Effects of Clustering Activities on the Livelihood Assets Improvements in Batik Pungsari Cluster of Sragen, Indonesia

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Abstract

Along with the development of creative industries, especially batik, we need to realize that a cluster needs to look at the combined functions of local economic activities with the social community character so not only focus on increasing local revenue. Batik industry becomes a primadonna for Sragen in improving the economy since 1999. This research aims to determine the value of household livelihood assets of batik cluster activity. Batik Cluster Pungsari still in the early growth stage but has been able to sustain more than 500 business actors. This research found that higher levels of income will cause a higher value of human assets, physical assets, and financial assets except for social assets. In accordance with the Livelihood Approach, households with low incomes or high vulnerability levels still have non-material assets, namely; health, employment, knowledge, and skills. It shows that the existence of batik has a strong influence on livelihood quality improvement.

Keywords: cluster, local economic, quality improvement, livelihood assets, household

1. Introduction

Economic growth is a condition that allows the government to provide better livelihoods to its citizens through the process of rising output (Samuelson & Nordhaus, 2004). Livelihood can describe a condition of the main sector that driving the area’s economy to survive and indirectly become a measuring tool in identifying social phenomenon solutions. The manufacturing industry sector in Sragen District, which includes batik sector ranks highest in its contribution to Sragen's economy which is 33.18% (BPS Sragen District, 2015). Batik as one of the creative industries that have cultural elements still has its own charm for Sragen people. This is evident from the production factors (number of labor, companies, and investment) that consistently increase compared to other leading clusters, such as furniture and convection, since 2009. In the Local Economic Development concept, the improved conditions of the industrial economy will enable SMEs to have better products, reach wider markets, and reap more benefits from economic activity. If viewed from a comprehensive perspective, one of the advantages that are economic increases (in this case is wages) will stimulate improvement in other aspects of the household so we needed an appropriate approach. This study uses the Livelihoods Approach, a tool developed to improve understanding of livelihoods, particularly the livelihoods of the poor people household.

The Institute of Development Studies (IDS) and the International Institute for Sustainable Development (IISD) developed the Livelihoods Analysis approach from the mid-1980s (DFID, 1999). Robert Chambers at IDS and Gordon Conway at IISD are widely acknowledged for having put livelihoods center stage in household research (Chambers and Conway, 1992; Diniz et al., 2013). They first defined livelihoods simply as ‘a means of gaining a living,’ but over the years the understanding of livelihood has developed into a dynamic and holistic concept in which all aspects of well-being (material as well as non-material) are incorporated (Scoones, 2009). There are five essential aspects that are important in the measurement of people's livelihoods by Scoones (1998) in Morse and McNamara (2013); ie human assets, natural assets, financial assets, physical assets, and social assets. Rakodi and Lloyd-Jones (2002) state that household should have access to a portfolio of assets, both tangible (such as the supply of cash and food, land resources, physical investment, or skills) and intangible (recognition of others and government, or access rights, for
example on basic services). Livelihood approach is conceptually a household capital to be able to make decisions in the context of the constraints and opportunities. Livelihood assets will help all elements of society to identify vulnerabilities and provide an overview for the government of setting the development priorities program. Indirectly, the livelihoods approach puts people (community) at the center of planning. The strength of livelihood lies in the achievement of asset value (DFID, 1999). Individuals or groups of households will be able to select and implement strategies that vary from time to time in accordance with their condition (Rakodi, 1999). Analysis the changing dynamics of assets will be able to reveal the combination and assets sequence, and the livelihood strategies that lead to the impoverishment of some households and groups, but it increases the security of other assets (Carney, 1998). The strategy depends on the portfolio held and on the household’s capability to find and make use of livelihood opportunities. The latter depends on the household’s composition (Chambers, 1989; Chambers and Conway, 1992; Rakodi & Lloyd-Jones, 2002; Parizeau, 2015). Livelihood assets are important to be examined as a result of the cluster phenomenon because knowing the asset value can be measuring the vulnerability of the household in the cluster area and can be defined as the power of each household's resources to maintain its life. Theoretically, this study builds upon the Livelihood Analysis approach that will consist of following a series of questions. How batik cluster development affect the livelihood assets in business actor's households? What the future prediction that asset polygon provides for us? How should livelihood assets be improved in the future in terms of the information we obtained from the livelihood asset pentagon?

