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Analysis of Knitting Industry Issues in Bandung

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Abstract---*The industry sector of Textile and Textile Products (in Indonesia Tekstil dan Produk Tekstil/TPT) is a manufacturing sector that contributes greatly to Indonesia's Gross Domestic Product (GDP). Some of the entrepreneurs in this sector come from small and medium-sized enterprises (SMEs). The competitiveness in the TPT sector, including the knitting industry, is relatively low. The purpose of this study is to analyze the issues faced by SMEs in the knitting industry in Bandung and to provide recommendations as solutions to the issues. The research is conducted by using the Input-Process-Output-Outcome-Benefit/Impact approach and the value chain analysis. The results of the study suggest that the competitiveness issue in the knitting industry commonly involves various problems of machine and costs of energy, labor, raw materials, market absorption and competition, information, and government/regulatory support. Solutions recommended from this research are related to machining, enhancing human resource competencies, consolidating the sourcing process, developing a shared marketplace, developing a marketplace portal, developing information systems, socializing regulations, collaborating with educational and training institutions, and revitalizing functions and fostering cooperatives.*

Index Terms---*Knitting industry, textile and textile products sector, small and medium-sized enterprises, competitiveness.*

I. Introduction

Industry of textiles and textile products (in Indonesia Tekstil dan Produk Tekstil/TPT) is one of the strategic industries that have an important role in the Indonesian national economy. TPT industry is an industry whose activities are related to weaving, which is a process of producing fabric or other necessities from yarn or fiber. Textile industry products can be in the form of fiber, yarn, or fabric, while textile products are the result of further fabric processing, that can be in the form of semi-finished fabrics, calico cloth, or finished fabrics which are in the form of apparel (clothing or garment) or other textile products.

Figure 1 GDP Value of TPT Sector and Its Growth in 2014-2019

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*Source: Statistics Indonesia, 2019 processed (*Projection)*

TPT is also one of the non-oil processing industry sectors that contributes significantly to the economy. This contribution is measured through Indonesia's Gross Domestic Product (GDP). The total GDP value of the TPT sector in 2014-2019 and its growth are shown in Figure 1.

The value of TPT products experienced a significant increase in 2018 and projections in 2019 were 11.96% and 19.64%.

In terms of the proportion of GDP formation, the TPT sector contributed an average of 6.6% to the GDP of the non-oil processing industry for over five years (2014-2018) or an average of 1.19% of total GDP during the time. Nevertheless, the growth of the sector experienced a downward trend over the past five years as shown in Figure 2.

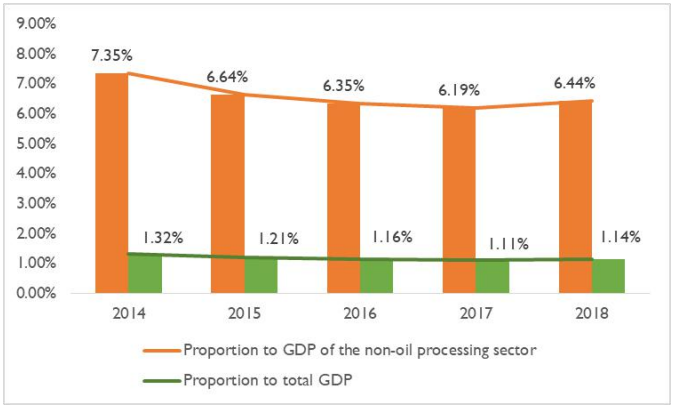

Figure 2 Contribution of TPT Sector to the GDP of the Non-Oil and Gas Processing Industry and the Total GDP of 2014-2018

Source: Statistics Indonesia (2019) processed

In terms of international trade, the TPT sector recorded a significant contribution during 2014-2018 as represented in Figure 3.

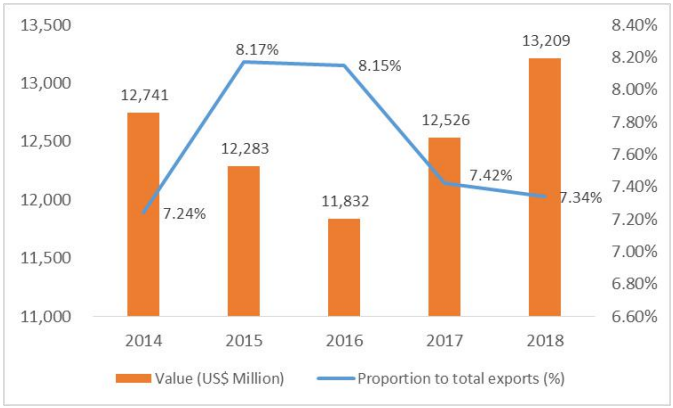

Figure 3 Contribution of TPT Sector in 2014-2018

Source: Statistics Indonesia (2014-2018) processed

From the graph in Figure 3, it can be seen that the export value of the textile sector experienced fluctuations wherein 2015 and 2016 there was a decrease and an increase started in 2017. The proportion of the value of textile exports to total

