

# The effect of internal control of raw material inventory and production process planning towards the production process and business competitiveness in halal food based SMEs

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**Submission date:** 09-Apr-2023 06:49AM (UTC-0400)

**Submission ID:** 2059476495

**File name:** terial\_inventory\_and\_production\_process\_planning\_towards\_the.pdf (269.23K)

**Word count:** 4138

**Character count:** 22184

## The effect of internal control of raw material inventory and production process planning towards the production process and business competitiveness in halal food based SMEs

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### ABSTRACT

#### Article history:

Received August 2, 2022  
Received in revised format  
October 20, 2022  
Accepted November 27 2022  
Available online  
November 27 2022

#### Keywords:

Inventory Control  
Production Planning  
Production Process  
Business competitiveness  
Halal food

The increasing variety of types of food circulating in Bekasi, has both positive and negative impacts at the same time. The positive impact is the increasing variety of food choices owned by Bekasi residents. In addition, the negative impact is that there is often no guarantee of halalness for the foods offered, both in terms of raw materials, processes and presentations. This study aims to determine the effect of internal control of raw materials and production planning on the smooth process of SMEs, especially based on halal food in Bekasi. The study involved 49 SME entrepreneurs in Bekasi and processed data using the multivariate statistical method and path analysis. The results show that in very specific cases, namely halal food products, internal control and production process planning had a positive influence on the smoothness of the production process and business competitiveness.

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### 1. Introduction

Small and medium enterprise (SME) is a trading business managed by a business entity or individual that refers to a productive economic business in accordance with the criteria stipulated by Law Number 20 of 2008. The development of the potential of SME in Indonesia cannot be separated from the support of banks in lending to SME actors (Ali et al., 2019). According to data from Bank Indonesia, every year credit to SMEs is growing. Although in 2015, around 60%-70% of all these sectors did not have access to financing through banks. Bank Indonesia itself has issued regulations requiring banks to allocate credit/financing to SMEs starting in 2015 at 5%, 2016 at 10%, 2017 at 15%, and at the end of 2018 at 20% (Nursal et al., 2019).

Bekasi is one of the buffer areas for the capital city which has a fairly high population, which is predominantly Muslim (Untari & Satria, 2021). Thus, the issue of halal products has become a fairly strong issue in Bekasi. Halal Products are Products that have been declared halal in accordance with Islamic law, according to the Law of the Republic of Indonesia Number 33 of 2014 concerning Guaranteed Halal Products. Furthermore, the process for Halal Products is a series of activities to ensure the Halalness of the Products; includes the supply of materials, processing, storage, packaging, distribution, sales, and presentation of Products (Ali et al., 2019; Khayer et al., 2022).

Food not only functions as a means of fulfilling biological needs, but more than that, food has a very broad value, including sociological and cultural values, to psychological values (Parys, 2013, Marten, 2001; Untari et al., 2017). The development of the food industry in Bekasi is very fast along with the progress of the times. Information that is very open, opens people's

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insight about the variety of food circulating in Bekasi, Indonesia and even the world (Untari & Satria, 2019; Untari et al., 2020; Singh & Chaudhary, 2023).

The increasing variety of types of food circulating in Bekasi, has both positive and negative impacts at the same time. The positive impact is the increasing variety of food choices owned by Bekasi residents. In addition, the negative impact is that there is often no guarantee of halalness for the foods offered, in terms of both raw materials, processes and presentations. Based on this background, it is important to investigate further about the internal control of raw materials, production planning and their influence on the smooth process of SMEs, especially halal-based food in Bekasi.

## 2. Methodology

The research method used in this research is a survey method using descriptive research methods with a quantitative approach, because this study emphasizes numerical data (numbers). The study involved SME actors in the food sector in Bekasi Regency, with the criteria that in their business processes they were committed to promoting the concept of halal products and members of the Setu - Cilengi SME Community. Based on these criteria, there were 49 business actors who were then involved in the research as respondents. The research instrument in the form of a questionnaire uses a Likert scale and then the ordinal data (likert) that has been obtained is converted into an interval scale, namely the Method of Successive Interval (MSI). The data observed in this study is primary data, namely the type of data taken directly. The research instrument will be used to make measurements with the purpose of producing accurate quantitative data. The result of the calculation of the score or values are then used in statistical analysis performed with simple regression analysis. Product moment correlation test, coefficient of determination and hypothesis testing (t test).

