials and cannot be used for further processes, while the decrease in energy factor is due to increased power. needed increase. And the capital factor has increased by 1.45% because of the company's policy not to purchase new machinery and equipment.

On the index numbers in table IV. 1. which is calculated based on constant prices shows that the output produced in the 2003 period increased by 39.9%, whereas in the use of labor input there was a decrease of -1.032%, and in raw materials or material, energy, capital experienced an increase respectively by 53.9%, 139%, 37.9% , so that this causes an increase in the total input of 43.8%.

Based on these conditions, the company should actually focus more attention on improving the work ethic of the workforce. So that for the next period the company's productivity will increase. For reports on changes in productivity and changes in the quantity of output and input of PT. Mirasa Food Industry can be seen in the table below:

**Table 2.**Report on changes in productivity and changes in the quantity of output-input
PT. Mirasa Hood Industry in 2003 against 2002

| Description | Change in Persian Prod(%) | Total Prod Change (%) | Changes in the quantity of output-input(%) |
|---|---|---|---|
| total output | - | - | 39,9 |
| Total Inputs | - | - | 43,8 |
| Labor | 50,43 | - | -1,932 |
| Raw material | -9,1 | - | 53,9 |
| Energy | -11.47 | - | 139 |
| Capital | 1.45 | - | 37,9 |
| Total Productivity | - | 3,34 | - |

b. Evaluation of the 2003 Profitability Level with the 2002 Base Period.

In table IV.2. it can be seen that for the level of profitability of each input has increased. The

increases were: labor input by 53.19%, input of raw materials or materials by 4.59%, energy input by 29.26%, and capital input increased by 43.53%, in such conditions it is proven that for the total input increased by 23.22%.

Furthermore, in the list of tables of profitability index figures based on current prices, it can be seen an increase in all input factors. The increase includes: labor input by 18.8%, input of raw materials or materials by 74.1%, energy input by 40.8%, and the capital input increased by 26.8%, so that the level of profitability on total input increased by 47.7%, and this did not cause the total output not to decrease, but instead the total output increased by 82%. Thus the company still gets the appropriate profit.

In this analysis what needs to be considered is to continue to further improve what has been obtained, so that the company can still compete with existing similar companies. And the management really needs to pay attention to the efficiency of the use of input factors in achieving production targets so that it is even better. Report on changes in the level of profitability and changes in the quantity of output-input of PT. Mirasa Food Industry in 2003 against the base period of 2002 can be seen in table V.3. below this:

**Table 3**. Report on changes in the level of profitability and changes in quantity output-input in 2003 against the 2002 base period.

| Description | Profitability Change(%) | Changes in the quantity of output-input(%) |
|---|---|---|
| total output | - | 82 |
| Total Inputs | 23,22 | 47,77 |
| Labor | 53,19 | 18,8 |
| Raw material | 4.59 | 74,1 |
| Energy | 29,26 | 40,8 |
| Capital | 43,53 | 26,8 |

c. Price Improvement Index Evaluation in 2003 Against the 2002 Base Period

Based on the calculations that have been done, it can be seen that in each period there is an increase in the price improvement index, so this can help increase the level of company profitability. However, the increase in the price improvement index has not been able to increase the level of company productivity. This situation occurs because the efficiency and electivity of companies still need to be improved. The following is the price improvement index for each factor:

a) Labor price improvement index ( IPH1) = 1.02
b) Raw material price improvement index (IPHm) = 1.149
c) Energy price improvement index (IPHe) = 2.208
d) Capital price improvement index (IPHk) = 14.14
e) total input price improvement index (IPHi) = 1.266

d. Evaluation of Forecasting Results

From the results of forecasting calculations, the total demand for 2004 was 614.657 tons/year, this means that there was an increase in demand compared to the demand in the previous period, which was 604.777 tons/year. The forecasting results are carried out using the Double Exponential Smoothing With Linear Trend method, the determination of this method is based on data patterns seen in the number of sales in the 2003 period, and is also determined with the smallest error rate (smallest MSD) of each method used. used is equal to 32.49. This demand forecasting calculation uses QS.3 (Quantitative System 3) software

### 3.3 Planning for Increasing Company Productivity

After measuring and evaluating the level of productivity at PT. Mirasa Food Industry, then the next step is to plan to increase the company's productivity. Therefore, the management needs to make steps or policies that need to be made for the coming period, namely:

a. Reducing the number of workers, especially employees in the production section because with a simple process the product can be made.
b. Reduction of raw materials, especially raw materials that are easily damaged so that too many product defects do not occur
c. Eliminate the need for energy that is not really needed in the production process

d. By increasing the amount of production, almost all of the above policies can support an increase in the amount of production or production capacity. However, it is necessary to first determine the production capacity.

## 4. CONCLUSION

From the results of data processing and discussions that have been carried out at PT. Mirasa Food Industry, Magelang about measurement. and analysis of productivity levels from 2002-2003 it can be concluded as follows: After measuring the level of productivity at PT. Mirasa Food Industry from 2002-2003, it turned out that in 2003 the total productivity decreased, namely the level of productivity was high. (3.34%), compared to the productivity level in the initial period (2002). After measuring the profitability level of the company, Jusiru increased by 23.22% in 2003, compared to the initial period. In index measurement, the price improvement for each input factor has increased, thus affecting the price improvement index for the total input. The increase in total input is equal to 1.266%. After forecasting the demand for the next 12 months, the total demand increased by 614,657 tons/year compared to the previous year, which was 604,777 tons/year.

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