

# RESISTANCE BEHAVIOR OF CANTRANG PROHIBITION ANALYSIS IN CENTRAL JAVA-INDONESIA

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## PURPOSE

*THE study aims to analyze several factors that influence the resistance behavior of cantrang bans in Central Java, Indonesia. The basic model is used to analyze using Theory of Planned Behavior (Ajzen, 1985) by taking four variables or factors that influence the attitude of rejecting the prohibition, namely natural awareness, knowledge, emotions, and income. The attitude of rejecting to influence intention, and intention influences resistance behavior. Resistance behavior is also influenced by behavioral control or perceived risk.*

**Design/Methodology/Approach:** *This research adheres to the positivism paradigm. The population in this study were all fishermen in Pati District, Central Java who had used cantrang. Sample size of the study is 200 fishermen, which fulfilled the statistical testing requirements in the structural equation model. Purposive sampling method was used to collect information from the respondents about cantrang prohibition behavior. Data collection techniques are surveys using a structured questionnaire. Data analysis has been done using Structural Equation Modeling.*

**Finding:** *The results indicate that knowledge has negatively affected the attitudes of rejecting, emotions have a significant positive impact on rejecting attitudes, concern for nature has also a negative impact on attitude to reject, income has a significant positive effect on behavior rejecting, rejecting attitude has a significant positive effect on intention in rejecting, behavioral control has a positive impact on rejecting behavior, and intention in rejecting has a positive impact on the behavior of rejecting cantrang prohibitions.*

**Research Limitations:** *This study was limited to one district i.e. Pati, Central Java-Indonesia.*

**Practical Implications:** *This research will also contribute to government policies in planting values of marine ecosystem care.*

**Originality/Value:** *There has not been a similar study conducted in the study area.*

**Key Words:** *Awareness, Knowledge, Emotions and Income, Behavioral Control, Intention, Behavior, Cantrang.*

## Introduction

Minister of Maritime Affairs and Fisheries Regulation No. 2/2015 related to banning the use of Trawls and Seine Nets which contains prohibitions on the use of cantrang, intends to preserve marine biota

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from extinction due to ways to catch fish that are not environmentally friendly. Cantrang is an active fishing tool with operations touching the bottom of the waters or the sea floor. This waste of marine resources has been occurring continuously since this fishing gear was widely used in 1960. Cantrang was operated by spreading the rope as a circle in a circle, followed by lowering the cantrang net, then the two ends of the rope were brought together. The two ends of the rope are then pulled towards the ship until all parts of the net bag are lifted. The use of an amber rope that reaches more than 1,000 m in length on each right and left side is 500 m long, causing a sweep of the trajectory of the rope. The sweep can reach more than 250 Ha and the strength of the vessel that attracts at least 30 Gross Ton (GT).

The results of the WWF (2015) state that only about 18% to 40% of trawling and cantrang catches are of economic value and can be consumed, 60% to 82% are by catch or discarded, so most of the times the catch is thrown into the sea in a state of death or supplied as raw material for making fish meal. While based on the results of research in Brondong, Lamongan Regency, only 51% of cantrang catches were in the form of target fish, while 49% were non-target. As for the results of the research in Tegal, the use of cantrang can only capture 46% of the target fish and 54% of the other non-target species which are dominated by trash fish or small fish that are not suitable for consumption.

Minister of Marine Regulation No. 2/2015 related to banning the use of Trawls & Seine Nets which began to be set on January 8, 2015, received a strong repulsion from fishermen, as a result, the ban on the use of cantrangs has always been delayed. Until now, the government's ban on the use of cantrang has been extended four times. The first extension is set until December 2016, through Circular Letter No. 72 / MEN-KP / II / 2016, then until June 2017 through Circular of the Director General of Capture Fisheries No. B.664 / DJPT / PI.220 / VI / 2017. The third delay took place till the end of December 2017 through Circular of the Director General of Capture Fisheries No. B.743 / DJPT / PI.220 / VII / 2017. The fourth was postponed from 1/18/2018 until the fishermen finished replacing fishing gear other than cantrang, but the farmers were also not allowed to add more ships and the government would carry out shipbuilding.