2. Materials and Methods

The research method used is quantitative descriptive and data analysis to livelihood assets that use primary data collection techniques, namely closed questionnaire, which contains closed questions whose answers have been provided by researchers. Closed questions will help respondents to answer quickly and make it easier for researchers to analyze data on all questionnaires that have been collected. The closed questions in this study were submitted to industrial owners, factory workers, and batik craftsmen. The influence of clusters can be seen from the impact of the batik industry related to changes in livelihoods that occur; before there was the cluster can be identified by questions about the condition of the previous household and the sub-district economy as a description of the position in the district economy and its contribution. Then see how the increase in the population's economy occurs through employment opportunities, income and expenditure levels, income adequacy, and increasing assets of the wealth of the population. The improved economy will be able to encourage better livelihoods, identified through livelihood resources, namely human assets, financial assets, social assets, and physical assets that can be achieved by every household of business.

The probability sampling technique used is Proportional Sampling; sampling that takes into consideration elements or categories in the study population (Sugiyono, 2013). The use of proportional sampling in this study is based on batik cluster workers from 9 batik industries in Pungsari Village with different measures and numbers of workers. The sample selection is carried out in accordance with the proportion of labor in each industry without regard to strata (the level of work in a batik cluster) so that each worker has the same opportunity to be selected as a sample.

Based on the data obtained, the number of workers in the Batik Pungsari Cluster in 2016 amounted to 504 people (N). This study uses the degree of accuracy (d) of 10% and shows the level of research confidence of 90%. e is the percentage of non-attachment leeway due to desirable sampling errors (α = 0.1). The following are the results of the number of samples obtained through calculations using the Slovin formula.

\[ n = \frac{N}{1 + (N \times e^2)} \]

\[ n = \frac{504}{1 + (504 \times 0,1^2)} \]
The number of samples is then divided proportionally and considered as being able to represent the population of business operators in the Batik Pungsari Cluster.

Table 1. Sample distribution

<table>
<thead>
<tr>
<th>Name of Batik Industry</th>
<th>Number of Business Actors</th>
<th>Number of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batik Lestari</td>
<td>55</td>
<td>9</td>
</tr>
<tr>
<td>Batik Nur Hasidah</td>
<td>80</td>
<td>13</td>
</tr>
<tr>
<td>Batik Cahaya Sari</td>
<td>45</td>
<td>8</td>
</tr>
<tr>
<td>Batik Widya Kusuma</td>
<td>100</td>
<td>17</td>
</tr>
<tr>
<td>Batik Sri Mulyani</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>Batik Cendrawasih</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>Batik Murniasih</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>Batik Tresno Kuncoro</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Batik Dewi Andini</td>
<td>77</td>
<td>13</td>
</tr>
<tr>
<td>Sum Total</td>
<td>504</td>
<td>83</td>
</tr>
</tbody>
</table>

The analysis proceeds in two steps. First, compared the household income with or without the batik sector to observe the average dependence of households on batik. Secondly, because of the income measure result, we found that there is a large gap between the industrial owner's income (IDR 15,000,000-30,000,000) compared to craftsmen and batik factory workers (IDR 200,000-3,000,000), so that required a general income measure which in accordance with the average household income. To group the individual households into distinct livelihood categories, we used a combination of factors and cluster analysis based on the income composition of batik cluster and we divide the group of households by income class using Central Bureau of Statistics (BPS) Indonesia criteria. The asset value arrangement in each household is then matched based on 7 levels of score criteria (see Appendix), that have been adapted to living conditions of households there based on the results of questionnaires and unstructured interviews.

3. Result and Discussion

The most measurable improvement in the population's economy is through income levels before and after working in the batik sector. In general, the respondent's income does not follow the Regional Minimum Wage of Sragen District, which is 1.3 million rupiah, due to the wage system based on the length of work and the amount of production so there are labor costs below and above the basic wage.
The development of the batik industry sector is a special attraction for the development of the Pungsari Subdistrict, especially towards increasing population income. Based on Figure 1, the significant change in income is illustrated that around 54% of workers have an income above the Sragen basic wage. The worker with an income of <500 thousand rupiahs is weekly batik craftsman so their income also tends to be less because the wages are paid per batik tulis fabric that has been finished.

Besides economic improvement, batik cluster also supports the increase of livelihood assets. Livelihood assets ownership can be assessed through life-supporting factors, such as employment, health, wealth, and living environment. The livelihood of business actors receives a positive impact after the emergence of batik clusters, one of which is proven by 80-100% revenue earned mostly of business actor households comes from batik sector and breadth of employment opportunities. The Livelihood Approach method focused on understanding how individuals and households obtain and use certain assets to look for further opportunities, mitigate risks, and improve their life quality.

