Determinants of Donation Behaviour on Flood Disasters in Indonesia

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Abstract. This study used Structural Equation Modeling to apply Theories of Planned Behavior to flood disaster donation by adding attitude factors to charitable organizations, advertising, and flood victims. The proposed framework is tested to investigate the relationship between factors in forming intentions and in influencing behavior. This finding found that subjective norms, attitudes toward advertising and attitudes towards charitable organizations contributed to the intention of donations, while the flood victims and perceived behavioral control did not have a significant effect on donation behavior.

Keywords: Donation, Intention, Natural Disaster, Flood

1. INTRODUCTION

When natural disasters occur, many people feel empathy for the victims. Some decide to donate, while some just pray for them and refuse to take any action. Severe natural disasters may be neglected, especially if the media also ignores them. For example, the 2010 earthquake in Haiti that killed approximately 160,000 lives, raised $13 billion in donations during the early days of the disaster. However, in 2008, the Cyclone Nargis in Bangladesh and Myanmar that killed approximately 138,000 lives, raised only about $300 million [1].

Indonesia faces some natural threats including earthquakes, tsunamis, volcanic eruptions, floods, and droughts [2]. These sometimes occur repeatedly. Based on data from the Indonesian Disaster Management Agency in 2018, there were 5 major disasters that occurred in Lombok (earthquake), Palu (earthquake, tsunami, and liquefaction), Banten and Lampung (earthquake and tsunami). The total asset loss from the 2 major natural disasters (Lombok and Palu) that occurred in Indonesia was approximately $2.45 billion [3]. Flooding is a natural disaster that often occurs in Indonesia. In 2018 there were 679 incidents with around 1.45 million people affected and occurred in various cities and provinces [4].

There have been several studies conducted in the field of donations [5], [6], [7], [8]. Some of them used the theory of planned behaviour (TPB) to investigate the effect of each factor on the donation decision. TPB suggests three determinants of donation intention, namely attitudes, subjective norms and perceived behavioral control (PBC). The theory is based on consideration of people which is reasonable and uses information that might be possible, systematically. People determine the implications of their actions before they decide to do or not do certain behavior [9].

Knowles et. al. [7] studied the intention to contribute money by using perspectives from TPB that are revised and influenced by attitude, subjective norms, moral obligations, PBC, and past behavior. The
results of their research indicate that intention was influenced by all factors examined except norms subjective.

The differences in the characteristics of each natural disaster that occurred, such as the number of deaths, types of disasters, victims who need assistance, affect the amount of donations received [10]. This implies that the characteristics of disasters may affect decision making to donate. In our paper, the characteristic factors were included as factors that influenced the intention and behavior to donate to natural disasters.

Some studies on donation decisions used a variety of attitudes, such as attitudes towards advertising [11],[12],[13] attitudes helping others [14],[15],[16],[17],[13] attitudes towards charitable organizations [14],[13],[12],[18] and attitudes towards donations [18].

In the application of TPB on general donation behavior, attitude used must be clearly defined. Sometimes, it was found that attitudes toward helping others did not have a direct relationship with the intention to donate but through attitudes towards the organization and attitudes towards advertising [13]. Therefore, it was considered necessary to use all three attitudes in our study to investigate the factors that influence the intention of donating to natural disasters.

In this paper, we aim to propose a framework for testing the relationships of factors that influence donation behaviour towards natural flood disaster by adapting TPBs to add attitudes toward charitable organizations, attitudes towards advertising, and victims of flood disasters.

2. METHODS

As mentioned in the introduction, our proposed framework was established based mainly on the TPB. It is the theory that explains how behavioral intentions is influenced by attitudes, subjective norms and PBC [9].

Smith and McSweeney [8] used a revised TPB which consists of attitudes, norms (injunctive norms, descriptive and moral norms), PBC, and past results of behaviour to donate money to charitable organizations. Based on their results, attitude, PBC, injunctive norms, moral norms and past behaviour influenced intentions of charitable giving. However, descriptive norms do not contribute intention to donate.

