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Priority Factors Determining the Income of Woven Fabric Craftsmen in Sumbawa Regency: Process Hierarchy Analysis Approach

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Abstract: This article discusses the most dominant factors in the income of woven fabric craftsmen. The aim of this research is to determine the priority weight of factors that determine the income of woven fabric craftsmen in Sumbawa Regency. The research method used is quantitative using primary data. Data analysis was carried out using the Analytical Hierarchy Process (AHP), criteria and alternative procedures in AHP were obtained from references. Based on the results of previous research, the revenue criteria are increasing efficiency, increasing productivity and increasing competitiveness. Meanwhile, the alternatives from this research are work experience, education, working hours and age which influence the income of woven fabric craftsmen. Based on the results of global priority weighting in the AHP procedure, it is known that the most dominant factor influencing income is work experience with a weight of 40.98%, age with a weight of 23.04%, working hours with a weight of 20.30%, education with a weight of 15.69%.

Keywords: Income, Craftsmen, Problem Hierarchy Analysis (AHP)

Introduction

Indonesia is known as a country with diverse culture and history. Each province in Indonesia has a different culture that contributes to the overall welfare of the country. Indonesia's prosperity can be seen from the work of its people, such as sculpture, dance, painting and textile arts. Songket is one of the results of textile art. Textile art in Indonesia also varies depending on the region. There are many types of textiles in Indonesia, the most famous of which is woven products known as Songket Woven Cloth. Weaving is a traditional Indonesian craft produced in various regions in Indonesia (Sumatra, Kalimantan, Bali, Sulawesi, Lombok, Sumbawa, etc.). Weaving has meaning, history and technique in terms of colors, motifs and types of materials, as well as the threads used and each region has its own characteristics. Therefore all aspects of technology, manufacturing, design and products must be scrutinized and reassessed, with the aim of restoring value and suitability (Susilawati & Uliya, 2023).

Indonesia is also a country with diverse ethnicities and cultures, having a wealth of traditional woven fabrics from various regions such as Toraja, Sintang, Jepara, Bali,

Lombok, Sumbawa, Sumba, Flores, and Timor. Woven cloth is not only used as daily clothing or traditional clothing, but also as a form of appreciation at various events, reflecting the culture, creativity and identity of each region. The government recognizes the civilizational value of woven cloth by making it an official souvenir and part of government events (Ulfa et al., 2023).

In the history of the weaving production system, weaving activities were mostly carried out by women. Because the skills are passed down from grandmother to mother and then passed on to the children's grandchildren in the hope that their weaving skills will one day provide them with life when they are married. Since childhood, the girl has been directed to master the skill of asking. The tools used are very simple and small in size. In the learning stage they use banana leaves cut vertically. This activity is carried out to produce weaving from banana leaves and banana fiber as a learning process for children, then when the little girl enters adolescence and is considered to have mastered the skill of compressing, then the young woman is introduced to the actual activity of peeping (Ratnasari, 2023).

Through woven cloth, which is a traditional cloth, you can see the richness of cultural heritage, not only in terms of techniques and various patterns and types of cloth made, but in depth it can be expressed and implied various functions and meanings of cloth in people's lives, which reflect beliefs, customs, ways of thinking, identity and identity of a cultured nation. Until now, woven fabrics, which are traditional fabrics, continue to be explored and developed, for example by making traditional weaving for traditional ceremonial purposes. It is even happier that today's fashion designers use many traditional fabrics as the basic materials for their designs (Nugraha et al., 2022)

The people of Sumbawa in West Nusa Tenggara Province also have a weaving culture that has been inherited from generation to generation. One of Sumbawa's famous traditional woven fabrics is woven cloth which is usually called Kre Alang (songket weaving) and Kere Abat (ikat weaving). Various types of animals and plants are motifs commonly used on traditional Sumbawa woven fabrics. The main ingredients for making ikat woven cloth are cotton thread and kembaya thread (a special thread used for motifs) while songket woven cloth uses gold thread for motifs. Ikat weaving craftsmen still use a very traditional tool, namely the gedog loom. In some areas, gedog looms are very rare, on average people mostly use ATBM (non-machine looms). However, in Sumbawa most gedog looms are still used and preserved (Deni, 2023).

One of the main concepts in measuring a person's or household's economy that is most often used is through their income level. Income shows all the money received by a person or household during a certain period of time from an economic activity. Income or income is any form of remuneration obtained as a reward or return for services for someone's contribution to the production process

In general, working hours can be defined as the time devoted to work. Apart from that, working hours are a period of time expressed in terms of hours spent working. In general, it can be assumed that the more hours worked means the more productive the work done. In this case, if a person's working hours are faster in completing their tasks, then the less time they need to work, with the less time needed to complete their tasks, it

means they can take another job or complete other tasks, so that if the time devoted to work increases, the income they earn will also increase.