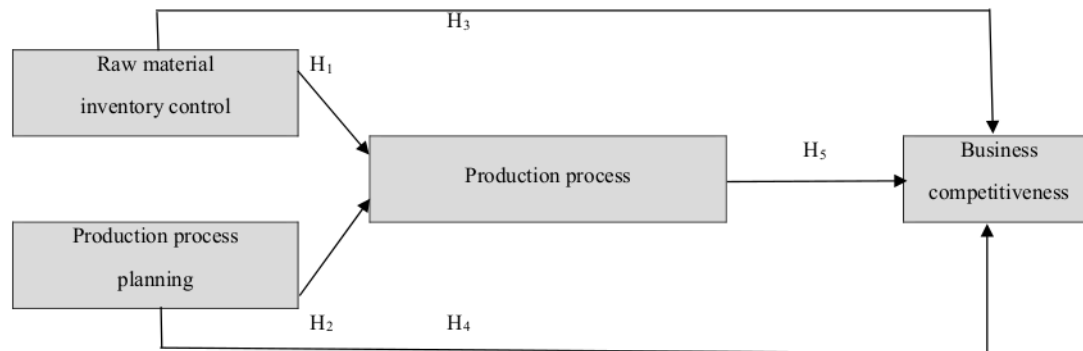


Fig. 1. Research framework

The hypotheses proposed in this study are:

- H<sub>1</sub>:** There is a significant positive effect between Raw Material Inventory Control (RMIC) on Production Process (PP).  
**H<sub>2</sub>:** There is a significant positive effect between Production Process Planning (PPP) on Production Process (PP).  
**H<sub>3</sub>:** There is a significant positive effect between Raw Material Inventory Control (RMIC) on Business Competitiveness (BC).  
**H<sub>4</sub>:** There is a significant positive effect between Production Process Planning (PPP) on Business Competitiveness (BC).  
**H<sub>5</sub>:** There is a significant positive effect between Production Process (PP) on Business Competitiveness (BC).

### 2.1 Variables Operationalization

- Raw material Inventory Control aims to control raw materials, trying to provide the raw materials needed for the production process so that the production process can run smoothly, there is no shortage of inventory (out of stock) and minimal inventory costs are obtained. Factors that affect Raw Material Inventory Control are control environment, risk assessment, control activities, information and communication and monitoring (James Hall, 2010).
- Production process planning is a guideline for producers in carrying out the production process. The guidelines explain the goods produced and their quantities, the right time for production, and so on. Factors that affect Production process planning are the nature and process of production, ability of machinery and equipment, manpower and procurement and supply of supplies (Sukaria Simulingga, 2015).
- Production process is a production activity that combines from one part to another. That is, in each part there are stages that need to be passed either in the form of a process into goods or in the form of services. Factors that affect Production process are preparation of production planning, planning and inventory control, maintenance and care, manpower and quality control (Sofjan Assauri, 2011 in Syarief et al., 2021)
- Business competitiveness, we can define it as the ability of organizations to produce goods or services with a favorable quality-price ratio that guarantees good profitability while achieving customer preference over other

competitors. Competitiveness ensures that the company is sustainable and durable. Factors that affect are cost, Time or time and quality to quality (Maddeppungeng et al., 2015 in Untari & Satria, 2021)

### 3. Results and discussion

#### 3.1 Research Data Analysis

The results of the validity test show that the correlation number obtained is greater than the standard value, then the question is valid. Where the value of  $r$  hit for the Raw material Inventory Control variable is between 0.714 and 0.701, the Production process planning variable is 0.801 to 0.816, the Production process variable is 0.743 to 0.710 and the Business competitiveness variable is 0.553 to 0.629 and all of its values  $> r$  table which is 0.278 so that all statements are said to be valid. In the reliability test results, it can be seen that it is seen from the Cronbach alpha value where the Raw material Inventory Control variable has a value of 0.714, the Production process planning variable is 0.617, the Production process variable is 0.723 and the Business competitiveness variable has a value of 0.713 so that all scores above the  $r$  table value are 0.6 therefore all of these variables are declared reliable. One of the criteria used to assess the Outer Model in PLS is to see Convergent Validity. Convergent validity of the measurement model with reflexive indicators is assessed based on the correlation between the item score/component score estimated by the PLS software. The individual reflexive measure is said to be high if it correlates more than 0.7 with the construct (latent variable) being measured. For research at the early stages of development, a loading value measurement scale of 0.5 to 0.6 is considered sufficient (Table 1).

**Table 1**  
Quality Criteria

Variable	Average variance extracted (AVE)	Composite Reliability	Cronbach Alpha	R Square
Internal control of raw material inventory	0.751	0.952	0.831	
Production planning process	0.782	0.952	0.926	
Production process	0.776	0.978	0.963	0.850
Business competitiveness	0.698	0.954	0.931	0.934

Source; data processed, 2022

Testing of the inner model or structural model is carried out to see the relationship between the constructs, the significance value and the R-square of the research model. The structural model was evaluated using the R-square for the dependent construct, the Stone-Geisser Square test for predictive relevance and the t-test and the significance of the structural path parameter coefficients. The significance of the parameters estimated provides very useful information about the relationship between the research variables. The limit for rejecting and accepting the proposed hypothesis is  $\pm 1.96$ , where if the t statistic value is greater than t table (1.96) then the hypothesis is accepted, conversely if the t statistic value is smaller than t table (1.96) then the hypothesis rejected (Table 2).