The TPB model was extended, by Knowles et. Al. [7], used to confirm the variable relationship to intention to contribute. The results of the study show that attitudes, PBC, and past behaviour, moral norms predict the intention to contribute in the next time.

Mittelman and Méndez [18] investigated the extended TPB model of charity giving and the intention to donate to consider three different attitudes (charity, helping, and donation). Past behavior, moral norms, and PBC had a significant influence on the contribution intention; however, attitude toward charitable organization, and subjective norms were not significant.

Ranganathan and Henley [13] investigated religious factors in the donation decision-making process. The variable used in the model are religiosity and three attitudes (attitude towards helping others, attitude towards the advertisement, attitude towards charitable organizations) and behavioral intentions.

Evangelidis and Bergh [10] applied natural disaster characteristic variables from the International Disaster Database managed by CRED [19] as exogenous variables that affect donation decision. It was found that the decision on donations was based on number of deaths rather than the number of victims.

The proposed framework model can be seen in Fig.1. All latent variables are summarized in Table 1. In Figure 1, the relationships were linked based on several previous literatures. Tables 2-9 show the questions used as exogenous variables for each latent variable.
Table 1. Research Variables

| Variable                                      | References          |
|-----------------------------------------------|---------------------|
| Self-Reported Behavior (B)                    | [9],[20],[21],[7],[8] |
| PBC (P)                                       | [9],[20],[21],[7],[8],[22] |
| Subjective Norm (S)                           | [9],[20],[21],[7]   |
| Attitude Towards Advertisement (AA)          | [11],[12],[13]      |
| Attitude Towards Helping Others (AH)          | [13],[14],[15],[16],[17], |
| Attitude Towards Charitable Organizations (AO)| [13],[14]          |
| Donation Intention (I)                        | [9],[20],[21],[7],[8] |
| Natural Disaster Victims (V)                  | [10]                |

Table 2. Indicators of Self-Reported Behavior

| Indicator                                                                 | References |
|---------------------------------------------------------------------------|------------|
| How often do you donate to past natural disasters?                       | [7],[8]    |
| How many times have you donate to past natural disasters?                | [7],[8]    |
| How often do you contribute to natural disasters in the past two years?  | [7],[8]    |
| How many times have you donate to natural disasters in the past two years?| [7],[8]    |

Table 3. Indicators of Perceived Behaviour Control

| Indicator                                                                 | References |
|---------------------------------------------------------------------------|------------|
| If I want to donate on natural disasters, then I can easily do it          | [7],[8]    |
| If in the future a natural disaster occurs, how much control do you have | [7],[8]    |
| Most of the factors that influenced me to contribute to natural disasters are myself | [7],[8]    |

Table 4. Indicators of Subjective Norm

| Indicator                                                                 | References |
|---------------------------------------------------------------------------|------------|
| People who are close to me support me if I donate to natural disasters    | [7]        |
| What percentage of people who are important to you does not support you to | [7]        |
| contribute to natural disasters?                                          |            |
| The opinion of most people who are important to me about donating         | [7]        |

Table 5. Indicators of Attitude Towards Advertisement

| Indicator                                                                 | References |
|---------------------------------------------------------------------------|------------|
| My reaction to the advertising of disaster donations                       | [23]       |
| My attitude towards advertising donations of natural disasters            | [23]       |
| My feelings towards advertising about donations of natural disasters      | [23]       |

Table 6. Indicators of Attitude Towards Helping Others

| Indicator                                                                 | References |
|---------------------------------------------------------------------------|------------|
| Helping others is a must                                                  | [14]       |
| For me, helping is important                                              | [14]       |
| People who need help must be helped                                       | [14]       |

Table 7. Indicators of Attitude Towards Charitable Organizations

| Indicator                                                                 | References |
|---------------------------------------------------------------------------|------------|
Positive image on charities is must [14]
Natural disaster donation organizations do useful things [14]
Charity donation organizations are useful for helping those in need [14]

