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Exploratory Factor Analysis: Entrepreneur Development in the Industrial Center of Sarung Tenun Ikat Lamongan

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Abstract
Development of small and medium enterprises (SMEs) as a future Indonesian priority industry require locality approach and focuses on the endogenous development by involving local available resources. One model of SMEs development is to develop a center of industry. This study is aimed to identify the characteristics and factors that influence the development of industrial centers by using multivariate factor analysis. The industrial center of *Sarung Tenun Ikat* in Lamongan has had the characteristics of entrepreneurial development by utilizing local economy approach, except: the structure of the organization, R & D, legal entities, and cooperation with capital institutions. Based on the results of factor analysis found nine component factors which influence the development of the industrial center, they are: Product factor , craftsmen factor , marketing factors , the price factor , innovation factor , raw materials factor , capital factor , and the factor of business management. The concept of entrepreneurship development on industrial center is to improve the competitiveness through planning and specialization, while enhancing marketing plan by conducting training to artisans in the center of *sarung tenun ikat* in Lamongan.
Keywords: factor analysis, development of entrepreneurship

1. Introduction

The presence of SMEs as the economic basis of society must not be separated from the nature of SMEs themselves which do not require large capital and an adequate level of education. It can be run and managed by having sufficient capital and skill, and also courage. Not surprisingly, then SMEs tend to be business home industry based with no large-scale effort.

In this case, the research was focused on the craftsmen of *tenun ikat* in the Parengan Village, Meduran, Lamongan, East Java. Nearly 60% of the population dependent on this creative sector. there are 50 groups of craftsmen who produce sarong only. The limited products cause widespread demand from consumers in certain times, while based on the characteristics of the cluster (Depkop and SMEs, 2003), the center has a variety of problems, for example, the presence of joint institutions that can support the production, the presence of specialization, and the low competitiveness of products, in addition there is the potential of the presence of spatial concentration and interaction between business units in the center. Referring to the problems, it is necessary to develop entrepreneurship using local economic development approach for craftsmen of *Sarung tenun Ikat* in Parengan village, Meduran, Lamongan Indonesia.

Based on the situation above, it is very important to develop entrepreneurial innovation using local economic approach. this notion is relevant since some research on entrepreneurship education have shown positive results on an entrepreneurial attitude (Sowmya et al, 2010) have a positive impact on the performance of workers, especially skilled labor (Li & Liu, 2011), a positive impact on the competitiveness of SMEs that have a core capability (Chew, et al., 2008; Toppinen, et al, 2007).

2. Review of Literature

2.1 Entrepreneurship

Coulter (2000) argue that entrepreneurship is often associated with the process, the formation or growth of a new business-oriented profitability, value creation, and the creation of new products for services are unique and innovative. Suryana (2003) suggested that entrepreneurship is a creative and innovative capabilities as the basis, tips, and resources to look for opportunities to success. The essence of entrepreneurship is the ability to create something new and different (create new and different) through creative thinking and innovative action to create opportunities. Ropke (2004) states that entrepreneurship is the process of creating something new (new creation) and make a different from the existing (innovation), the goal is to achieve the well-being of individuals and the value added to society. Entrepreneurship refers to the people who carry out the creation of wealth and added value through new ideas, combining resources and realize ideas into reality.

2.2 Sarung Tenun Ikat & Creative Industry

Hawkins (2002) Creative Economy is an economic activity in which the input and output is the notion. The essence of creativity is the notion. The notion heren is an original idea and may be protected by Intellectual Property Rights. Robert Lucas insists that the force which drives growth and economic development of the city

or region can be seen from the level of the cluster productivity and the talented creative people or humans who rely on the ability of science there is in him (Anggriani, 2008).

2.3 Innovation

Innovation is an entrepreneurial activity with the exploitation of new ideas not appropriated by incumbent firms (Kirzner, 1973), favored by the current opening ofmarkets and competitiveness (Williamson, 1965). Innovation is an expensive, uncertain and risky business process that very often requires several excellent capabilities and competences to be performed successfully. In the meantime, it is widely recognized that it represents the crucial base to increase competitiveness and for business development (Schumpeter, 1934).

For these reasons, it is clearly evident why companies are continuously searching techniques and practices that enable them to optimize the process, to manage it with greater efficiency and effectiveness (among the others: Chapman and Hyland, 2004; Di Benedettoet al. 2003; Swink, 2002; Moffat, 1998, Iansiti and McCormack, 1997). The large number of contributions and studies in this direction confirms the aforementioned relevance.