**Table 2**  
Result Of Inner Weights

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STERR))
IC → BC	0.266	0.283	0.083	3.290
IC → PP	0.467	0.582	0.099	3.082
PP → BC	0.532	0.675	0.063	3.601
PPP → BC	0.238	0.238	0.062	2.585
PPP → PP	0.164	0.359	0.106	3.011

Source; data processed, 2022

It can be seen from Table 2 that Internal Control Of Raw Material Inventory (IC) has a positive effect of 0.266 and is significant at 0.05 (3.290 > 1.96) on Business Competitiveness (BC). For the Internal Control Of Raw Material Inventory (IC) variable, it has a positive effect of 0.467 and is significant at 0.05 (4.082 > 1.96) on Production Process (PP). The Production Process (PP) variable has a positive effect of 0.532 and a significant value of 0.05 (3.601 > 1.96) on Business Competitiveness (BC). For the variable Production Process Planning (PPP) it has a significant effect of 0.238 and 0.05 (2.585 > 1.96) on Business Competitiveness (BC). Then Production Process Planning (PPP) has an effect of 0.164 and is significant at 0.05 (3.022 > 1.96) on Production Process (PP).

**Table 3**  
Correlation Coefficient Between Independent Variables

Var_X1		Var_X1	Var_X2
Var_X1	Pearson Correlation	1	.822
	Sig.(2-tailed)		.000
	N	49	49
Var_X2	Pearson Correlation	.854	1
	Sig.(2-tailed)	.000	
	N	49	49

Source; data processed, 2022

The correlation coefficient analysis used is the product moment correlation. Product Moment correlation analysis according to Sugiyono, states that, Product Moment is useful to determine the degree of relationship between the independent variable and the dependent variable, Table 3 is the result of calculating the correlation coefficient using SPSS software version 20. From Table 3 above, it can be explained that the relationship between the Raw Material Inventory Internal Control variable (X1) and Production Process Planning (X2) obtained a value of 0.822, meaning that the two independent variables have a very strong and positive level of relationship. For multiple regression equations based on the results of calculations using the SPSS version 20 program, it can be seen in Table 4 below,

**Table 4**  
Multiple Linear Regression Table (1st structure)

Model	Unstandardized Coefficients			t
	B	Std. Error		
(Constant)	1.975	2.305		.790
1 Var_X1	.185	.109		2.271
Var_X2	.301	.182		1.908

Source; data processed, 2022

Based on Table 2, it can be seen that the resulting multiple linear regression equation is  $Y = 1.975 + 0.185X1 + 0.301X2$ , meaning that Internal Control of Raw Material Inventory (X1) with Production Process Planning (X2) has a positive influence on the Production Process (Y). Any improvement in the quality of internal control of raw material inventory and production process planning will have a positive impact on improving the quality of the production process for halal food products at SMEs in Bekasi, West Java.

In the model feasibility test (Coefficient of Determination), it shows that the adjusted r square value of 0.829 or 82.9% of the Production Process is influenced by the Internal Control of Raw Material Inventory (X1) with Production Process Planning (X2), while the rest is 17.1 % influenced by other factors not examined by the author (Table 5)

**Table 5**  
Coefficient determination (1st structure)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.922	.912	0.829	3.188

Source; data processed, 2022.

The multiple regression analysis (2nd structural) shows the following regression equation:

$$Y2 = 0.018X1 + 0.082X2 + 0.855Y1 \text{ (Table 6)}$$

**Table 6**  
Multiple Linear Regression Table (2nd structure)

Model	Unstandardized Coefficients			t
	B	Std. Error		
(Constant)	8.327	1.001		7.724
1 Var_X1	.018	.073		.222
Var_X2	.082	.079		.875
Var_Y1	.855	.051		12.119

Source; data processed, 2022

Based on the table above, it can be seen that the standardized coefficient values are 0.018 for X1, 0.082 for X2 and 0.855 for Y1, so it can be explained that Internal Control of Raw Material Inventory (X1) with Production Process Planning (X2) and Production Process (Y) gives an influence which is positive for business competitiveness. This means that the better the Internal Control of Raw Material Inventory (X1) with Production Process Planning (X2), the better the Production Process (Y) and will automatically increase the business competitiveness of halal food entrepreneurs in Bekasi.

In the model feasibility test (Coefficient of Determination) for 2<sup>nd</sup> structure, it shows that the adjusted R-square value of 0.689 or 68.9% of the Production Process is influenced by the Internal Control of Raw Material Inventory (X1) with Production Process Planning (X2) and Production Process (Y1) while the rest (31.1 %) is influenced by other factors not examined by the author (Table 7).