The basic assumption of human capital theory is that a person will be able to increase his income through increasing education. Each additional year of schooling means, on the one hand, increasing one's employability and income level, but on the other hand, delaying the receipt of income for one year to attend school and hoping to increase income with increased education.

Work experience also greatly determines a person's income, because work experience is real events experienced by someone who works. The more work experience or more work experience a person has, the more skilled they will be and the faster they will be able to complete the tasks they are responsible for. So that more output is produced and the income they receive will also increase (Taman Ayuk, 2019).

Apart from work experience, working hours and education, age is also no less important in increasing income. In general, the higher the age level, the higher the income level. The higher age level influences a person's work experience in weaving, so it is said that age influences the income of weaving craftsmen (Masniadi et al., 2019).

Methodology

This research uses a design using quantitative methods in descriptive form. The data used comes from primary data regarding existing variables using the Analytic Hierarchy Process (AHP) approach to determine the weight or priority of factors that are considered influential. This research was conducted in Sumbawa Regency. Sumbawa Regency is a place that is famous for its woven craft products and there are still several people who are involved in weaving, so this is what triggers its existence to survive and be preserved to this day and has become one of the characteristics of the local community (Gunawan et al., 2023)(Meo et al., 2023).

Respondents in this study were divided into two respondents, namely expert respondents with a total of 10 respondents and general respondents with a total of 30 respondents, so that the total respondents were 40 people. Meanwhile, the data collection techniques are interviews, questionnaires and documentation (Farrah et al., 2023).

Following are the steps for using the AHP method and its formula:

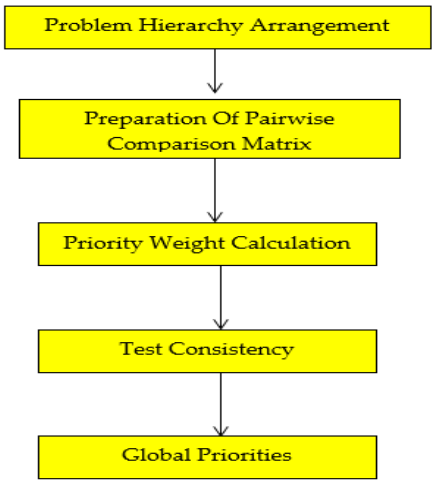

Figure 1. AHP Method

The first step in AHP is identifying the research objectives. In this research, the aim is to identify factors that influence the income of woven fabric craftsmen in Sumbawa Regency. Furthermore, the criteria used in this research are increasing efficiency, increasing productivity and increasing competitiveness by experts. In developing criteria for determining craftsmen's income using alternatives, namely work experience, working hours, age and education (Nurjihadi et al., 2021).

Result and Discussion

Description of Respondents

For respondents, the Ahp method focuses on the characteristics of individuals or groups that provide assessments in the decision-making process. In this study there were expert and general respondents, so people who have in-depth knowledge of the problem.

a. Expert Respondent

Table 1. Expert Respondent

Measure	Item	Absolute	%
Gender	Male	6	60%
	Female	4	40%
	Total	10	100%
Age	24-30	2	20%
	31-40	6	60%
	> 40	2	20%
	Total	10	100%

b. General Respondent

Table 2. General Respondet

Measure	Item	Absolute	%
Gender	Female	30	100%
	Total	30	100%
Age	22-30	1	3,30%
	31-40	4	13,30%
	> 40	25	83,30%
	Total	30	100%

Importance Level and Criteria Priority Ranking

The process of weighting the selected criteria was developed from the perceptions of expert respondents using the AHP method, the following table shows the paired matrix of the selected criteria

Table 3. Criteria Pairwise Comparison Matrix

PAIRED COMPARISON MATRIX			
	Increased efficiency	increased productivity	increased competitiveness
Increased efficiency	1,00	1,50	1,64
increased productivity	0,67	1,00	1,50
increased competitiveness	0,61	0,67	1,00
Total	2,27	3,17	4,15

Source: Processed Primary Data

To find out the weight and average eigenvector for each criterion, the matrix needs to be normalized by dividing the value of each column by the total column value for each criterion. Then, the average eigenvector is generated by adding up the total normalized values in each row divided by the number of criteria.

