PRODUCT COMPETITIVENESS OF SME PROCESSORS OF FISH TO REGIONAL MARKET

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ABSTRACT

Global trade era almost eliminates geographic boundaries, especially after the establishment of series of free trade agreement, such as ACFTA, AFTA, and AEC. Such a situation can be either opportunity or threat to the Small Medium Enterprise-Fish Processors (SMEFP). The objective of the study was to study the fulfilment effect of legal requirements, the product quality, the institutional coordination, human resources, and the fulfilment of market requirements: SMEFP certification on the competitiveness of the SMEFP product in the regional markets. This quantitative study was conducted in 10 cities in east Java district using survey and interviews with 126 units of SMEFPs. Partial Least Square (PLS) analysis revealed that legal requirements, product quality, and human resources, through market requirements: certification, highly significantly influenced the product competitiveness of the SMEFP in the regional market of ASEAN ($p \leq 0.01$). Regulation had directly significant effect on the product competitiveness as well ($p \leq 0.05$).

Keywords: Fisheries SMEFP, Competitiveness, Market Requirement, Certification.

INTRODUCTION

In fisheries sector of Indonesia, fish processing and marketing are at the most dominating the free trade era of Association of South East Asia Nations (ASEAN) or Asean Economic Community (AEC) as part of ASEAN Free Trade Agreement (AFTA) as endorsed in 2003. The readiness of the fish processors will determine whether Indonesia is benefited in the free trade era or disadvantaged. On one hand, FAO (2014) mentioned that Indonesia, as the second largest fisheries producers in the world after China, either fishing fisheries or aquaculture, has potential and investment to compete in the ASEAN free trade. On the other hand, east Java district had total fisheries production up to 1,443,257.7 tons in 2014 or indicated an 3.76% increment of the previous year (MOMAF, 2014). This value is the highest among the provinces in Indonesia, approximately 24%.

Main problems of the Small Medium Enterprise-Fish Processors (SMEFP) are, in general, investment and product marketing. There are also many other aspects that do not support the existence of the SMEFP to produce and market the products, such as product standardization, product certification, marketing unit system formation in small and medium enterprises (SME) groups, businessman capability, and permit. There is unnecessary constraint as well, since certification process must go through several different institutions, Provincial Fisheries Services, Health Services, Trade and Industry Services, National Agency of Drug and Food Control (NA-DFC), and Drug and Food Product Testing Agency of Indonesia Cleric Assembly (LPPOM-MUI) (Sulistyowati et al., 2018). Such conditions may complicate the operations of the SMEFP,

particularly when competing with other SMEs in ASEAN countries. There are still few researches bridging the SMEFP with market condition in particular.

These problems could be included in market demand and government's support as external factors, and entrepreneurship mindset and human resources capability as internal factors. This study focused on the effect of legal requirements fulfilment, product quality, institutional coordination, human resources, and regulations through market requirements fulfilment: SMEFP certification on competitiveness. Market requirement of certification is defined a registration process to obtain food product circulation eligibility certificate issued by related Indonesian Government's institutions. This certificate is one of the market requirements for the food products to be able to penetrate the market beside other requirements, such as labeling, product quality, and etc.

MATERIAL AND METHOD

This descriptively quantitative research employed a survey method to systematically and accurately describe a factual situation or certain population. Observations and monitoring were directly done on the object using questioners in the form of values facilitated with supporting qualitative data, such as interviews between the researcher and the respondents (Sukmadinata, 2006).

Independent variables were selected based on empirical conditions, SMEFP's activities in the coastal area, researcher's capability, supporting theory, study site characteristics (Supranto, 2004). Those are legal requirements fulfilment (X1), product quality (X2), institutional coordination (X3), human resources (X4), and regulations (X5). The first dependent variable is Y1: the fulfilment of market requirements: SME-FP certification determined by measuring X1, X2, X3, X4, and X5. While the second dependent variable is Y2: competitiveness, determined by measuring X1, X2, X3, X4, X5, and Y1. Each variable was measured using the selected indicator as shown in the hypothetic model (Figure 1).