The phenomenon of denial of the cantrang ban shows that fishermen still prioritize economic interests rather than the interests of conservation or conservation of marine biota. The behavior of people who work as fishermen, fish baskets or fisheries businessmen is increasingly convincing that the prohibition of cantrang has an effect on the joints of the economy of the community, especially fishermen. The replacement of cantrang lifting equipment is actually an innovation that benefits fishermen in the long run, but fishermen still think short for economic reasons.

## **Literature Review**

Theory of Planned Behavior (TPB) is often used by some researchers regarding the adoption of innovation (Venkatesh, & Brown, 2001). TPB indicates that an individual's behavior gets influenced by intentions, and intention in behavior will be influenced by attitudes, subjective norms, and perceived behavioral control (Ajzen, 1985). Studying TPB is always related to one's behavior.

According to Kotler (2006), "A person's behavior is a process that is passed by someone/organization in finding, buying, using, evaluating, and disposing of products or services after being consumed to meet their needs". Engel, Roger, & Paul (1986) stated that consumer behavior includes the acts related to acquiring, and consuming products and services, including the process that precedes and follows from this action. The definition uses the terms decision-making units because decisions can be made by individuals or groups. The theory that forms the basis of consumer behavior is stated by Fishbein, & Ajzen (1975) who proposed the Theory of Reasoned Action (TRA). TRA indicates that an individual's behavior will be influenced by intention, and intention in behaving will be influenced by attitude. Theory of Reasoned Action (TRA) resulted in the development of another theory of Theory of Planned

Behavior (TPB). Ajzen (1985) included a variable that does not yet exist in TRA, namely perceptions of behavioral control.

Prohibition of cantrang is an innovation policy from the government in order to regulate the way of fishing in the sea and strive to be able to preserve marine biota. So, the resistance of the cantrang ban is a form of resistance of innovation. According to Rogers (1995), “innovation means new ideas, new practices, or objects that can be perceived as something new by the individual or target community”. The new definition here contains meaning not only just known by the mind but also new because it has not been widely accepted by all citizens in the sense of attitude and also new in the sense that it has not yet been accepted and applied by all local community members. “Therefore, the consumer may accept or refuse the new product. From the consumers’ point of view, the new product represents the change that he faces, and, if the product is deemed satisfactory, he will accept the change, but if it doesn’t fit to his requirements or modifies the status with which he is accustomed, the consumer will exert resistance to this change. Resistance to change occurs when consumers perceive the risks of changes being greater than its benefits”, p. 464 (Cornescu, & Adam, 2013). Pejas, & Oska (2011) stated that consumer behavior is related to the actions that are straightforwardly involved in acquiring, utilization of products and services.

Resistance of innovation occurs when a consumer feels compelled to change his behavior towards an innovative product (Ram, 1987). Marakas, & Hornik (1996) described resistance behavior as a response to opposition to the existence of a new system. Reluctance to change is illustrated as a negative response that is related to the emotional, cognitive, and intentional dimensions of an individual. In this condition of reluctance to change, an individual will resist a strong urge to adopt innovation; he will direct his actions to survive the conditions that existed before. For these individuals, the change is certain to be followed by high uncertainties (Piderit, 2000).

Resistance of innovation is also illustrated by Ram (1987) into three characteristics. First, resistance to innovation has an impact on the time of adoption. Second, the degree of resistance to innovation varies. Third, the resistance of innovation occurs because the level of change is not sustainable and innovation conflicts with the structure of previous consumer beliefs. Joseph’s opinion supports the opinion of Rogers (1995) which states that innovation, in general, will force a consumer to change, and usually consumers who are faced with innovation will refuse to change.

The theoretical framework of this research was built based on the Theory of Planned Behavior (TPB) from Ajzen (1985), which explained the relationship between beliefs and behavior. Behavior is determined by individual beliefs about the availability of resources and opportunities related to specific behaviors. If the individual has a high perceived behavior control then he will know the actions that need to be done (Wijaya, & Sukidjo, 2017).

This TPB states that attitudes, subjective norms, and behavioral control perceptions together form intentions, then intention and perceptions of behavioral control together form individual behavior. Thus, the conceptual framework of the present study as shown in figure no. 1 has been developed on the basis of the Theory of Planned Behavior (TPB) by adding income, knowledge, emotion, and natural care as variables that directly influence attitudes in the denial of cantrang prohibition. This model will be used to analyze the behavior of refusal of cantrang bans by fishermen in Pati Regency, Central Java.