Table 4. Normalization Values Criteria Matrix

NORMALIZATION MATRIX			
	Increased efficiency	increased productivity	increased competitiveness
Increased efficiency	0,44	0,47	0,40
increased productivity	0,29	0,32	0,36
increased competitiveness	0,27	0,21	0,24
Total	1,00	1,00	1,00

Source: Processed Primary Data

The eigenvector values in the table show the level of importance and priority ranking of each criterion as a result of the AHP process. Therefore, the level of priority importance of each criterion is as follows.

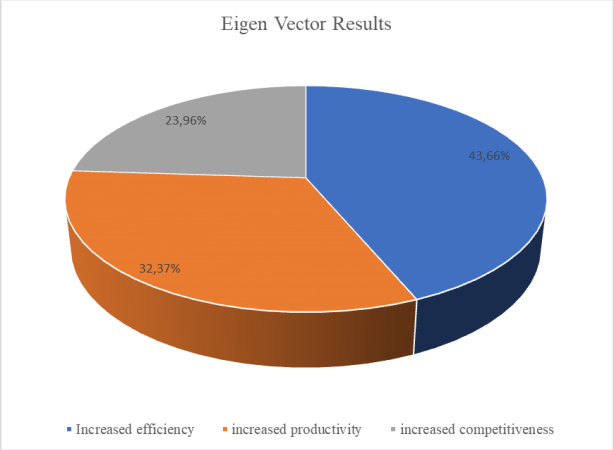

Figure 2. Level of Importance and Priority Ranking of Each Criteria

The picture above shows that the factors that influence the income level of woven fabric craftsmen are the level of increased efficiency with a value of 43.66%, increased productivity with a value of 32.37% and increased competitiveness with a value of 23.96%.

Criteria Priority Ranking Based on Efficiency Improvement Alternatives

The process of weighting criteria based on the selected efficiency improvement alternatives was developed from general respondents' perceptions using the AHP method. The following table shows the paired matrix of the selected ones.

Table 5. Pairwise Comparison Matrix

PAIRED COMPARISON MATRIX				
	Work experience	Education	Working hours	Age
Work experience	1,00	1,78	1,11	1,98
Education	0,56	1,00	0,67	0,29
Working hours	0,90	1,48	1,00	1,83
Age	0,51	3,44	0,55	1,00
Total	2,97	7,70	3,33	5,10

Source: Processed Primary Data

To find out the weight and average eigenvector of each criterion based on the alternative, the matrix needs to be normalized by dividing the value of each column by the total value of the column for each alternative. Then, the average eigenvector is generated by adding up the total normalized values in each row divided by the number of alternatives.

Table 6. Normalization Values Criteria Matrix

NORMALIZATION MATRIX				
	Work experience	Education	Working hours	Age
Work experience	0,34	0,23	0,33	0,39
Education	0,19	0,13	0,20	0,06
Working hours	0,30	0,19	0,30	0,36
Age	0,17	0,45	0,16	0,20
Total	1,00	1,00	1,00	1,00

Source: Processed Primary Data

The eigenvector values in the table show the level of importance and priority ranking of each criterion based on alternatives to increase efficiency as a result of the AHP process. Therefore, the level of priority importance can be seen as follows.

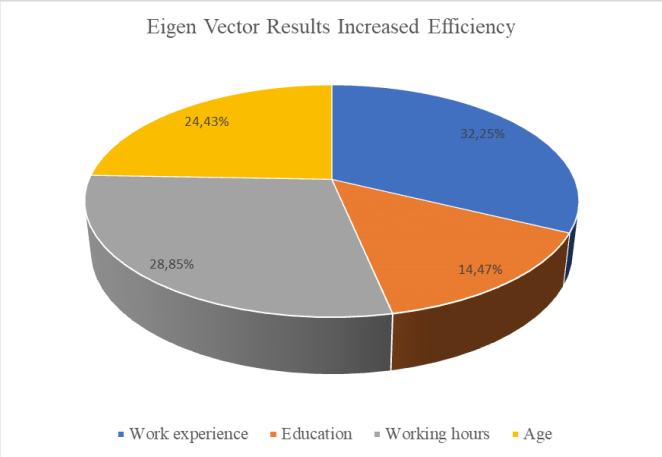

Figure 3. Criteria Priority Ranking Based on Efficiency Improvement Alternatives

The picture above shows that the factors for increasing efficiency that are in first place are work experience with a value of 32.25%, working hours with a value of 28.85%, age with a value of 24.43%, education with a value of 14.47%. So it can be said that work experience plays an important role in increasing efficiency and work experience is most capable of increasing efficiency in influencing the income level of woven fabric craftsmen.