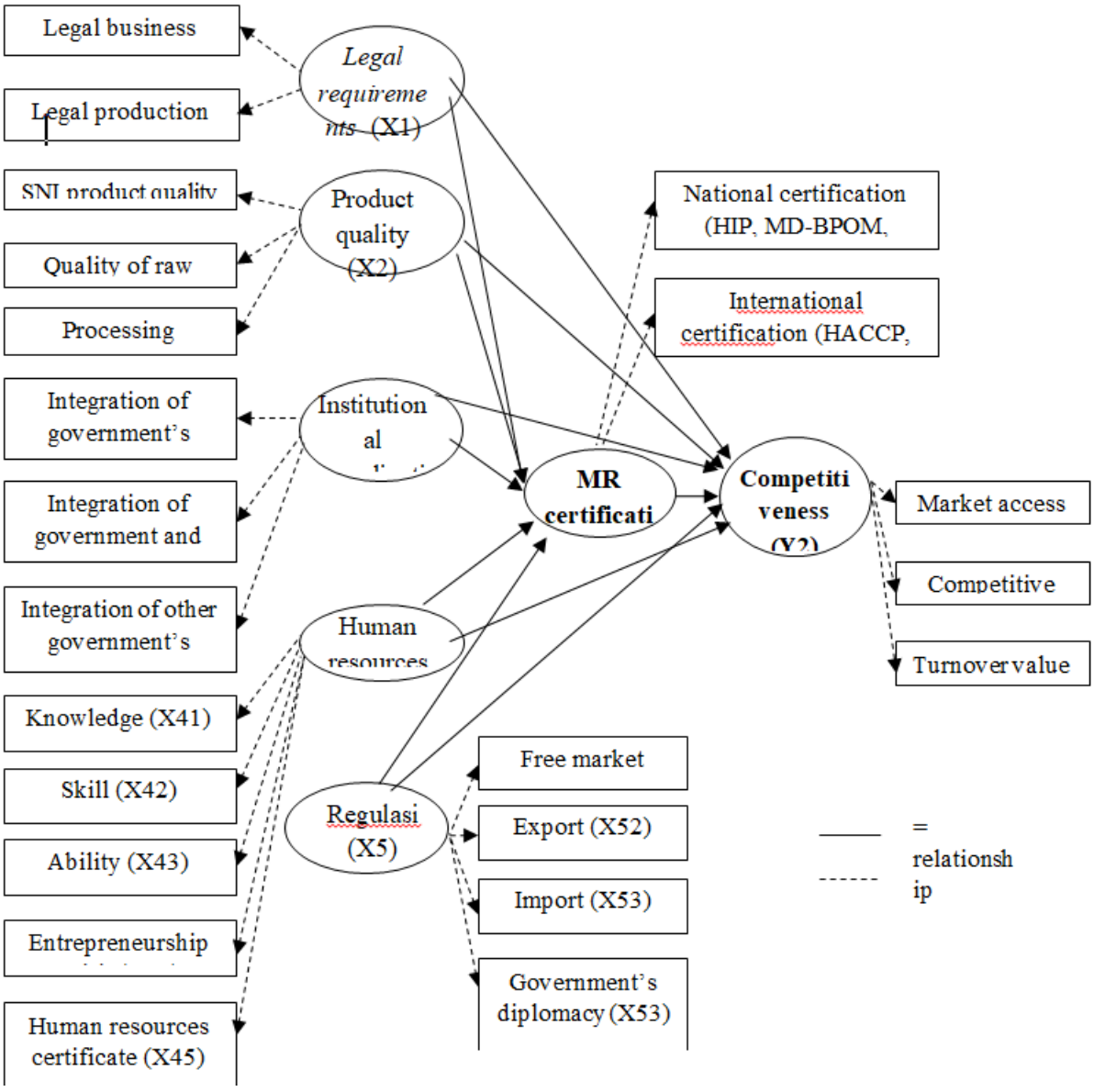

FIGURE 1
RESEARCH HYPOTHETIC MODEL

Legal requirements fulfilment is defined as business legal document ownership, and legal document for production.

Product quality is percent of end product quality suitability issued by the National Standard Board (BSN). Frozen fish ball products follow the Indonesian standard (SNI) of 7266-2014, while dried fish, fish chips, and other products used the related SNI. Agency coordination is an integration among the governmental agencies, such as Ministry of Marine Affair and Fisheries (MOMAF), Health Department (HD), Trade and Industry Services (TIS), Food and Drug Control Agency (FDCA), and Police Department; integration between government and private institutions; integration between the government institution and other institutions, such as university and State-Owned Enterprises.

Human resource competence is the human capability measured from knowledge, skill, ability, entrepreneurship spirit, and other training program involvement.

Regulation support is the presence of free market-related regulations, export-import regulation, and government regulation/diplomacy for the SME development.