## **Objectives of the Study**

According to Ram (1987), resistance of innovation is actually a normal and natural thing of a consumer, because in adopting innovation, consumers are faced with two barriers, namely functional barrier (usage barrier, value barrier, risk barrier), and psychological barrier (tradition barriers, image barriers). Ajzen (1985) has identified behavioral factors, namely elements of one’s background, subjective norms

that apply in the community, perceptions of control, and one's intentions. Based on the description above, it is necessary to do research on cantrang prohibition behavior, and this study was conducted on fishermen in Pati Regency, Central Java. Pati regency region has been selected because all fishermen in Pati Regency refused to enforce the cantrang ban. While the background to the resistance attitude was chosen on the bases of knowledge, concern for nature, emotions, and producers with the TPB model. Specifically, this study aims to examine the effect of knowledge about cantrang on the attitude of fishermen to reject a ban cantrang, fishermen's emotions to the attitude of fishermen to reject a ban cantrang, fishermen's awareness of the attitude of fishermen to reject a ban cantrang, income to the attitude of fishermen to reject a ban cantrang, the attitude of fishermen to reject a ban cantrang against the intention of fishermen rejecting to cantrang ban, behavioral control of the intention of fishermen rejecting to cantrang ban, the intention of fishermen to reject a ban cantrang against the ban behavior of fishermen rejecting to cantrang ban.

On the basis of review of literature, the following hypotheses have been proposed for the present study:

H1: Knowledge about cantrang has a negative and significant effect on the attitude of fishermen to reject a ban cantrang.

H2: Fishermen's emotions have a positive and significant effect on the attitude of fishermen to reject a ban cantrang.

H3: Fishermen's awareness has a negative and significant effect on the attitude of fishermen to reject a ban cantrang.

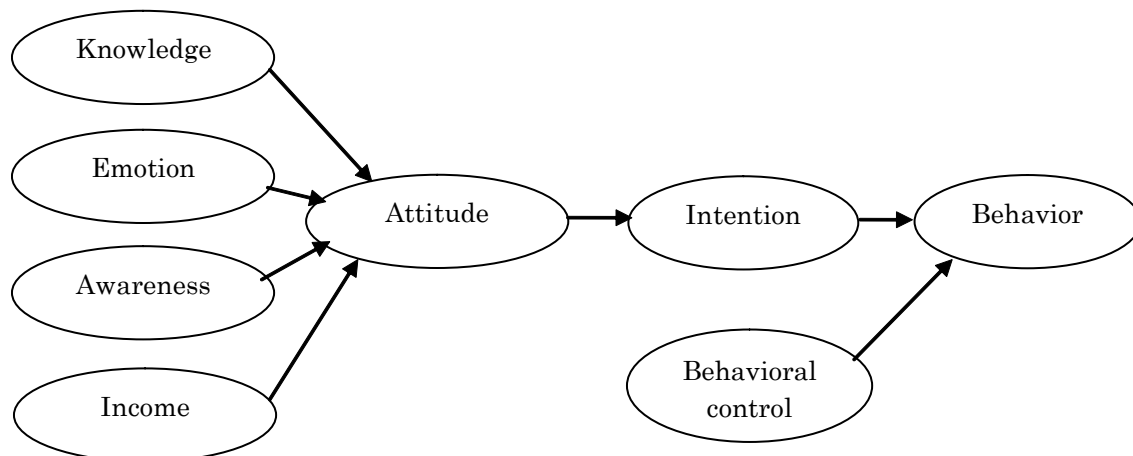
H4: Income has a positive and significant effect on the attitude of fishermen to reject a ban cantrang.

H5: The attitude of fishermen to reject a ban cantrang has a positive and significant effect on the intention of fishermen rejecting to ban cantrang.

H6: Behavioral control has a positive and significant effect on the intention of fishermen rejecting to ban cantrang.

H7: The intention of fishermen rejecting to ban cantrang has a positive and significant effect on the behavior of fishermen rejecting to ban cantrang.