national exports during 2014-2018 ranged from 7.24% to 8.17 % with a trend of 7.7%. Although there has been an absolute increase in the value of exports, there has been a decrease in the proportion of export values to total exports in the last three years.

Some entrepreneurs in the TPT sector are classified as Small and Medium-sized Enterprises (SMEs). The classification of the manufacturing sector or industry is based on the amount of investment value. SMEs consists of several sub-sectors, ranging from relatively traditional industries to those that use the latest technology. Therefore, the variance of SEMs is relatively broad.

The definition of SMEs, according to the Ministry of Industry that is based on the Industrial Laws and the Regulations of Minister of Industry, is small enterprises are those with a maximum investment of 500 million (excluding land and buildings for business), while medium enterprises are those with investments of Rp 500 million-10 billion (excluding land and buildings for business).

SMEs also include a micro-scale industry which is one of the pillars of national economic growth that is resilient because of its significant role in the economy. The contribution of SMEs to the national economy can be seen from several indicators. Based on the number of business units, the number of SMEs continues to grow as shown in Figure 4.

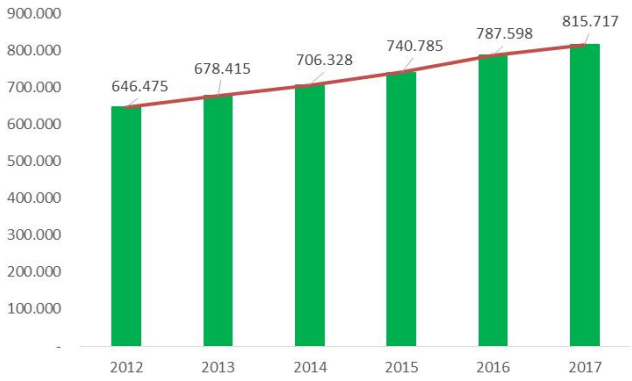

Figure 4 Development of the Number of SMEs in 2012-2017

Source: Ministry of Cooperatives and Small and Medium-sized Enterprises (2018) processed

Based on these data, the number of SMEs business units has grown by an average of 4.76% during 2013-2017.

Most of the textile sector entrepreneurs are located in the city of Bandung, known as the city of fashion, and has a considerable potential to develop the clothing industry. One of them is knitwear produced by the SMEs craftsmen at the "Binong Jati" Knitting Industry Center. This industrial center is one of the potential small enterprises and contributes to the economy of Bandung.

The purpose of this study is to find out and analyze the issues faced by SMEs in the knitting industry in the city of Bandung. The study also aims to provide recommendations as solutions to the issues as an input for cross-stakeholder policymakers in the context of strengthening the competitiveness of SMEs in knitting.

II. Research Methods

This research is conducted using the Input-Process-Output-Outcome-Benefit/Impact approach and the value chain analysis. Input includes a variety of data/information for input planning and research implementation. The Process is the implementation of research that covers the entire scope of work following the corridor, substance, and time. Activities included in this process are literature study, focus group discussions (FGD), surveys/observations, and data analysis. The

Output is the result of the research implementation in the form of a TPT industry supply chain map and the position of SMEs within it, the competitiveness of SMEs, the SMEs competitiveness issues, and their alternative solutions.

The Outcome is the utilization of the results of this study in policies, programs, and implementation in the form of references for relevant ministries and other stakeholders in making policies and regulations related to strengthening the competitiveness of SMEs in the knitting industry. The Benefit/impact is a positive impact as a benefit of implementing the solutions suggested as the results of this study, namely the realization of policy synchronization that leads to the strengthening of the competitiveness of SMEs in the knitting industry.

The study is conducted at the "Binong Jati" Knitting Industry Center, located on Jl. Binong Jati, Binong, Batununggal District, Bandung, West Java. The center is operated by a cooperative that was founded in 2004 and was initiated by the Government of Bandung as an implementation of the Bandung industrial repatriation program to improve the legality status of the Binong Jati Knitting Craftsmen Community. The number of cooperative members is around 200-250 craftsmen or around 30% of the total population of knitting craftsmen in the Binong area, Bandung.