Criteria Priority Ranking Based on Alternatives to Increase Productivity

The process of weighting criteria based on the selected productivity improvement alternatives was developed from general respondents' perceptions using the AHP method. The following table shows the paired matrix of the selected ones.

Table 7. Pairwise Comparison Matrix

PAIRED COMPARISON MATRIX				
	Work experience	Education	Working hou	Age
Work experience	1,00	3,85	2,36	1,89
Education	0,26	1,00	1,48	0,98
Working hours	0,42	0,68	1,00	0,35
Age	0,53	1,02	2,83	1,00
Total	2,21	6,54	7,67	4,23

Source: Processed Primary Data

To find out the weight and average eigenvector of each criterion based on alternative increases in productivity, the matrix needs to be normalized by dividing the value of each column by the total value of the column for each alternative. Then, the average eigenvector is generated by adding up the total normalized values in each row divided by the number of alternatives.

Table 8. Normalization Matrix

NORMALIZATION MATRIX				
	Work experience	Education	Working hou	Age
Work experience	0,45	0,59	0,31	0,45
Education	0,12	0,15	0,19	0,23
Working hours	0,19	0,10	0,13	0,08
Age	0,24	0,16	0,37	0,24
Total	1,00	1,00	1,00	1,00

Source: Processed Primary Data

The eigenvector values in the table show the level of importance and priority ranking of each criterion based on alternatives as a result of the AHP process. Therefore, the level of priority importance can be seen as follows.

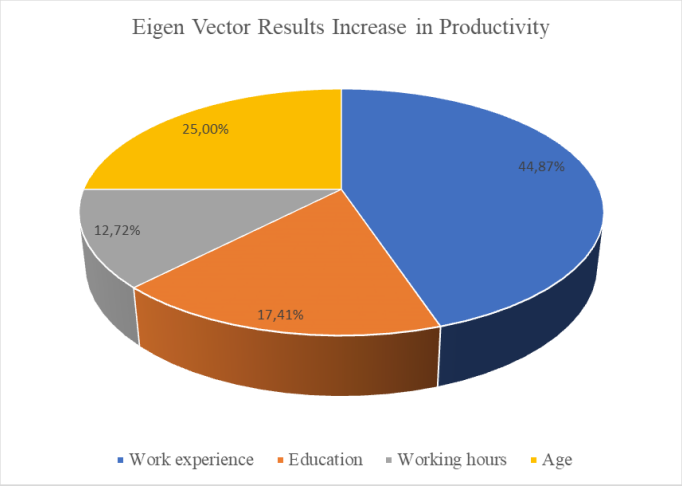

Figure 4. Criteria Priority Ranking Based on Alternatives to Increase Productivity

The figure above shows that the factors for increasing productivity that are the main priority are work experience with a value of 44.87%, age with a value of 25.00%,

education with a value of 17.41%, working hours with a value of 12.72%. So it can be said that work experience plays an important role in increasing productivity and work experience is most capable of increasing productivity in influencing the income level of woven fabric craftsmen.

Criteria Priority Ranking Based on Alternatives to Increase Competitiveness

The process of weighting criteria based on the selected alternative to increase competitiveness was developed from general respondents' perceptions using the AHP method. The following table shows the paired matrix of the selected ones.

Table 9. Pairwise Comparison Matrix

PAIRED COMPARISON MATRIX				
	Work experience	Education	Working hours	Age
Work experience	1,00	5,60	3,29	1,84
Education	0,18	1,00	0,93	1,19
Working hours	0,30	1,07	1,00	0,90
Age	0,54	0,84	1,11	1,00
Total	2,03	8,51	6,33	4,93

Source: Processed Primary Data

To find out the weight and average eigenvector of each criterion based on alternatives to increase competitiveness, the matrix needs to be normalized by dividing the value of each column by the total value of the column for each alternative. Then, the average eigenvector is generated by adding up the total normalized values in each row divided by the number of alternatives.

Table 10. Normalization Matrix

NORMALIZATION MATRIX				
	Work experience	Education	Working hours	Age
Work experience	0,49	0,66	0,52	0,37
Education	0,09	0,12	0,15	0,24
Working hours	0,15	0,13	0,16	0,18
Age	0,27	0,10	0,17	0,20
Total	1,00	1,00	1,00	1,00

Source: Processed Primary Data

The eigenvector values in the table show the level of importance and priority ranking of each criterion based on alternatives as a result of the AHP process. Therefore, the level of priority importance can be seen as follows.