Among the possible approaches to innovation, the development of new products and new services arises as one of the areas of greatest interest (Molina-Castillo and Munuera-Alema´ na, 2009; Craig and Moores, 2006; Lempres, 2003; Swink, 2002; Harmsen et al. , 2000) since it allows businesses to obtain, when successfully carried out, an important competitive advantage (Berg and Einspruch, 2009; Cormican and O'Sullivan, 2004).

3. Methods

This research is a descriptive research with quantitative approach. Descriptive method to describe, record, analyze, and interpret data from the factors that determine the development of entrepreneurship in Centre *Sarung Tenun Ikat* Lamongan to collect the necessary data by spreading the questionnaire. Technique analyzed using descriptive statistics and exploratory factor analysis. The study consists of 35 indicators that will eventually form the determinants of entrepreneurship development. Population as well as a sample in this study are all artisans tenun ikat in the district. Lamongan totaling 100 respondents. Techniques of data collection using questionnaires, documentation, and interviews. The research instrument used was a closed questionnaire, where each question has provided the answer. The scale used in this data collection is a likert scale with five alternative answers.

4. Result and Discussion

4.1 Factors affecting development in the Industrial Center of *Sarung Tenun Ikat* Lamongan

To determine the factors and how these factors affecting to the development of the center, multivariate statistical analysis was used, that is the factor analysis. This analysis is conducted by utilizing of software SPSS 20.0 for windows. the description of the results of the factor analysis in this study are as follows.

4.1.1 Step 1 (Research Problem)

This study was addressed to *Sarung tenun ikat* craftsmen totally 100 people who were measured using a Likert scale questionnaire enclosed with a given score value 1-5. Raw data matrix obtained by using the original data directly from the questionnaire. This matrix size p x q (p rows and q columns) where:

p = number of respondents who filled out a questionnaire

q = number of question items

There are 35 indicators under study

4.1.2 Step 2 (Correlation Matrix)

4.1.2.1 Goodness of Fit Model

Kaiser-Meyer-Olkin (KMO)

KMO value above 0.60 is used as a boundary to determine that the factor has been able to represent early indicators.

Table 1 Test the Accuracy of Model *Kaiser-Meyer-Olkin* (KMO)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.796
Bartlett's Test of Sphericity	Approx. Chi-Square	1.595.13
	Df	595
	Sig.	.000

(Source: Data was analyzed on 2015)

Based on Table 1 explained that the KMO value obtained was 0.796 and greater than 0.60 indicate that the factors that are formed have been able to represent the origin of the existing indicators.

Barlett Test of Sphericity

Table 2 Test the Accuracy of Model *Bartlett Test*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.796
Bartlett's Test of Sphericity	Approx. Chi-Square	1.595.13
	Df	595
	Sig.	.000

(Source: Data was analyzed on 2015)

Based on Table 2 explained that the significance value of Bartlett Test is 0.000 and smaller than alpha 5% (0,050) explains that the correlation matrix is not an identity matrix. From these both results, it can be concluded that the model factor which formed is acceptable for subsequent analyzes.

Determinant Value

The determinant value is used to see the relationship between the indicators used. An indicator is interrelated when the value of the determinant approaches zero. Based on test results, obtained determinant value of 0.000 (9.8 x 10-9). This suggests that the indicators used is interrelated each other.

Measures Sampling Adequance (MSA).

MSA is a measurement to determine the value of the sampling process which carried out is adequate or not. MSA values greater than 0.50 indicate that the indicators used can be included in the subsequent analysis, while the MSA value smaller than 0.50 indicates that the indicators used cannot be reused in the further analysis. The test accuracy of MSA can be seen in Table 3 as follows.

Table 3 The Test Accuracy of MSA Model

Indicator	MSA	Indicator	MSA	Indicator	MSA
P01	0.715	P13	0.733	P25	0.843
P02	0.594	P14	0.799	P26	0.773
P03	0.613	P15	0.789	P27	0.753
P04	0.764	P16	0.792	P28	0.861
P05	0.476	P17	0.782	P29	0.795
P06	0.860	P18	0.732	P30	0.838
P07	0.657	P19	0.869	P31	0.829
P08	0.879	P20	0.724	P32	0.697
P09	0.839	P21	0.854	P33	0.837
P10	0.815	P22	0.866	P34	0.727
P11	0.646	P23	0.886	P35	0.814
P12	0.822	P24	0.885		

(Source: Data was analyzed on 2015)

Based on Table 3 it can be seen that all of the indicators used to have MSA values greater than 0.50, so that all the indicators used can be used in the subsequent analysis.

Communalities

Communalities explain the magnitude of the factors that may explain the diversity from the use of origin indicators. Communalities values ranging from 0 to 100 percent. The higher communalities value results the higher factor which explain the diversity. The test of accuracy on the communalities model can be seen in Table 4 below.