Market requirement: certification is a national-scaled circulation eligibility certificate holder, such as home industry product, MD-BPOM (for domestic product), HALAL, and SNI; and international-scaled circulation eligibility certificate, such as HACCP, ISO, and ML-BPOM (for export product). As mentioned in Bank Sigfried (2011) of CBI, the circulation eligibility certificate becomes major market requirement to be able to penetrate the global and international markets.

Competitiveness of SMEFP is access to market, competitive price, and turnover value (Sukesi, et al., 2013).

This study covered activities in 126 SMEFPs in 10 cities of east Java coast, i.e. Surabaya, Sidoarjo, Gresik, Lamongan, Tuban, Probolinggo, Situbondo, Banyuwangi, Malang, and Pacitan. The SMEFP samples were non-randomly selected using purposive sampling technique from all fish processing groups. The SMEFP must meet the following requirements: (1) the SMEFP has operated for at least 2 years; (2) the owner has minimum sale of IDR 10,000,000,00 (ten million) and maximum of IDR 2,000,000,000,00 (two billions) per year, and has a maximum net property of IDR 950,000,000,00 (nine-hundred and fifty million); (3) the owner has a maximum 19 employees; (4) the SMEFP produces the processed fish durability more than a week and potential to penetrate the export market.

The study used primary and secondary data. The former was gathered through questioners and interviews. Discussion with the respondent was done to complete the unclear issues on the questioners. Questioner method is question list distribution technique to all selected respondents. The question list contains several alternative answers directed to and situated with measured variables. The measurements applied likerts scale 1 – 5 to build the score value. The latter covered number and type of SMEFPs and legal SME possessing circulation certificate.

Data Analysis

Data analysis applied descriptive and Partial Least Square (PLS) to see the effect of legal requirements, product quality, institutional coordination, human resource competence, and regulation on market requirements: certification fulfillment and SMEFP competitiveness. Data analysis technique with PLS method needs two phases of analyses, the measurement model testing to examine the relationship between variables and measuring indicator; the structural model testing to examine the relationship between independent and dependent variables (Ghozali, 2011).

RESULTS AND DISCUSSION

Measurement Model

In the estimation with testing of measurement (outer) model, it is found that one indicator had a loading factor below 0.5 (Figure 2), indicating that the indicator is not valid to measure the variable (Hair, et al., 2006), so that it should be taken out from the model. The indicator belongs to human resource variable.