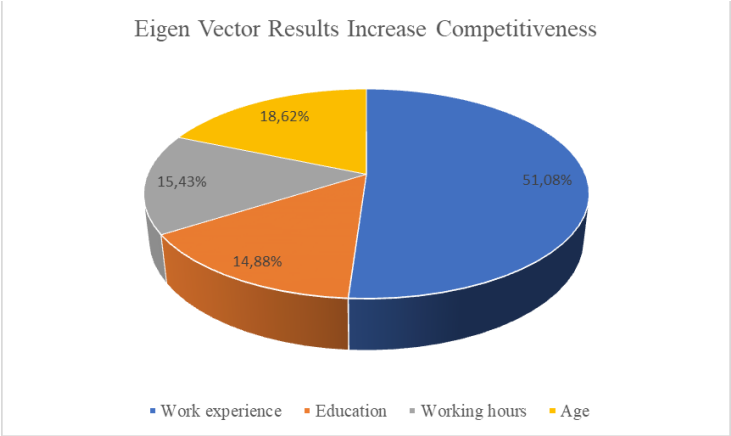

Figure 5. Criteria Priority Ranking Based on Alternatives to Increase Competitiveness

The picture above shows that the factors for increasing competitiveness that are the main priority are work experience with a value of 51.08%, age with a value of 18.62%, working hours with a value of 15.43%, education with a value of 14.88%. So it can be said that work experience plays an important role in increasing competitiveness and work experience is most capable of increasing productivity in influencing the income level of woven fabric craftsmen.

Global Priorities

Then establish global priorities. Global priority states the relative importance of an element to the overall goal. The global priority value is obtained by multiplying the eigenvector of each factor by the eigenvector of the factors in the criteria.

Table 11. Table of Global Priority Results Between Criteria and Alternatives

	Increased efficiency	increased productivity	increased competitiveness	Global Priorities	%
Work experience	0,32	0,45	0,52	0,41	40,98%
Education	0,14	0,17	0,16	0,16	15,69%
Working hours	0,29	0,13	0,15	0,20	20,30%
Age	0,24	0,25	0,18	0,23	23,04%

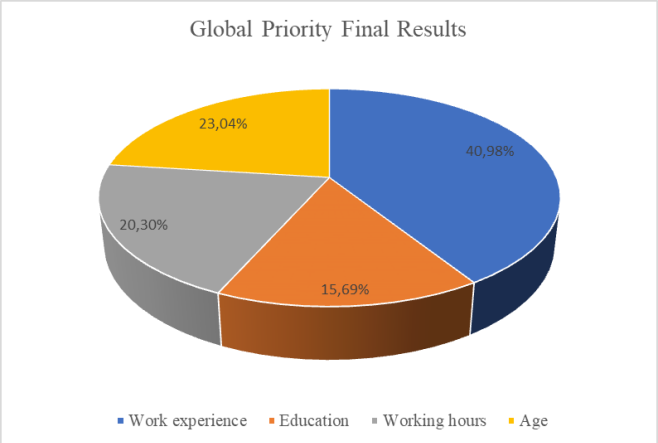

Figure 6. Global Priority Results

Based on the priority results above, the priority order of the four alternatives in this research can be obtained, namely the first weight of work experience with a value of 40.98%, the second weight of age with a value of 23.04%, the third weight of working hours with a value of 20.30%, and the fourth weight of education with a value of 15.69%.

Work experience is the main factor that influences the income of woven fabric craftsmen with a percentage weight value of 40.98 for several key reasons. First, work experience increases skills and efficiency in the production process. More experienced craftsmen tend to be more proficient in weaving techniques, so they can produce high quality products in a shorter time.

Age is the second factor that influences the income of woven fabric craftsmen with a weighting value of 23.04% because it is closely related to quality and work experience. Craftsmen who are in the productive age range, usually between 30 and 50 years, tend to have more experience and skills needed to produce high-quality products.

Working hours are the third factor that influences the income of woven fabric craftsmen with a weighting value of 20.30% because it is directly related to productivity. The more labor hours invested, the higher the craftsman's chances of producing more products.

Education is the last factor that influences the income of woven fabric craftsmen with a weighting value of 15.69% because it is related to the knowledge and skills obtained through the learning process. Craftsmen who have a higher level of education are usually better able to understand new techniques in weaving, business management and marketing their products. However, although education has a positive impact on income, not all craftsmen have the opportunity to access adequate education

Conclusion

Based on the research results above, it can be concluded that the results of the best alternative weighting process in determining the income of woven fabric craftsmen using AHP can be carried out optimally because it can produce data that is in line with what was expected. Therefore, by using AHP, the first best alternative weighting is work experience with a total value of 40.98%, second is age with a total value of 23.04%, third is working hours with a total value of 20.30%, and fourth with a total value of 15.69%.

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