The model developed to analyze the research problems is as follows:



**Figure No. 1: Conceptual Framework**

Source: On the basis of Review of Literature

## Research Methodology

This research adheres to the positivism paradigm. The research design used is quantitative design with deductive approach. The study was conducted in the form of a survey, using an explanatory research approach. The population in this study was all fishermen in Pati District, Central Java who had used cantrang. Sample size of the study is 200 fishermen, which fulfilled the statistical testing requirements in the structural equation model. Purposive sampling method was used to get the accurate information about cantrang prohibition behavior. This sampling technique allows the sample to be chosen based on the judgment of the researcher that the respondent is the most appropriate person to be used as the research sample. Data analysis has been done by using Structural Equation Modeling.

## Analysis and Interpretation

### Validity Test Results

Table no. 1 shows the results of the discriminant validity analysis of the research instrument.

**Table No. 1: Validity Testing of Research Instrument**

| Research Instrument | Constructs |       |       |       |       |       |        |
|---------------------|------------|-------|-------|-------|-------|-------|--------|
|                     | 1          | 2     | 3     | 4     | 5     | 6     | 7      |
| X11                 | 0.789      |       |       |       |       |       |        |
| X12                 | 0.789      |       |       |       |       |       |        |
| X13                 | 0.807      |       |       |       |       |       |        |
| X14                 | 0.547      |       |       |       |       |       |        |
| X21                 |            | 0.841 |       |       |       |       |        |
| X22                 |            | 0.572 |       |       |       |       |        |
| X23                 |            | 0.771 |       |       |       |       |        |
| X31                 |            |       | 0.897 |       |       |       |        |
| X32                 |            |       | 0.906 |       |       |       |        |
| X33                 |            |       | 0.797 |       |       |       |        |
| X41                 |            |       |       | 0.742 |       |       |        |
| X42                 |            |       |       | 0.661 |       |       |        |
| X43                 |            |       |       | 0.589 |       |       |        |
| X44                 |            |       |       | 0.667 |       |       |        |
| Y11                 |            |       |       |       | 0.616 |       |        |
| Y12                 |            |       |       |       | 0.756 |       |        |
| Y13                 |            |       |       |       | 0.689 |       |        |
| Y14                 |            |       |       |       | 0.680 |       |        |
| Y21                 |            |       |       |       |       | 0.810 |        |
| Y22                 |            |       |       |       |       | 0.802 |        |
| Y23                 |            |       |       |       |       | 0.791 |        |
| Y31                 |            |       |       |       |       |       | 0.516  |
| Y32                 |            |       |       |       |       |       | 0.799  |
| Y33                 |            |       |       |       |       |       | 0.788  |
| Y34                 |            |       |       |       |       |       | 0.0799 |

Source: Primary Data

Table no. 1 shows that the construct in the research model has relatively good discriminant validity, this can be seen from each research instrument which is loading on the main constructs or not entering the other constructs.

### Reliability Test Results

Construct reliability and extracted variance show consistent instruments, which are indicated by the value of construct reliability more than 0.7 and variance extracted  $e^2$  0.5.

**Table No. 2: Test of Reliability of Measurement Instruments**

| Variable          | Item | Construct reliability |
|-------------------|------|-----------------------|
| Awareness         | 4    | 0.715                 |
| Emotions          | 3    | 0.659                 |
| Knowledge         | 3    | 0.835                 |
| Income            | 4    | 0.774                 |
| Attitude          | 4    | 0.721                 |
| Intention         | 3    | 0.631                 |
| Behaviour         | 4    | 0.624                 |
| Behaviour control | 4    | 0.675                 |

Source: Primary Data

Table no. 2 depicts that the results of reliability resulting the number 0.6 and that is according to the limit value used to assess an acceptable level of reliability i.e. 0.60 (Hair, Black, Babin, Anderson, & Tatham, 2006). This shows that this measurement instrument has consistent results so that unsystematic errors in research can be avoided.