Table 4 The Test Accuracy of Communalities Model

Indicator	Extraction	Indicator	Extraction	Indicator	Extraction
P01	0.699	P13	0.788	P25	0.627
P02	0.646	P14	0.718	P26	0.472
P03	0.582	P15	0.700	P27	0.710
P04	0.729	P16	0.595	P28	0.651
P05	0.618	P17	0.703	P29	0.775
P06	0.555	P18	0.616	P30	0.665
P07	0.666	P19	0.554	P31	0.609
P08	0.544	P20	0.655	P32	0.711
P09	0.696	P21	0.662	P33	0.643
P10	0.635	P22	0.624	P34	0.764
P11	0.796	P23	0.756	P35	0.499
P12	0.701	P24	0.593		

(Source: Data was analyzed 2015)

Based on test results, the value of communalities on 35 of the questions (indicators) ranged from 0.472 to 0.796. This suggests that factors formed has been able to explain the diversity of origin of most of the variables used.

4.1.3 Step 3 (Extraction Factor)

Based on test results, the magnitude of the factors which are formed based on the eigenvalues of more than 1.0 there were 9 factors to the total variability can be explained on the origin variable is equal to 65 591 percent. Eigen values obtained ranged from 9,173 to 1,015 and the percentage diversity ranged from 2,899% to 26,207%.

4.1.4 Step 4 (Matrix Factor before Rotation)

Component Matrix describes the magnitude of factor loading for each factor were formed. The highest score on a factor of each independent variable indicates that the independent variables included in the factor with the highest factor loading values. Based on Table 5.6 it can be seen that not all of the factors are at least 1 indicator, hence a component of rotation matrix should be taken.

4.1.5 Step 5 (Matrix factor after Rotation)

Rotated Component Matrix describes the magnitude of loading factor for each factor were formed after the *varimax* rotation method.

Table 5 Grouping Indicator After Rotation

Component								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
P06	P19	P01	P13	P04	P15	P20	P07	P02
P08	P22	P11	P14	P05	P31	P24	P28	P03
P09	P27	P18		P26	P32	P25		P17
P10	P29	P34						
P12	P30							
P16	P35							
P21								
P23								
P33								

(Source: data was analyzed on 2015)

Based on Table 5 it can be seen that after the rotation matrix components, the indicators studied were grouped into nine factors were formed.

4.1.6 Step 6 (Determine the weighting factor)

Table 6 The Result of weighting factor

Indicator	Loading value	Indicator	Loading value	Indicator	Loading value
P01	0.762	P13	0.826	P25	0.703
P02	0.414	P14	0.710	P26	0.441
P03	0.690	P15	0.549	P27	0.741
P04	0.689	P16	0.419	P28	0.412
P05	0.553	P17	0.788	P29	0.841
P06	0.493	P18	0.481	P30	0.689
P07	0.707	P19	0.449	P31	0.497
P08	0.572	P20	0.531	P32	0.808
P09	0.692	P21	0.600	P33	0.695
P10	0.507	P22	0.474	P34	0.829
P11	0.821	P23	0.504	P35	0.391
P12	0.654	P24	0.452		

(Source: Testing Results of Factor Analysis)

In Table 6, it is known that the value of the loading (weight) factor for the 35 indicators used is greater than 0.3, hence it was significant.

Giving the name of each factor based on the test results, then each factor explains the origin variable as follows:

Factor 1: Product Factor

The first factor is called the products factor consists of 9 indicators, each indicator are No. 6 (*Tenun ikat* fabric is comfortable to wear), No. 8 (The Color of *Tenun Ikat* Fabric is vary), No. 9 (Design / drawing), No. 10 (color does not fade / durable), No. 12 (Packaging), No. 16 (labeling), No. 21 (the process of making), No. 23 (the size of the *Tenun Ikat* fabric), No. 33 (product quality). This factor has the highest Eigen values for 9,173 diversity variance equal to 26 207%. When viewed from the loading factor, the indicator no 33 (product quality) is the most decisive indicator in the development of industrial center of *Tenun Ikat* in Lamongan, East Java, Indonesia which has a loading factor of 0.695, followed by the ninth indicator (design / drawing) which has a loading factor of 0.692.

Factor 2: Craftmen Factor

The second factor is called the labor factor / craftsmen which consists of 6 indicators, they are number 19 (Specialization in the completion of the production), Number 22 (number of workers), Number. 27 (Craftsmen have combined competence), Number 29 (skilled labor), Number 30 (low labor costs), Number 35 (Expertise craftsmen from generation to generation). These factors have Eigen values of 3,248 and diversity variance equal to 9.280%. When viewed from the loading factor, the indicator number 29 (skilled workforce) is the most decisive indicator in the development of the industrial center of *Tenun Ikat* in Lamongan regency which has loading factor of 0.841.