**Table 7**  
Coefficient determination (2st structure)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.847	.717	.689	2.981

Source; data processed, 2022

In the F test, the resulting F.Sig value is 0.000, so it can be concluded that the F.sig value  $< 0.05$  ( $0.000 < 0.05$ ), then this means Internal Control of Raw Material Inventory (X1) variable, Production Process Planning (X2) and Production Process (Y) simultaneously affect business competitiveness. So this can be interpreted that the model that includes these variables is good (GOF / goodness of fit).

### 3.2 Indirect Effect of Promotion, Service Quality on Loyalty through Satisfaction

To determine the indirect effect of promotion and service quality on loyalty through satisfaction, path analysis can be used (Table 8).

**Table 8**  
Results of Direct Effects and Indirect Effects

Direct Effect	Path Coefficient	Indirect Effect	Path Coefficient
Raw Material Inventory to Production Process	0.185	X1 – Z – Y	$0.560 \times 0.855 = 0.4788$
Production Process Planning to Production Process	0.301		$0.301 \times 0.855 = 0.257$
Raw Material Inventory to business competitiveness	.018	X2 – Z – Y	$0.018 \times 0.885 = 0.015$
Production Process Planning to business competitiveness	.082		$0.082 \times 0.885 = 0.070$

Source: data processed, 2022.

### 3.3 Hypothesis Test Results

**H<sub>1</sub>:** Improvements of Raw Material Inventory will increase quality of Production Process, ( $P = 0.000 < 0.05$ ) so H<sub>1</sub> is accepted.

**H<sub>2</sub>:** Improvements of Production Process Planning will impact the quality of Production Process, ( $P = 0.002$  and  $< 0.05$ ). So it can be said that H<sub>2</sub> is accepted.

**H<sub>3</sub>:** Improvements of Raw Material Inventory, will increase the business competitiveness, ( $P = 0.000$  and  $< 0.05$ ). So it can be said that H<sub>3</sub> is accepted.

**H<sub>4</sub>:** Improvements of Production Process Planning, will increase the business competitiveness, ( $P = 0.001 < 0.05$ ). So H<sub>4</sub> is accepted.

**H<sub>5</sub>:** Improvements of Production Process, will improve business competitiveness ( $P = 0.008 < 0.05$ ) so H<sub>5</sub> is accepted.

## 4. Research finding

Inventory control is one of the activities that are continuous and interrelated between processes with one another in a food production operation process (Abu Zaid et al., 2016). Planning is very important to do so that what has been planned in advance, the amount, quantity and cost can run well. The production process is the activity of transforming inputs into outputs, including all activities or activities that produce goods and services, as well as other activities that support or attempt to produce such production (Agyabeng-Mensah et al., 2020).

Based on the results of research on the Internal Control of Raw Materials Inventory and Production Process Planning on the Production Process, it can be concluded that the Internal Control of Raw Materials Inventories has a significant influence on the Production Process, meaning that the better the internal control of the raw material inventory is carried out, the better the quality of the process and ongoing production because there is no shortage of raw materials that hinders the production process and vice versa (Harwick, 2017; Agus, 2015; Untari, 2020), improvement of production processes can increase business competitiveness (Al-Doori et al., 2019).

Likewise, the Production Process Planning variable has a positive effect on the Production Process (Rostini et al., 2021). In other words, Internal Control of Raw Material Inventory and Production Process Planning simultaneously have a positive, strong and significant influence on the Smoothness of the Production Process and business competitiveness (Cetindamar & Kilitcioglu, 2013; Untari, 2019). This is because the two factors are really complementary and interrelated to determine the Quality of the Production Process of Halal food products at SMEs in Bekasi, West Java.

The majority of Bekasi residents are Muslims, so halal food is one of the potential business opportunities to be developed (Retnoningsih et al., 2020; Khasanah et al., 2020). However, in its current development, fluctuating food prices have a high impact on their existence. With these fairly fluctuating prices, many food SMEs business players in Bekasi have difficulty in preparing Raw Material Inventory planning. On the other hand, Raw Material Inventory becomes the main guard in a production process (Redjeki et al., 2020).

## 5. Conclusion

Internal Control of Raw Materials Inventory and Production Process Planning has a significant influence on the Smoothness of the Production Process and increasing the business competitiveness. Thus, managerially, SME managers in the halal food sector in Bekasi should be able to better maintain and optimize Raw Material Inventory Control and Production Process Planning simultaneously, by checking the availability of raw materials on a regular basis, so that shortages of raw materials that can interfere with the production process do not occur. In addition, SME managers in the halal food sector must also adjust product demand, production capacity and storage capacity such as raw materials, semi-finished and finished materials so that there is no accumulation of products that will increase costs and risk reducing profits.

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