**Human Assets**

With respect to human assets, in addition to the common indicator “skill and knowledge”, we select the indicator “households composition”, as the ability of the household itself can not be separated from the comparison of the number of household members who became dependants and earner Community livelihood is inseparable from their self-capacity. The business actor household mostly has as much as one or two dependents and occur almost equally in each household group, which is largely dependents is children and wife. The situation shows that the low- and medium-income families tend to require a greater effort to maintain family life, in terms of educational, health, or better job attainment. Meanwhile, families with high or very high incomes have been able to manage and maintain family dependents. Different from education, one that influential enough to livelihood. Human assets development is closely linked to the economic and social infrastructure provision. Social services such as education ensure that people gained basic skills and knowledge.

Conversely, most of the respondents admitted that they were working in batik sector because of no certain educational standards for work because about 50% of each group only reached elementary school as the highest education level, it can be said that the educational level does not really affect their jobs and income. But in order to achieve better livelihoods, they need to utilize the skills to achieve a higher income. Batik training, in this case, tends to have a less significant effect on earnings. 89.2% of business actors never join batik training but the skills and creativity of each batik craftsmen skills trained autodidact and in the long term can improve their quality of work. Business actors in Batik Pungsari Clusters although not having a high education level but batik skills and knowledge about how to make batik help them to settle in work. Human assets also considering physical health to be able to continue carrying out activities that can support livelihoods, which are reviewed through immunization and insurance holdings. Each of the lower-middle-income households group dominated by families who do not have health insurance. It shows that the majority of business actors in low to high-income still have weak protection to family health although the government has provided health insurance for the poor, they choose not to take care of it. Meanwhile, all of the very-high-income families already have health insurance, because people in this group have a better understanding or awareness of the insurance benefits and advantages so they provide high protection on health.

**Physical Assets**

For physical assets, in addition to the two common indicators “household fixed assets” and “investment goods”, we also selected one more indicator “basic infrastructure”. The results of our analysis show that household income and expenditure all present the significant increases till 2016 since the business actors joined batik clusters. Housing as an important productive asset is commonly identified as a basic need or item of household consumption (Mosser, 1998). Housing insecurity, such as when “squatter” households lack the formal legal title creates an extreme sense of vulnerability. Housing becomes one of the physical assets which are considered important because it became a shelter, life, and working Cluster business actors.
mostly have had a decent home, ie 40% have a permanent house and 53% have a semi-permanent house. Meanwhile, the nonpermanent house only possessed by six households and dominated by low-income groups. It shows that the majority of business actor households today tend to have good housing and increases the safety and comfortable feeling to live.

“Before there was batik cluster, I just worked as furniture labor in Plupuh, my wife is a housewife, but since there is a batik factory I moved to work here and my wife works as batik craftsmen. Well, my old house is ugly, still walled boards and ground floor, but now it's better, the floor used cement, brick wall, just the kitchen walls is still board. Now my son also works in batik factory.”

{60-year-old man}

Household wealth is judged to be things that were taken into account because of the income measure can detect the ability to buy secondary or tertiary goods. As many as 55% of household groups have had at least one private vehicle, most motorcycle. It shows that the majority of business actor households have been able to make ends meet of physical assets that support mobility at work or everyday life. Business actors tend to make it as a primary need because of Pungsari village not passed by public transport so it would be difficult to access. In addition, the savings from the main income are more inclined to be used to buy private vehicles first inside of build a house or fix it. This proves that an increase in financial assets, credit guarantees after they work on batik sector. Some respondents of Batik Widya Kusuma admitted that they are easy to get motorcycle credit because the workplace is well known and trusted industry owner. In addition, it shows that workers can get the ease of fulfilling physical assets because of trust in industrial owners (social assets):

“Now it is easy to get motorcycle credits, for workers in this factory, Batik Widya Kusuma, because most of the bankers already know Mr. Wakiman, our batik owner, so credit is deducted from the monthly salary. That makes a routine of payment and quickly finished.”

{21-year-old man}

Besides to household wealth, DFID assumed that one of poverty core dimensions of poor livelihood is the lack of access to basic service. Pungsari has also been equipped with various adequate basic facilities, such as health center, kindergarten, elementary and junior high school, and traditional market within ± 50-100 meters from the village center and can be reached by foot. As many as 59% of total business actor households have gained good and easy access to healthcare facilities and 55% to educational facilities. It shows that in achieving basic service facilities and mobilization, the majority of business actors already have good and easy access to assets. Meanwhile, as many as 54% of total business actor households already have good access to clean water and 34% feel very good access and no clean water shortages in the dry season. Similarly to sanitation facilities, 63% of business actor households have had good access, but 10% are still alive with no decent sanitary conditions so that need more government attention due to sanitation is one of the vital assets which closely with human hygiene and environmental health.

