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EVALUATION OF THE ACCURACY OF THE TARGET OF RECIPIENTS OF SOCIAL ASSISTANCE FOR THE FAMILY HOPE PROGRAM IN THE VILLAGE OF LEMBUR SAWAH USING THE TOPSIS METHOD

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ABSTRACT

The Family Hope Program (PKH) is a conditional assistance program provided to poor and vulnerable families with the aim of improving their welfare. Accurate beneficiary targeting is critical to ensuring the effectiveness of this program. This research aims to evaluate the accuracy of targeting beneficiaries in Lembur Sawah Village using the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) method. The findings showed that although most recipients were on target, there were some inaccuracies that required improvement. This study suggests policy recommendations to increase the targeting accuracy of the PKH program, thereby optimizing its impact on poverty alleviation. Some of the suggestions put forward for improvement include: increasing the number of sample data for more comprehensive analysis, utilizing information technology for data collection and monitoring, training and outreach for officers regarding distribution criteria and procedures. It is hoped that the implementation of these suggestions will increase the accuracy of the targets and effectiveness of PKH in Lembur Sawah Village, so that social assistance is more useful for people in need.

KEYWORD
Family Hope Program,
Target accuracy,
TOPSIS method,
Social assistance

1. Introduction

Poverty is a socio-economic problem that continues to plague society, especially in developing countries, and it has always attracted the attention of academics and practitioners [1], [2], [3]. The government made a number of efforts to combat poverty during the New Order Regime and the Reform Era. The government is very concerned about this issue; In fact, a number of programs have been implemented to try and reduce poverty, even if it continues to this day [4]. One of the efforts that can be made by the government in overcoming this problem is by providing social assistance (BANSOS) to underprivileged residents. BANSOS is a form of concern or concern shown by the government or legal entity organizations to overcome poverty levels. The forms of social assistance provided can be diverse, such as money, clothing, and medicines needed by the community [5], [6]. Various types of social assistance are provided by the Indonesian government to help the underprivileged. Lembur Sawah Village is a village that implements various types of BANSOS programs. This village has a significant condition of BANSOS recipients, with a total of 914 villagers receiving social assistance. The types of social assistance received by the people of Lembur Sawah Village include the Family Hope Program (PKH), Non-Cash Food Assistance (BPNT), and the Indonesian Smart Child Foundation (YAPI).

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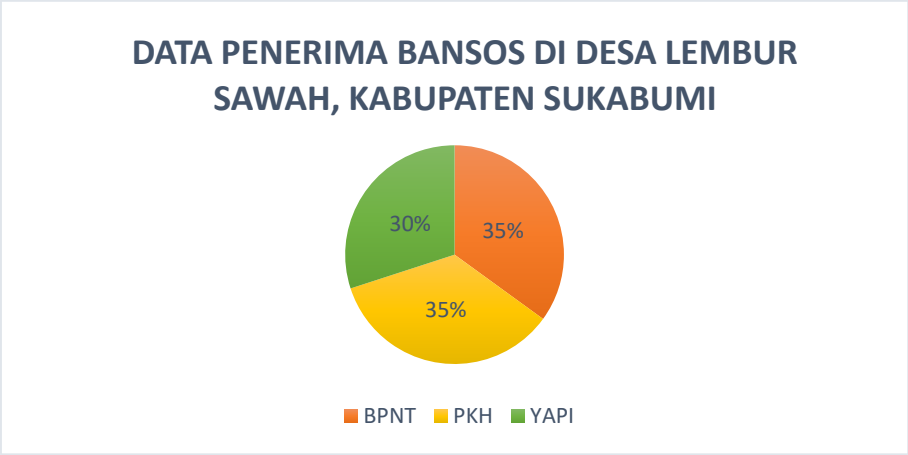

Fig. 1. BANSOS Recipient Data

From figure 1, the results of observations conducted in Lembur Sawah Village show that the distribution of the BANSOS BPNT and PKH programs is quite even, namely with 35% of recipients each. Meanwhile, 30% of the recipients received assistance from YAPI. However, from the results of observations that have been made, there are many problems faced in the process of distributing BANSOS, such as social jealousy and lack of targets, especially in PKH assistance. PKH social assistance is a conditional BANSOS program given to poor and vulnerable families with the aim of improving their well-being. PKH provides cash assistance to beneficiary families (KPM) on the condition that they meet the requirements of education, health, and attendance of children at school [4].