Table 8. Indicators of Behaviour Intention

| Indicator                                                                 | References |
|--------------------------------------------------------------------------|------------|
| I have a desire to donate money to natural disaster relief donation organizations in the next time | [7],[8]    |
| How likely will you donate to natural disaster in the next time?         | [7],[8]    |
| I intend to contribute money to the natural disaster donation organization going forward | [7],[8]    |

Table 9. Indicator of Natural Disaster Victims

| Indicator                          | References |
|------------------------------------|------------|
| Number of Dead and missing people | [10],[4]   |
| Number of injured victims          | [4]        |
| Number of affected victims         | [10],[4]   |
| Number of Refugees                 | [4]        |
| Number of damaged houses           | [4]        |

Figure 1. Path in Structural Model

Based on the basic TPB, PBC, subjective norms and attitudes influence the occurrence of intentions, and intentions also influence behavior [9]. In the proposed model, attitudes toward helping others have a significant relationship in influencing attitudes toward advertising and attitudes toward charitable organizations and then influencing intention [13]. Subjective norm has a significant relationship to PBC
[24], while victim of the natural disasters (the number of deaths and the number of homeless people) has a significant influence on the amount of donations given [10]. According to the Indonesian National Disaster Management Agency [4], disaster victim variables measured by adopting several measures was found in.

The hypothesis was built based on the direction of the link in Figure 1. In this study, the number of samples taken by 200 respondents was taken randomly in Indonesia, 60% of the data came from the residents in the province of East Kalimantan and the rest were randomly answered by residents in other provinces. In this study a Confirmatory Factor Analysis (CFA) was conducted to evaluate the construct validity and to test the goodness of fit index of the measurement model. Structural Equation Modeling Analysis (SEM) was used to observe the relationships among latent variables in the proposed framework. Maximum likelihood with a robust standard error estimator was used to overcome data that were not normally distributed

3. RESULT AND DISCUSSION
In this study, testing the fit of the model using several criteria has been used by several researchers [25],[26],[27],[28]. The results can be seen in Table 10.

| Goodness of Fit Criteria | Cut-off Value | Result | Conclusion |
|-------------------------|--------------|--------|------------|
| $\chi^2$/df             | < 2.00       | 0.115  | Fit        |
| CFI                     | $\geq 0.95$  | 1      | Fit        |
| NNFI                    | > 0.90       | 1.030  | Fit        |
| IFI                     | > 0.90       | 1.027  | Fit        |
| RMSEA                   | < 0.05       | 0.000  | Fit        |
| SRMR                    | < 0.10       | 0.088  | Fit        |

The measurement model was tested using the Confirmatory Factor Analysis (CFA) technique with measurements of Convergent Validity, namely Standardized Loading Factor (SLF), Construct Reliability (CR), and Average Variance Extracted (AVE). Table 11 shows the results of the three values for each indicator, namely SLF $\geq 0.5$, CR $\geq 0.7$, and AVE $\geq 0.5$ meet the requirements, then the convergent validity can be achieved [25].

| Indicator | SLF          | CR | AVE |
|-----------|--------------|----|-----|
| B1, B2, B3, B4 | 0.67, 0.69, 0.90, 0.85 | 0.9 | 0.6 |
| P1, P2, P3 | 0.56, 0.74, 0.78 | 0.7 | 0.5 |
| AA1, AA2, AA3 | 0.87, 0.94, 0.84 | 0.9 | 0.8 |
| AO1, AO2, AO3 | 0.80, 0.96, 0.84 | 0.9 | 0.8 |
| I1, I2, I3 | 0.89, 0.91, 0.90 | 0.9 | 0.8 |
| S1, S2, S3 | 0.71, 0.64, 0.76 | 0.7 | 0.5 |
| AH1, AH2, AH3 | 0.87, 0.92, 0.79 | 0.9 | 0.7 |
| FC1, FC2, FC3, FC4, FC5 | 0.86, 0.88, 0.88, 0.88, 0.90 | 0.9 | 0.8 |