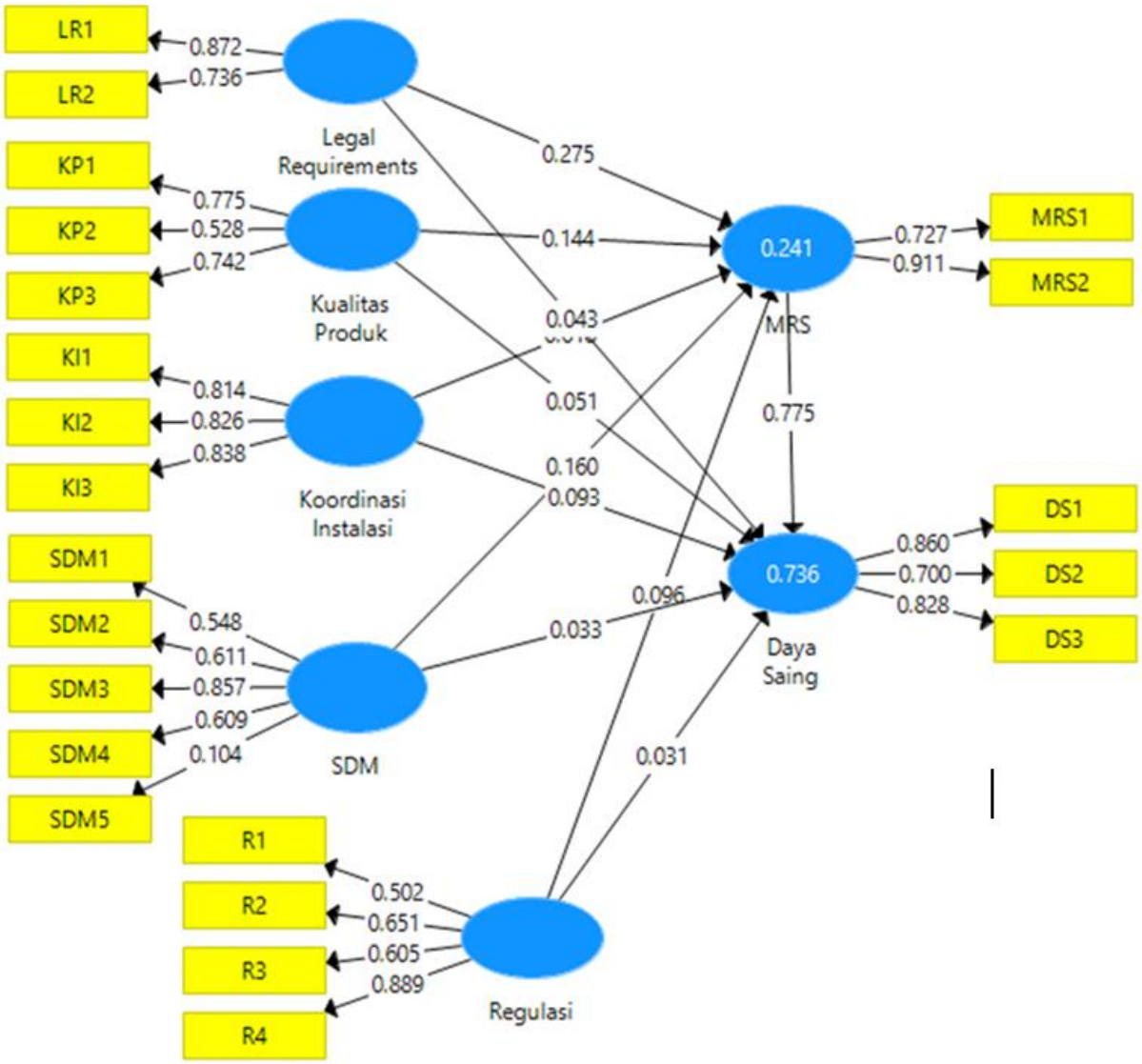

Figure 2

PLS model estimation of factors influencing competitiveness at α = 5%

Structural Model

Structural model evaluation (inner model) in PLS analysis consists of Q square predictive relevance calculation, significance test, and R Square endogenous variable calculation (Chin, 2010; Hair et al., 2006).

Q Square Predictive Relevance

Q2 analysis showed a model prediction strength with value of 0.02 as the model with weak predictive relevance, 0.15 as the model with moderate predictive relevance, and 0.35 the model with strong predictive relevance (Ghozali & Latan, 2014).

Q2 model with competitiveness endogenous variable was 0.409 indicating that full model of PLS had strong predictive relevance, while Q2 model with the endogenous variable of market requirements: certification of 0.151 indicated that full model of PLS without product competitiveness only had moderate predictive strength, so that the involvement of product competitiveness in the model is very important.

Significance Test (Partial Effect Test)

Model suitability and Q square tests revealed that the PLS model built was appropriate to test the hypothesis. The hypotheses tested were as follows:

Ho : Independent variable does not significantly influence the dependent variable
H1 : Independent variable significantly influence the dependent variable.

At the significance level of 0.05, Ho will be rejected if p value is ≤ 0.05, but it will be accepted if p value is > 0.05. From the significance test, the relationship direction of the independent variable effect on the dependent one can also be known, and the relationship direction can be known from the original value of each sample. If the direction is positive, the effect between variables will be positive, but if the original sample is negative, it will be negative as well. The model estimation as a reference to test the hypothesis is demonstrated in Figure 2. The significance test at 5% can be seen in Table 1.

TABLE 1
SIGNIFICANSE TEST (PARTIAL EFFECT) AT $\propto = 5\%$

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
KI -> DS	0.051	0.049	0.055	0.926	0.355
KI -> MRS	0.108	0.126	0.098	1.109	0.268
KP -> DS	0.023	0.026	0.049	0.463	0.644
KP -> MRS	0.183	0.183	0.078	2.346	0.019*
LR -> DS	0.057	0.054	0.048	1.203	0.23
LR -> MRS	0.243	0.236	0.074	3.269	0.001**
MRS -> DS	0.816	0.818	0.036	22.702	0.000**
REG -> DS	0.116	0.117	0.056	2.065	0.039*
REG -> MRS	0.048	0.05	0.115	0.416	0.678
SDM -> DS	-0.006	-0.006	0.038	0.144	0.886

SDM -> MRS	0.195	0.186	0.074	2.63	0.009**
Note: *) significant at 5%; **) significant at 1%; LR- Legal requirements, KP- Product quality, KI- Agecy Coordination, SDM -Human resource competence, R- Regulation, MRS- Market requirements: certification, DS-Competitiveness					

R Square

R Square reflects the simultaneous effect of independent variable on the dependent variable. It can also demonstrate PLS model strength, in which R Square value > 0.75 indicates a strong model, that of 0.50 – 0.75 reflects a moderate model, and that of 0.25 – 0.50 shows a weak model (Ghozali, 2011).