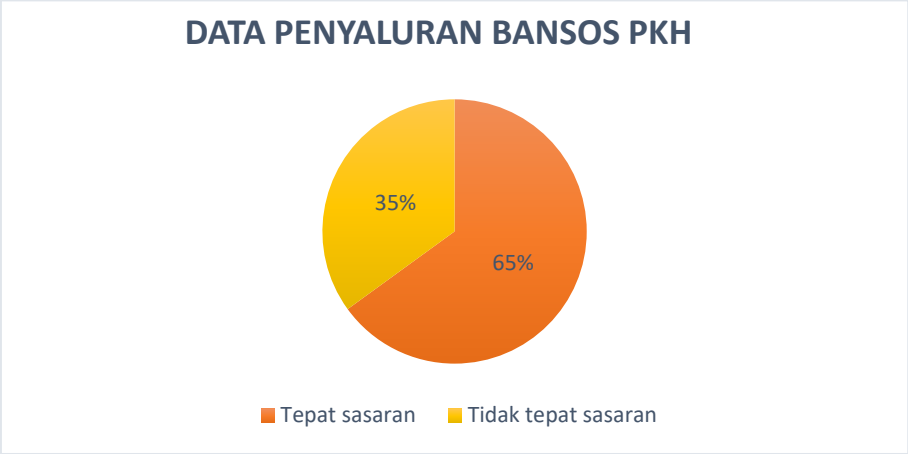

Fig. 2. BANSOS Distribution Data

It can be seen from figure 2 that there are problems related to the accuracy of PKH social assistance targets. From the data, it can be seen that 65% of the aid was distributed on target, while 35% was not on target. This indicates that more than one-third of the PKH assistance provided does not reach communities that really need it, thus affecting the effectiveness of the program as a whole. This misalignment causes people who should get help not to get what they need, while people who don't need it actually get help. The Family Hope Program (PKH) is a conditional assistance program given to poor and vulnerable families with the aim of improving their well-being. PKH provides cash assistance to low-income families, provided that beneficiaries (KPM) must meet a number of criteria related to health and education [4]. Through PKH, it is hoped that poor families can improve their access to health services and education, which in turn will help break the chain of intergenerational poverty.Based on the problems that occurred, the purpose of this study was to analyze the inaccuracy of the target in the distribution of PKH Social Assistance using the TOPSIS method. This method is expected to provide a more objective and in-depth analysis of the accuracy of the goals of aid recipients. The results of this study are expected to provide input for policy makers in improving the selection of social assistance recipients, so that PKH assistance runs more effectively and efficiently.

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2. Literature Review

2.1 Penelitian Terkait

Various studies have examined the application of the TOPSIS method in the decision support system, especially in the context of the selection of aid recipients. Nurma Yulita in 2021 entitled "Decision Support System for Selection of PKH Assistance Receipts with the TOPSIS Method." The focus of the research is to overcome uncertainty in the process of selecting recipients of the Family Hope Program (PKH) assistance. The data used includes data on PKH assistance recipients and assessment criteria. The method used is TOPSIS (Technique for Order Preference by Similarity to Ideal Solution). The results of the study show that the decision support system developed can help the Binjai City Social Service in determining PKH assistance recipients more accurately [7].

A 2020 study by Okta Jaya Harmaja, Maria Septina Hutauruk, and Maria Simarmata discussed "Decision Support System for Recipients of the Family Hope Program (PKH) using the TOPSIS Method" in Medan City. They collected data from 52,461 poor families with variables such as disability, the elderly, the number of children, monthly income, the area of the house building, and pregnant women. By applying the TOPSIS Method in PHP and MySQL systems, this research succeeded in increasing accuracy and transparency in the selection of PKH aid recipients. The system also provides important reports for management and audits, making a major contribution to improving the quality of social assistance programs in Medan City [8].

Research by Muslim Hidayat in 2018.this research focuses on determining the recipients of the Family Hope Program (PKH) appropriately. PKH provides cash assistance to households that meet certain criteria. To overcome the failure of the previous policy, a decision support system (SPK) with TOPSIS was used. SPK selects the best alternative based on the shortest distance from the positive and negative ideal solution. The result is an effective system in determining PKH recipients, which is expected to reduce poverty levels in Indonesia and support the achievement of the Millennium Development Goals (MDGs) [9].