The hypotheses which describe the relationship between the variables depicted in Figure 1. A complete summary of the hypotheses can be seen in Table 12. The hypothesis is accepted using 95% confidence level so that the relationship with the value of $t_{0.05,199} > 1.97$ can be accepted. The first obvious link shown in the results is Attitude Towards Helping Others (AH) $\rightarrow$ Attitude Towards Charitable Organization (AO) $\rightarrow$ Intention (I) $\rightarrow$ Behaviour (B). The next link is Attitude Towards Helping Others (AH) $\rightarrow$ Attitude Towards Advertisement (AA) $\rightarrow$ Intention (I) $\rightarrow$ Behaviour (B). Another link is Subjective Norms (S) $\rightarrow$ Intention (I) $\rightarrow$ Behaviour (B).
**Table 12. Test of Research Hypotheses**

| HP | Path | Path | coefficient value | T value | Conclusion |
|----|------|------|-------------------|---------|------------|
| H1 | Intention (I) → Behaviour (B) | 0.34 | 5.61 | Accepted |
|    | Natural Disaster Victims (V) → Behaviour (B) | -0.07 | -0.99 | Rejected |
|    | Subjective Norms (S) → Intention (I) | 0.44 | 2.03 | Accepted |
| H2 | Perceived Behaviour Control (P) → Intention (I) | -0.05 | -2.03 | Accepted |
|    | Attitude Towards Advertisement (AA) → Intention (I) | 0.14 | 2.14 | Accepted |
| H3 | Attitude Towards Charitable Organization (AO) → Intention (I) | 0.49 | 6.35 | Accepted |
| H4 | Subjective Norms (S) → Perceived Behaviour Control (P) | 0.69 | 2.12 | Accepted |
| H5 | Attitude Towards Helping Others (AH) → Attitude Towards Advertisement (AA) | 0.55 | 3.93 | Accepted |
| H6 | Attitude Towards Helping Others (AH) → Attitude Towards Charitable Organization (AO) | 0.67 | 4.60 | Accepted |
| H7 | Subjective Norms (S) → Intention (I) → Behaviour (B) | 0.14 | 2.94 | Accepted |
| H8 | Perceived Behaviour Control (P) → Intention (I) → Behaviour (B) | -0.02 | -0.24 | Rejected |
| H9 | Attitude Towards Helping Others (AH) → Attitude Towards Charitable Organization (AO) → Intention (I) → Behaviour (B) | 0.14 | 3.44 | Accepted |
|    | Attitude Towards Helping Others (AH) → Attitude Towards Advertisement (AA) → Intention (I) → Behaviour (B) | 0.05 | 1.95 | Rejected |
| H10 | Attitude Towards Advertisement (AA) → Intention (I) → Behaviour (B) | 0.17 | 4.42 | Accepted |
| H11 | Attitude Towards Charitable Organization (AO) → Intention (I) → Behaviour (B) | 0.41 | 4.64 | Accepted |
| H12 | Subjective Norms (S) → Perceived Behaviour Control (P) → Intention (I) | -0.44 | -0.23 | Rejected |
4. CONCLUSION
In this study, factors that have been proven to significantly influence the intention to contribute are Subjective Norms, Attitudes Towards Advertising and Attitudes Towards Charitable Organizations. while Attitude Towards Helping Others has a significant indirect effect on intention through Attitude Towards Advertising and Attitude Towards Charitable Organizations. These factors besides influencing intention also influence Behaviour indirectly through intention.

Other factors, Control of Perception Behaviour does not have a significant influence on Intention to donate. Likewise, the perception of victims of natural disasters does not affect behaviour to donate, therefore in this study, it can be concluded when donating, people do not consider their perceptions of the condition of victims in flood disasters.

Further research needs to be done to see or add other factors that can influence or strengthen existing factors in influencing the intention and behaviour to contribute to flood disasters.

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