Factor 3: Marketing Factor

When viewed from the loading factor, the indicator number 34, which is selling through middlemen is an indicator that determines the development of Industrial Center of *Tenun Ikat* in Lamongan, East Java, Indonesia, which loading factor is 0.829. This means that craftsmen still rely on middlemen to buy fabric products generated due to limitations in the product market.

Factor 4: Price Factor

The fourth factor called factor price consists of two indicators, they are indicator Number 13 (affordable price) and Number 14 (Prices suit the quality of *Tenun Ikat* Fabric). These factors have eigen values of 1,927 and diversity variance equal to 5,504%. When viewed from the loading factor, the indicator number 13 (affordable price) is an indicator that determines the development of Industrial Center of *tenun Ikat* in Lamongan, East Java, Indonesia which loading factor is 0.826

Factor 5: Innovation Factor

The fifth factor called innovation factor consists of 3 indicators, they are indicator number 04 (produced based the order), number 05 (the fabric can be used for other product later), Number 26 (The design has a characteristics). These factors have Eigen values of 1.740 and diversity variance equal to 4,972%. When viewed from the loading factor, indicator number 4 (produced based the order) is an indicator that determines the development of industrial center of *tenun ikat* in Lamongan, East Java, Indonesia which has a loading factor of 0.689

Factor 6: Raw Material Factor

The sixth factor called factor of raw material which consists of 3 indicators, they are indicator number 15

(Availability of raw materials), number 31 (Raw material is easily obtained), number 32 (The raw materials is qualified). These factors have Eigen values of 1.533 and diversity variance equal to 4.380%. When viewed from the loading factor, an indicator number 32 (the raw material is qualified) is an indicator that determines quality in the development of industrial center of *tenun ikat* in Lamongan, East Java, Indonesia which has a factor loading of 0.808.

Faktor 7: Capital Factor

The seventh factor called factor capital consists of 3 indicators, they are indicator number 20 (financial assistance from the government), number 24 (the Capital from the loan), number. 25 (Using private capital). These factors have Eigen values of 1.194 and diversity variance equal to 3.410%. When viewed from the loading factor, the indicator number 25 (using private capital) is an indicator that determines the development of industrial center of *tenun ikat* in Lamongan in Lamongan, East Java, Indonesia with the loading factor of 0703.

Factor 8: Management Business Factor

The eighth factor called factor management business consists of two indicators, they are indicator number 07 (the industrial center has an organizational structure), number 28 (There is a simple bookkeeping). These factors have Eigen values of 1.100 and diversity variance equal to 3,142%. When viewed from the factor loading, indicators number 7 (industrial centers have an organizational structure) is very crucial indicator in the development of industrial center of *tenun ikat* in Lamongan, East Java, Indonesia which has the loading factor of 0.707.

Factor 9: Location Factor

The ninth factor is called location factor consisting of three indicators, they are indicator number 02 (The location is easily to reach), number 03 (the location is strategic/ near tourism spot), number 17 (the name of centers is familiar). These factors have Eigen values of 1,015 and diversity variance equal to 2,899%. When viewed from the loading factor, the indicator number 17 (the name of centers is familiar)) is an indicator that determines the development of industrial center of *tenun ikat* in Lamongan, East Java, Indonesia which has the loading factor of 0.414.

5. Conclusion

After knowing the above presentation that the factors that determine the development of the tenun ikat industry centers in the district Lamongan consists of nine factors: 1. The product; 2. skilled workforce; 3. marketing; 4. price; 5. innovation; 6. raw material; 7. capital factor; 8. management; 9. place. This means that if a center industry woven cloth is to be developed must pay attention to the nine factors, ranging from quality products, a highly skilled workforce and reliable marketing of diverse, competitive pricing, product innovation according to expectations of customers and society, raw material quality and affordable, capital for business development increasingly large, with good business management organized and payed infrastructure so as to create a brand image for the business itself is also the image of the local government.

For crafters, should be more willing to develop a business that was originally only producing gloves to be developed into the fabric so that it can be used as a wide range of consumer needs (for example: the basic material for clothes, shoes, bags, curtains, etc.) as well as marketing expanded with active follow exhibitions and conduct online sales so that the products better known by the public. For local government, should support the development of centers of tenun ikat industry by providing facilities convenience in terms of capital, marketing and business management guidance. For further research, the results of this first phase exploration results so that it can be continued next research is to develop a model of economic improvement craftsman *Sarung Tenun Ikat*.

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