2.2 Thingking Framework

The following is the outline of thinking in this study:

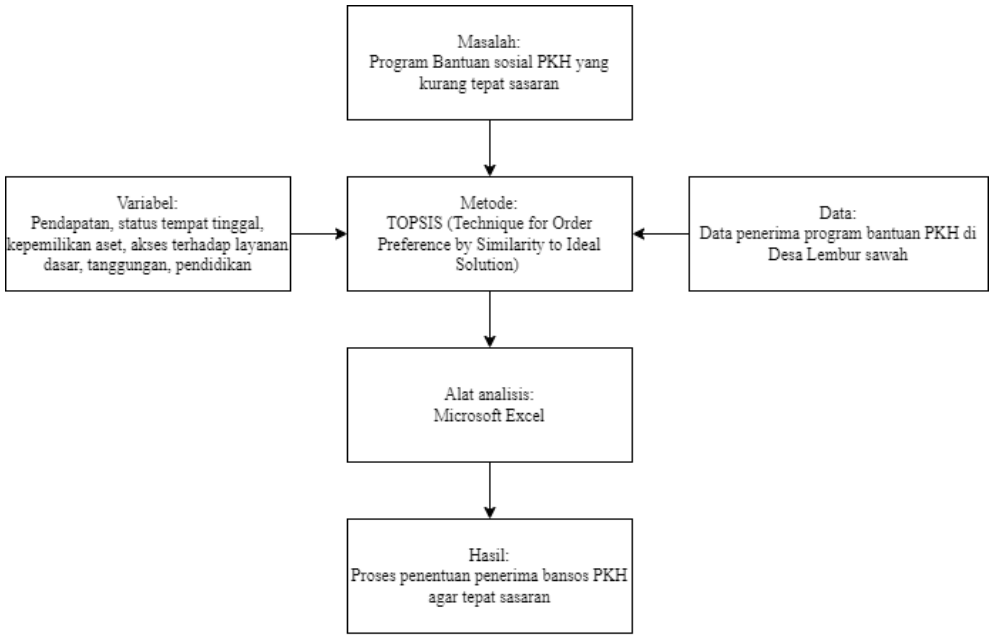

Fig. 3. Thingking Framework

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3. Metode Penelitian

3.1 Alat dan bahan

This research is a type of case study research. Case studies can also include quantitative evidence. The stages of this research are carried out as follows:

1. ToolsThis study uses laptops as the main tool for data collection, analysis, and report writing. In addition, Microsoft Word and Excel are also used to organize observation data, which can facilitate a more effective and efficient analysis and report writing process.

2. MaterialThe material used is several data on PKH BANSOS recipients collected directly by researchers through interviews with the Lembur Rice Field Village.

Table 1. Sample data of BANSOS recipients

No	Kode Alternatif	Nama alternatif
1	A01	Iyoy
2	A02	Itoh Masitoh
3	A03	Kokob
4	A04	Enur Nurhayati
5	A05	Tiah

3.2 Data Collection

Data collection in the research methodology is a systematic procedure to obtain the data needed by the researcher [10]. In this study, data collection is carried out in several stages or processes, including:

1. Observation This research was conducted by directly reviewing several residents of Lembur Sawah Village with the aim of finding out how the economic condition of the community receiving assistance is clearer and concrete, as well as to clarify the factors that affect the effectiveness of the assistance provided. With observation, researchers can directly see real conditions in the field and obtain rich qualitative data for further analysis.

2. Interview This study was conducted directly with several villagers who received social assistance. The collection technique carried out was by asking several questions to residents.3. Journal referencesThis study collected data through reading and examining scientific journals relevant to the topic discussed. By utilizing journal references, researchers can ensure that the research is based on comprehensive and up-to-date scientific knowledge.

3.3 Metode Penelitian

Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) is a method based on the principle that the alternative chosen must be closest to the positive ideal solution and the farthest from the negative ideal solution, viewed from a geometric point of view [11]. This method uses the Euclidean distance to measure the relative proximity of an alternative to the optimal solution. A positive ideal solution is a collection of the best achievable values for each attribute, while a negative ideal solution consists of a set of the worst achievable values for each attribute [12]. The formula for solving problems using the TOPSIS method is as follows:

1. Define a normalized decision matrix

$$R_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}} \quad \text{…….. (1)}$$

2. Determine the normalized weighted matrix

$$y_{ij} = w_i r_{ij}$$

…….. (2)

3. Determine the positive ideal solution and the negative ideal solution

$$A^+ = (y1^+, y2^+, y3^+, \dots , ym^+)$$

$$A^- = (y1^-, y2^-, y3^-, \dots , ym^-)$$

…….. (3)