Considering the broad scope of the study and the limitation of time, the study will discuss, as follows:

1. The sample in this study is determined purposively with the assumption that the TPT supply chain issues experienced by every SMEs in each sub-sector are the same. The criteria for sampling refer to Regulation Number 20 of 2008 concerning Micro, Small and Medium Enterprises, and/or the Regulation of the Minister of Industry Number 64 of 2016 concerning the Amount of Labor and Investment Value for the Classification of Industrial Business.
2. The similarity of the phenomenon also causes the sample to be relatively homogeneous and, in that case, no matter how small the sample size is, it considered sufficient to represent the population.
3. Sampling is only carried out at one business unit that is the owner or a direct agent of the TPT SMEs to identify the TPT supply chain problems and direct decision-makers in the business.

III. Problem Analysis

The problems faced by the knitting industry in Bandung can be identified as follows:

1. The decrease in turnover by an average of 40% per year due to the intense competition with imported products (mainly from China, which is suspected to be caused by the enactment of CAFTA since 2010, due to cheaper prices and better quality), and changes in consumer behavior that had bought in the form of wholesale to retail online. In terms of quantity, each business can only promote a maximum of 1,000 dozen per day.
2. As a result of the change in customer behavior, the pattern of production shifts from make-to-stock to make-to-order. In other words, the enterprise produces relatively small amounts to adjust to fashion changes.
3. The decline in turnover has an impact on the decrease in machine utilization and the reduction in labor usage.
4. Changes in production patterns that adjust to fashion also impact on the dynamic demands of the skills and creativity of the labor to adapt to changes in the model of fashion.
5. The price of raw materials (yarn) tends to increase in the last two years. In response, they have to decrease the quality of the materials and adjust the consumer segment to the lower-middle-class consumers, who are considered less sensitive to quality.
6. Yarn sourcing is not an issue because the yarn sub-agent can provide yarns without conditions that burden the craftsmen. The problem of yarn is more on the limited range of color, which now becomes one of the elements of a fashion whose changes are relatively dynamic. Craftsmen have to purchase yarn at a more expensive price if they demand yarn in various colors.

7. In the production line, knitted products have eight work stations where only three of them can use automatic machines. Manual engine capacity is very dependent on the physical capabilities and skills of the operator. Automatic machines are made in the 90s on average and the rejuvenation of the machine is rare. It is mostly due to the length of time for adjusting the use of new machines (new machines cannot be directly operated and must be adjusted which requires a relatively long time).
8. The order of the process is in accordance with the difficulty of the model, for example, a scarf uses a knitting machine, clothes use a linking machine, overlock machine, button machine, machine for neci (neci – special stitches on the edge of the fabric done by an overlock machine, but smaller and denser than an overlock), and so on depending on the model of the shirt. Automatic machine support (including training for operator skills) is needed because it is expected to increase productivity and production efficiency (for example, the ability of automatic machines to do direct printing).
9. Cooperatives are currently less attractive to craftsmen because of its stigma that is not good. The existence of cooperatives should have been able to consolidate sourcing and act as the circulator for marketing knitted products. In terms of organization, craftsmen prefer a community form, because millennials consider this form better to accommodate them as centers of education, information, and transactions of knitted products. Government support is greatly needed in revitalizing the functions and roles of cooperatives so that trust in cooperatives is strengthened. Therefore, cooperatives can truly function as consolidators and circulators for knitting craftsmen.
10. Training programs conducted by government agencies have a low impact on improving business skills or productivity as well as strengthening competitiveness in the market. More applicable training is mostly carried out by universities (such as online marketing, supply chain management, use of automated machines, and graphic design). The expected support from the Government is the market access, therefore the craftsmen can focus on producing quality products.

The conception of competitiveness of the SMEs in the knitting industry is required to be formulated based on the various aspects yielded by the observation results and the integration of ideas about competitiveness in general and particularly the competitiveness of the SMEs in the knitting industry.

Competitiveness, in general, can refer to the ideas in Diamond Porter's Theory (Porter, 1990) that reflect the position of the textile industry in the national economy involving SMEs. This was assessed based on the perceptions of the entrepreneurs on four factors, namely the condition of production factors, demand conditions, related or supporting industries, as well as the company's strategy and competition.

The availability of production factors determines the smoothness of the SMEs production process in each TPT subsector, including the knitting industry.