Social Assets

Regarding social assets, to study the social relationships to local community residents, we select the common indicator “neighborhood kinship relation” and “community membership”. The results show that in community livelihoods, social assets also considered important to maintain the households at its safe and comfortable point to socializing in their neighborhood. From among the five livelihood assets, social assets are most closely related and can strengthen the confidence of business actors in running their life. A total of 73.5% of business actors have joined in at least one social group, including neighborhood association, social gathering, recitation, PKK, or Karang Taruna. This suggests that most of the business actors tend to still maintain a strong asset in social groups for living and socializing. Around 45% of business actors felt that social groups very influential in social life. By joining social groups, they get information about villages, solve problems together, express opinions, become a place for savings and help others (through alms to orphans or disadvantaged people), and tighten the relationship between neighbors.

“This social group is important, not just for brainstorming, but also provide for savings every month. We housewives use it to buy household appliances that can be used together, such as blenders, ovens, and others. If one held events we also help for cooking or other preparations.”

{36-year-old woman}
The neighbors' kinship ties are strong rural culture and the close distance between houses making business actors have a very good relationship and rare conflict. Around 57.8% feels closely related to their neighbors, means that the social assets owned by business actors have a good impact on boost confidence so business actors tend to feel comfortable to express their problem or suggestions. Social assets community-owned have a major impact on business actor households, but has not yet seen the impact on cluster activities, just to maintain connectivity between workers and owners of industries. Batik Pungsari Cluster does not have a community or association of batik workers to share knowledge about how to maintain or management batik business. There is no influence between low till very-high-income households, only in the case of Pungsari even though social kinship is very high but their linkage in business is almost nonexistent; they still maintain the business links with buyer or suppliers outside but the link inside the cluster is very weak or even absent. As such, it can be read that they tend to avoid competition inside as evidenced by no similar product. This can happen because they want to keep social assets or kinship and avoid business conflict. Batik clusters through associations or social groups can strengthen the social assets of business actors, such as gains social networks, share knowledge, or utilize the shared infrastructure (Nugraheni, 2009). Association establishment can also expand relations between clusters, the Department of Tourism, SMEs, or travel agency.

**Financial Assets**

Financial assets are the most sensitive because often used as the only measure to assess the social degree of someone or family. In this research, financial assets highlighted cash availability and enable business actors to run their livelihood plan or strategy. We select four variables i.e., “saving amount per month”, “loan source”, “income sufficiency”, and “ability to pay basic service fee”. Compared to other assets, financial assets are the most flexible because it can be converted into other forms (checks, deposits, jewelry, land, livestock, and others) or can use as a direct achievement of livelihood outcomes, for example, can buy something in urgency time medicine, food when food insecurity, and others. However, these assets tend to lack availability to low-income households. A family saving is an excellent step in preparing the unexpected things in the future. A total of 45.8% of business actor households have no savings plan that generally is low and medium-income households because the monthly income earned just enough for basic needs. These households tend to have a higher vulnerability and poor financial assets than households with savings plans. Households that save only about < IDR 500 thousand to 1 million and > IDR 2 million for very high-income households that are industrial owners. Overall, the majority of business actors tend to remain at the level of the poor financial asset, while the strong financial assets only achieved by the owners of the industry.

> "I just worked here for a week so not long ago, actually my plan work just for a while to help my father saving the cost of entering high school because the high school entrance fee is not borne by the government. The tuition fee more expensive now and must be borne by the student's selves." [16-year-old man]

Cluster activities provide benefits in the achievement of financial assets for those who are constrained by education costs. Some of the workers are still school-age who decide to work to save costs so they can apply for high school or university. These conditions indicate that batik cluster has been able to be a means of improving the efforts of the population in achieving better self-qualities in terms of education. For family size, their income should be used very frugal, about 7.2% of business actors felt them extremely poor. It shows that the majority of households still have weak financial assets, but has been able to manage their money to fulfill the basic needs each month. In addition, Sragen Government still supports tuition (elementary and junior high) and health fees so that strengthen the financial assets of households and the next generation is able to achieve higher education levels or above the 12-years compulsory education.