4. Calculate the distance between the value of each alternative and the matrix of positive ideal solution and negative ideal solution

Positive ideal solution formula

$$D_i^+ = \sqrt{\sum_{j=1}^{n} \left(y_{ij} - y_i^+\right)^2}, \text{ i=1,2,3, … m}$$

…….. (4)

Negative ideal solution formula

$$D_i^+ = \sqrt{\sum_{j=1}^{n} \left(y_{ij} - y_i^-\right)^2}, \text{ i=1,2,3, … m}$$

…….. (5)

5. Determine the prefence value for each alternative

$$V = \frac{Di^-}{Di^- + Di^+}, \text{ i=1,2,3, … m}$$

…….. (6)

A higher V value indicates that the alternative with the highest value is preferred.

3.4 Research Schedule

This research was conducted for one semester, from January to June, with the aim of researching and analyzing the lack of targeted BANSOS of the Family Hope Program (PKH) in Lembur Sawah Village.

4. Result and Discussion

4.1 Research Result

After conducting research at the Lembur Sawah Village Office, the researcher managed to collect relevant data to evaluate PKH social assistance recipients who were not on target. The following are the stages of calculation carried out by the researcher using the TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) method at the Lembur Sawah Village Office.

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1. Alternative Data

Table 2 below shows that this study includes five recipients of PKH assistance.

Table 2. Alternative Data

No	Alternative Code	Alternative Name
1	A01	Iyoy
2	A02	Itoh Masitoh
3	A03	Kokob
4	A04	Enur Nurhayati
5	A05	Tiah

2. Criteria and weight data

Table 3. Criteria data

Kode	Kriteria Penilaian	Bobot
C1	Pendapatan bulanan keluarga	
	Rp 0 - Rp 500.000	5
	Rp 500.000 - Rp 1.000.000	4
	Rp 1.000.000 - Rp 2.000.000	3
	> Rp 2.000.000	2
C2	Status tempat tinggal	
	Kontrakan	5
	Tempat tinggal sendiri	4
C3	Kepemilikan aset (rumah, tanah, kendaraan, dll)	
	Tidak ada	5
	Memiliki 1 aset	4
	Memiliki 2 aset	3
	Memiliki 3 Aset	2
	Memiliki > 4 Aset	1
C4	Akses terhadap layanan dasar (air bersih, sanitasi, listrik)	
	Tidak ada akses	5
	Akses terbatas	4
	Akses cukup	3
	Akses mudah	2
C5	Beban tanggungan keluarga (anak, lansia, penyandang disabilitas)	
	>5 orang	5
	6-5 orang	4
	3-4 orang	3
	1-2 orang	2
	Tidak ada	1
C6	Tingkat pendidikan anak tertinggi dalam keluarga	
	Perguruan Tinggi	5
	SMA/MA/SMK	4
	SMP/MTs	3
	SD/MI	2
	Tidak sekolah	1

Table 3 above shows that there are several criteria used to evaluate PKH recipients along with the weight obtained from the results of interviews with related parties.

3. Decission Matrix

Table 4 below shows the normalized and weighted decision matrix. The results of this decision matrix are used to determine the positive ideal solution and the negative ideal solution.

Table 4. Decission Matrix

Alternatif Name	Benefit	Cost	Benefit	Benefit	Cost	Cost
	5	4	3	5	4	3
	C1	C2	C3	C4	C5	C6
A01	3	4	3	3	2	4
A02	2	4	3	3	4	4
A03	3	4	3	3	4	4
A04	2	4	4	4	3	4
A05	3	4	3	3	5	4

4. Normalized Matrix

Table 5 below is the divisor result of the decision matrix that has been made. The goal is to reduce the range of data.

Table 5. Divisor Result

Pembagi	5.916079783	8.9442719	7.211102551	7.2111026	8.366600265	8.94427191

Normalized Matrix :

Table 6. Normalized Matrix

Nama Alternatif	Criteria					
	C1	C2	C3	C4	C5	C6
A01	0.507092553	0.4472136	0.416025147	0.4160251	0.239045722	0.4472136
A02	0.338061702	0.4472136	0.416025147	0.4160251	0.478091444	0.4472136
A03	0.507092553	0.4472136	0.416025147	0.4160251	0.478091444	0.4472136
A04	0.338061702	0.4472136	0.554700196	0.5547002	0.358568583	0.4472136
A05	0.507092553	0.4472136	0.416025147	0.4160251	0.597614305	0.4472136

Table 6 above is the numalized results used to calculate the weighted matrix, determine the positive and negative ideal solutions, and calculate the distance of each alternative from the ideal solution.