The knitting industry is a labor-intensive industry. The skilled workers needed by the knitting industry are designers and tailors. However, since on a small scale, the barriers to entry and exit of the industry are small, the tendency to lose skilled workers is large. Interviews conducted with several respondents also reveals that the turnover rate of skilled workers is also high.

Demand conditions reflect entrepreneurs' perceptions of the growth and potential domestic market and the ease of predicting the number of variations in demand.

The knitting industry has the character of a long supply chain with a short life cycle. Customer tastes for modes change rapidly. Design speed greatly determines the speed of response to customers. Therefore, the ease of predicting variations in product types also determines the competitiveness of the industry.

In the supply chain system, the existence of the knitting SMEs is supported by other industries both in the upstream-downstream supply chain and other supporting industries such as logistics, energy, and funding.

Other related industries that determine the competitiveness of the knitting industry are the machinery industry (especially sewing machines and their components) and energy. For product shipments, the knitting industry also relies on the transportation services industry, while from the financial aspect, support from banks or credit institutions is essential for the fulfillment of investment and working capital. Support from industry also comes from the potential of related industries (creative, fashion, sport, entertainment) and the role of research institutions and universities.

The involvement of suppliers/distributors in responding to market changes will also determine the competitiveness of this industry. Involving suppliers and competitors is a feature and condition of supply chain management as a form of collaboration. Collaboration with suppliers is carried out to ensure the availability of fabrics and accessories when needed in the right amount and time.

Overview of TPT SMEs competitiveness, including knitting, refers to the idea of Taçoğlu et al. (2019) which includes four elements, namely: production, marketing, innovation, and organizational learning. Competitiveness in terms of production is still relatively low. Production costs are still high causing the price of cloth is expensive. High production costs are due to yarn prices and high energy costs. Entrepreneurs experience obstacles in terms of flexibility and product design, where they are yet able to keep up with imported products.

The knitting industry is still frequently experiencing obstacles of knitting products that are in style and anticipating changes in fashion. The changing trend of fashion is increasing due to the shift in customer behavior that uses more online shopping.

The low competitiveness in terms of innovation and organizational learning can be observed from several phenomena.

Low innovation in this industry group is reflected in the low flexibility in changing fashion. This is due to the ability of the machines and the skills of the workforce, especially for creating the design and pattern as well as operating new machines (for SMEs that use modern machines). Likewise, low human resource skills indicate a low level of learning in knitting SMEs.

IV. Conclusion

The low competitiveness of knitting SMEs is not only due to the internal factors of the business but also influenced by external factors such as changes in market behavior, regulation, and technology.

The competitiveness issues in knitting SMEs, in general, include machine and costs of energy, labor, raw materials, market absorption and competition, information, and government/regulatory support. Specifically, the issues are as follows: (1) production machinery and equipment used are old and wasteful in electricity consumption which yield to a low quality and high cost production, while technical testing facilities and standardization of energy-saving devices is still inadequate, (2) expertise and skills of the workforce are still low due to the lack of applicative training programs, (3) consolidation of sourcing among knitting SMEs has not been established in obtaining materials, (4) limited information related to current marketing strategies in increasing the competitiveness of knitting SMEs, (5) untapped information systems and difficulties in utilizing technology (platforms) that cause the access to information about raw material supply and industrial market absorption still very limited, (6) there are no legal institution that facilitates the knitting SMEs cooperation and the existing regulations are unable to accommodate the interests of all SMEs subsectors in the TPT industry. As a result, one regulation can yield profits to one subsector, but adversely causes loss to other subsectors, and the socialization of the regulations to the knitting SMEs is still insufficient.

Recommended solutions from this research are as follows: (1) Provision of automatic machines and training for usage and maintenance, (2) Increased competence, especially in design and marketing through education and training programs,

(3) Consolidation of sourcing in order to get demanded yarns to serve the needs of dynamic markets, (4) Development of shared facilities/media (for example in the form of portals/market places) for promotions that reach broader retail market segments, (5) Development of portals/market places for promotion, (6) Development of information systems to help monitor and predict changing trends in consumer modes, (7) Socialization of ministry regulations related to machine restructuring facilities and technical guidance, (8) Development of weaving competencies for human resources through educational institutions and training under the Ministry of Industry and through coordination with the Ministry of Manpower, (9) Establishing portals (market place) for promotion and predicting changing trends in consumers modes, (10) Assisting the use of portals in a consistent and sustainable manner, and (11) Revitalizing functions and fostering cooperatives in collaboration with the Ministry of Cooperatives and Small and Medium Enterprises.

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