Table 2 shows R Square value of research variable, in which R square value of competitiveness variable is 0.811. It means that the structural model with competitiveness variable has very strong predictive strength, in which 81.1% of competitiveness variable could be explained by the independent variables. Meanwhile, the R Square value of certification is 0.229, meaning that the structural model with market requirement variable has a weak predictive strength, in which 22.9% of the market requirement variables could be explained by the independent variables, such as legal requirement, product quality, institutional coordination, human resources competence, and regulation.

Table 2
R Square of research variables

	R *Square*	Adjusted R *Square*
DS	0.811	0.802
MRS	0.229	0.197
Note: DS-Competitiveness, MRS- Market requirements: certification		

Many institutions are involved in SME development, such as Provincial Fisheries Services, Trade and Industry Services, Health Department, BSN, state/private universities, Drug and Food Control Agency (DFCA), and the Ministry of Law and Human Right. Each institution has SME development program in line with each field, but the major goal is the same, to develop the competitive SME in the effort to create and absorb labors and increase the gross regional income (GDI). However, this study found that the institutional coordination has not affected the competitiveness ($p > 0.05$). It is necessary to reevaluate the program target planned. If referring to the competitiveness, the program target will direct to the development of market access and SME turnover, and not merely to the increased processing groups or the SME in target communities.

Institutional coordination variables did not also affect the certification ($p > 0.05$) meaning that the ownership of circulation eligibility certificate of SMEFP was not influenced by institutional coordination. Nuvriasari et al. (2015) described the SWOT analysis on the SME competitiveness study that the marketing strengths of the SME were (1) product quality, (2) customer's relation management, and (3) product innovation. Thus, the SME construction program should pay attention on these parameters.

The present study found that product quality of the SMEFPs did not directly influence the product competitiveness ($p > 0.05$), but positively significantly affect the competitiveness

through the intermediate variable of certification ($p \leq 0.05$). Product quality of the SMEFPs has not significantly had direct effect on the competitiveness due to narrow marketing and unclear product demand. The competitiveness in this study was measured from the turnover value and the market access. Meanwhile, Awan & Hashmi (2014) mentioned that the SME marketing should be innovative, customer-focused, market-focused, and unique. The present study revealed that the supporting factors of the SME product competitiveness development are innovation, product quality, price, promotion, and distribution. The SME personnel involved in fish processing are not generally able to be considered yet because production and marketing divisions are not separated yet.

Studies on several SMEs di Ghana found that the implementation of product quality control and innovation gave remarkable impact on the performance development and the SME growth (Fening, 2012). It is in line with Hanif and Manarvi (2009) that product quality control is a major strategy in SME market development.

Legal requirements fulfilment variable did not directly influence the SMEFP product competitiveness ($p > 0.05$), but highly significantly impacted the competitiveness through the intermediate variable of certification fulfilment ($p \leq 0.01$) with positive original sample. It means that the fulfilment of SMEFP's legal requirement makes the opportunity to obtain certification be higher, and vise versa. The fulfilment of permit requirements to produce safe and good quality food, according to Sheetal et al. (2012), is a strategic step to increase the SME competitiveness. Such a condition is easy to understand since the competitiveness in global trade era is highly determined by standardization and certification.

The certification effort at each level always requires the fulfilment of legal requirements as a legal proof of the SME. Most SMEFPs in east Java have met necessary legality, such as Business Permit Licence, Company Registration Document, and Industry Registration Document, through local Trade and Industry Services. However, competition in the regional markets needs market requirements as well, such as circulation eligibility certificate - Home Food Industry Business Certificate, Local Food – Food and Drug Control Agency (FDCA), and Production Eligibility Certificate released by MOMAF. To obtain the circulation eligibility certificate, more complex legal requirements are needed, such as Building Permit Certificates, HO, and facility test of FDCA, that are not easily met by the SME. HO certificate is a certificate to ensure that the company operation will not annoy surrounding society.