> "In 1997, I worked as labor for Mr. Wakiman, Batik Widya Kusuma owner, while collecting business capital. From the beginning, I have been learning to mix the color medicine and fabric type, until continue to build my own business Batik Dewi Andini in 2005. Until 2008 I have expanded selling batik around Jogja, Solo, and Magelang." [48-year-old man]
“This is my grocery store, still for 3 months. I have eight years working in batik industry \(\text{Batik Widya Kusuma}\) as a craftsman. In the past, I was still set aside income for my two children’s school. Now my child is already working in the batik industry as well and has income characteristics, others are still in elementary school. I still work \(\text{mbatik},\) because working hours are flexible. I take cloth on weekends and work at home.” [42-year-old woman]

Through the respondent’s statement above, batik cluster gives entrepreneurial spirit influence of some workers as additional income or increases the financial asset strength of their future household. Financial assets have the most real improvement asset because almost all households have an income increase sourced from the batik sector so it can be said that batik cluster plays a huge role in financial assets fulfillment. However, it should be noted for low-income families with weak protection by the uncertainty of future savings to create their livelihood strategy.

**Livelihood Assets’ Polygon**

The livelihood approach takes a major interest in the power of society because they have lived for a long time depending on available resources around from generation to generation. Livelihood approach which identifies polygon asset constructed with the belief that society needs a certain amount of assets to achieve better livelihood outcomes. Business actors of batik industry which most have a low-medium income tend to have limitations in meet worthy livelihood assets need. As a result, business actors must find ways to maintain and combine their own livelihood assets with innovative ways to sustain life.

![Figure 2 Livelihood assets polygon of Batik Pungsari Cluster’ workers](image)

Figure 2 shows that low-income households have lower asset values, seen on the deepest orange line that means the smallest value. The higher asset values or the outer lines mean that resource ownership is also increasingly good available (e.g. Table 2). Very-high-income households tend to have a fairly wide range of lines compared to the previous level because these households earn an income that is much higher than the previous level. Very high-income households have more high value on physical and financial assets value so it can be said that there is a sizeable gap between high-income households with other households in assets ownership. The tendency is very high-income households will be followed by a very high value of the assets as well (except on social assets) compared with other households, as well as another group of household’s income.

**Table 2 Livelihood assets value**

<table>
<thead>
<tr>
<th>Group of Household</th>
<th>Income*</th>
<th>Freq</th>
<th>Human Assets**</th>
<th>Physical Assets**</th>
<th>Social Assets**</th>
<th>Financial Assets**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income household</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium income household</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High income household</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very-high income household</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Low income | < IDR 1.5 million | 16 | 2.88 | 3.44 | 5.25 | 2.19
Medium income | IDR 1.5 – 2.5 million | 39 | 3.87 | 3.85 | 5.44 | 2.49
High income | IDR 2.5 – 3.5 million | 18 | 4.17 | 4.11 | 5.39 | 3.28
Very-high income | > IDR 3.5 million | 10 | 4.80 | 5.80 | 5.20 | 5.50

*Income classification from Central Bureau of Statistics (BPS) Indonesia
**Assets scale of 7.00

Future predictions of Pungsari Batik Cluster that those in very-high-income households are able to produce or hold better physical assets, such as having a tool or a batik machine that makes household secure resistance. Through physical assets, they can produce new jobs and financial facilities for others so if the industry grows and its physical assets added will be able to increase the amount of labor absorbed.

4. Conclusion

In presenting our final conclusion, we return to the research hypotheses. All of the analysis results show that batik cluster impacted the livelihood assets of local community residents, including each aspect of the five types of livelihood asset capital. The changes in livelihood assets between business actors before and after work in batik industry are significantly different. Batik cluster, as an effective business pattern, provided us with certain insights regarding community lives improvement and survive with autodidact batik drawing skills for livelihood asset development. Through Livelihood Approach the Batik Pungsari Cluster found that the higher value of income, the higher the value of human, physical, and financial assets. In contrast to the social assets that the higher value of income, the value of the assets would be lower. Higher asset value will affect household resilience in facing future challenges. Improving livelihood assets for the future from the asset pentagon can be done with strengthening the physical assets; such as technological advances of design production and print motifs machine to support cluster activities. It can speed up the work at the factory and keep the quality and authenticity of the product, rather than buying patterns. In addition, all batik industry owners can also make an association to increase the strength of social assets with the aim of supporting the cluster collectivity. The association is intended to enable business actors to have a forum for knowledge and skills sharing, promotional strategies, or joint activities among companies, such as an exhibition that can work human assets up.

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