5. Determining the normalized weight value

Table 7. Normalized Weight Value

Alternatif Name	Criteria					
	C1	C2	C3	C4	C5	C6
A01	2.535462764	1.7888544	1.248075442	2.0801257	0.956182887	1.34164079
A02	1.690308509	1.7888544	1.248075442	2.0801257	1.912365775	1.34164079
A03	2.535462764	1.7888544	1.248075442	2.0801257	1.912365775	1.34164079
A04	1.690308509	1.7888544	1.664100589	2.773501	1.434274331	1.34164079

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A05	2.535462764	1.7888544	1.248075442	2.0801257	2.390457219	1.34164079

The results in table 7 above are obtained from the normalized decision matrix multiplied by each weight in the criteria. From the table there are several values that are the same. This is because it is likely that prospective recipients of assistance have data of the same value.

6. Positive ideal solution matrix and negative ideal matrix

Table 8 below shows the results of the positive ideal solution matrix and the negative ideal matrix. A+ is the desired positive ideal solution, while A- is the negative ideal solution. The smaller the A+ value and the greater the A- value, the higher the likelihood of an alternative being chosen[12].

Table 8. Positive ideal solution matrix and negative ideal matrix

A+	1.690308509	1.7888544	1.248075442	2.0801257	0.956182887	1.34164079
A-	2.535462764	1.7888544	1.664100589	2.773501	2.390457219	1.34164079

7. Positive ideal solution distance and negative ideal matrix

Table 9 below shows the results of the distance of the positive ideal solution and the negative ideal matrix used to determine the ranking of the evaluated alternatives. The smaller the D+ value and the greater the D- value, the more likely an alternative is to be chosen as the best.

Table 9. . Positive ideal solution distance and negative ideal matrix

Alternatif Name	D+	D-
A01	0.845154255	1.646508127
A02	0.956182887	1.263607256
A03	1.276154939	0.939370844
A04	0.939370844	1.276154939
A05	1.664760815	0.80860754

8. Assess preferences

Table 10. Assess preferences

Alternatif Name	V	Perangkingan
A01	0.660807074	5
A02	0.569246268	3
A03	0.423994544	2
A04	0.576005456	4
A05	0.326925643	1

4.2 Discussion

The data registered in the receipt of PKH assistance is around 300 people. The researcher took a sample (alternative) of 5 recipients from 5 recipients in the selection into 2 recipients who are eligible to receive BANSOS PKH, namely with rankings 1 and 2. Meanwhile, those who are not eligible to receive this PKH are ranked 3, 4 and 5. So from the results of the calculations and calculation steps that have been carried out with the TOPSIS method, it is decided that Tiah and Kokob are worthy of being recommended to receive PKH Social Assistance. Some suggestions that researchers can provide to improve the effectiveness and efficiency of the distribution of BANSOS PKH in Lembur Sawah Village. First, increase the number of sample data for a more comprehensive and accurate analysis. By increasing the number of samples, a more representative picture of eligible recipients can be obtained. Second, the

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use of information technology in the process of collecting and monitoring aid recipients is very important in order to improve data accuracy, speed up the verification process, and facilitate supervision. Third, officers responsible for distributing aid need to receive training and socialization related to distribution criteria and procedures. This training will ensure that officers have a good understanding of their duties and responsibilities, so that aid distribution can be carried out more effectively and on target. The implementation of these suggestions is expected to improve the accuracy of the targets and the effectiveness of the Family Hope Program (PKH) in Lembur Sawah Village.

5. Closing

This study found that the TOPSIS method was effective in evaluating the accuracy of PKH social assistance recipients in Lembur Sawah Village, which was still significant, with 35% of recipients not on target. This study also found that the lack of precise targets in the distribution of PKH Social Assistance in Lembur Sawah Village was caused by several factors, such as inaccurate data on aid recipients and ineffective data collection and distribution systems. To overcome this, further efforts need to be made to increase the effectiveness and efficiency of the distribution of PKH Social Assistance. In this study, the TOPSIS method is used to determine the optimal solution based on the deviation between the ideal positive solution and the deviation of the ideal negative solution. The results of the study showed that Tiah and Kokob were worthy of being recommended to receive PKH social assistance.

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