Many of the SMEFPs were still located at the residential area so that they are difficult to have the HO document requirement. The facility test of FDCA as implementation test of Good Manufacturing Practices (GMP) and Sanitazion Standar Operational Procedure (SSOP) was still difficult to be done by the SMEs since they had to alter the production layout and improve the supporting facilities of sanitation/health needed as standard so that the fulfilment of simple legal requirements has not been able to affect the competitiveness of the SME.

Certification was found to highly significantly influence the competitiveness ($p \leq 0.001$) with the original sample to be positive reflecting the fulfilment of certification and would influence the SMEFP's product competitiveness in the market, and vice versa. Ionita et al. (2009) who studied the SME in Romania also found that product quality standardization of the SME was the most important factor to ensure the economic competitiveness. The implementation of the quality management standard as one of the market demands makes the SMEs start to be able to compete in the domestic and international level including product quality insurance development, service, and job efficiency.

Most SMEFPs have possessed circulation eligibility certificate as Home Food Industry Business Certificate and Halal, but there are still very few SMEFPs having Local Food – FDCA certificate. From these low numbers, it is evident that there is significant difference in the competitiveness measured through the turnover value, market access, and price competition. Thus, more attention of related sectors is needed to develop the SME facilitation program for FDCA certification.

The present regulations on SMEFP development directly significantly influenced the product competitiveness ($p \leq 0.05$) with positive original sample, without through the intermediate variables. It reveals that the better SME-related regulation is, the higher the product competitiveness will be, and vice versa. It is in agreement with Ardjouman & Asma (2015) that factors influencing the SME competitiveness and technology are government's regulation and action on the SME interests, such as ownership, intellectual properties, contract enforcement, tax and financial report, trade standard, company management, consumer's right, job and health/safety, environmental protection, locality and planning rules, transportation, and data protection. Good regulations concerning the SME and its product will be important to develop the turnover value, market access, and competitive price, as competitiveness indicator in the global market.

Human resource competence did not directly influence the competitiveness variable ($p > 0.05$), but highly significantly affected the competitiveness through the intermediate variables of certification fulfilment ($p \leq 0.01$) with positive original sample. It indicates that knowledge, skill, ability, entrepreneurship spirit, and high number of construction programs followed by the SME's human resources positively and significantly affect the market requirements fulfilment. The better the human competence is, the higher the motivation to have the market requirements will be in order to be able to penetrate the market, and vice versa. In other words, good human competence could increase the awareness to arrange the product certification to reach market competitiveness.

Susilo (2010) found that major constraints of the SME in regional market requirements are low human resources quality and low entrepreneurship competence. Meanwhile, Moorthy et al. (2012) who studied 7,443 micro, small, and medium business in Malaysia found that the effective entrepreneurship and human resources management variables significantly affected the performance of the SME. Also, Bigliardi et al. (2011) claimed that main factor affecting the SME's product competitiveness in the global market was the human capability of creating product innovation and customer-focused, so that the SME should have better business strategy to develop new ways to yield new product innovation.

Partial effect (Effect Size /f Square)

Partial effect (f2) reflects the extent of partial effect of each predictive variable on the dependent variable. According to Cohen (1988), f-square value can be categorized to have significant effect if f2 is $\geq 0{,}35$. Table 3 indicates that market requirements: certification is the most influential variable on the product competitiveness, while among other variables, legal requirement influences the market requirements: certification at the most.

TABLE 3
PARTIAL EFFECT (F2)

	DS	KI	KP	LR	MRS	REG	SDM
DS	0	0	0	0	0	0	0
KI	0.011	0	0	0	0.013	0	0

KP	0.002	0	0	0	0.039	0	0
LR	0.013	0	0	0	0.058	0	0
MRS	2.718	0	0	0	0	0	0
REG	0.047	0	0	0	0.002	0	0
SDM	0	0	0	0	0.043	0	0
Note: LR - Legal requirements, KP - Product quality, KI - Agecy Coordination, SDM - Human resource competence, R – Regulation, MRS - Market requirements: certification, DS – Competitiveness.							

CONCLUSION

Legal requirements fulfilment of the SMEFP, the product quality, and human resources competence through market requirements: certification significantly affected the product competitiveness in the market ($p \leq 0.05$). The SMEFP development-related government's regulations directly influenced the product competitiveness ($p \leq 0.05$). Increasing the competitiveness of fishery products from SMEFP in East Java district must pay attention to some of those variables so that the products can compete in the regional market.

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