### Evaluation of the Model

The Goodness of Fit values represented by table no. 3 explain that a low chi-square value with a significance level of less than 0.05 or 0.01 indicates that the actual input matrix is different from the predicted input matrix (Hair, et al., 2006). The chi-square value in this study was 100.611 and the significance level was 0.01. The high value of the Goodness of Fit shows that the ability of the model to extract variance empirically is high

**Table No. 3: Value of Goodness of Fit Model**

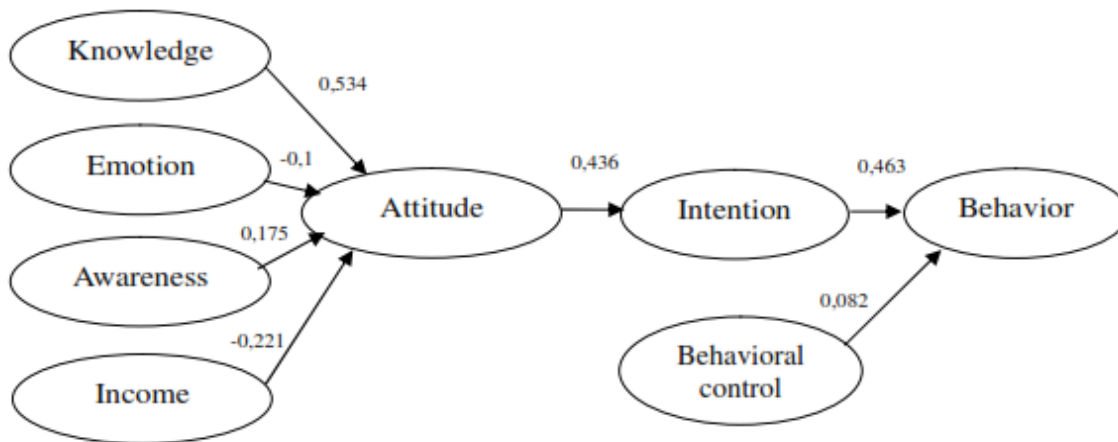
| Type of goodness of fit model | Goodness of fit model Index                | Recommended Value                     | Result  | Explanation |
|-------------------------------|--|---------------------------------------|---------|-------------|
| Absolute fit measures         | Chi-Square Statistic ( $\chi^2$ atau CMIN) | Small                                 | 100.611 |             |
|                               | P  | $\geq 0.05$                           | 0.750   | Moderate    |
|                               | NFI  | $\geq 0.90$                           | 0.955   | Good        |
|                               | RMSEA                                      | $\leq 0.08$                           | 0.029   | Good        |
| Incremental fit measures      | TLI  | $\geq 0.90$                           | 0.947   | Good        |
|                               | CFI  | $\geq 0.94$                           | 0.936   | Good        |
| Parsimonious fit measures     | Normed $\chi^2$ (CMIN/DF)                  | $1 \leq \text{Normed } \chi^2 \leq 5$ | 4.791   | Good        |

Source: Primary Data

The findings indicate that the model developed to explain cantrang prohibition behavior was as expected. This shows that the Theory of Planned Behavior (TPB) which is the basis of this study can be supported.

**Hypotheses Testing Results**

Figure no. 2 shows the Structural Equation Model depicting the  $\hat{\alpha}$ -coefficients of the various constructs of resistance behavior.



**Figure No. 2: Structural Equation Model of Resistance Behavior**

Source: Primary Data

Table no. 4 shows the results of testing the direction and significance of the relationship between variables hypothesized. Direct influence (Path coefficient) has been found from standardized regression weights, by testing the significance of the value of Critical Ratio.

**Table No. 4: Results of Testing Direction and Significance, Loading Factor and Critical Ratio value**

|    | Variable relationship                       | Estimate | SE    | CR     | P-Value | Explanation |
|----|---|----------|-------|--------|---------|-------------|
| H1 | Resistance attitude ← Knowledge             | -0.120   | 0.036 | -3.333 | ***     | Significant |
| H2 | Resistance attitude ← Emotion               | 0.175    | 0.067 | 2.609  | 0.009*  | Significant |
| H3 | Resistance attitude ← Awareness             | -0.221   | 0.04  | -5.575 | ***     | Significant |
| H4 | Resistance attitude ← Income                | 0.534    | 0.061 | 8.738  | ***     | Significant |
| H5 | Resistance intention ← Resistance attitude  | 0.448    | 0.073 | 6.14   | ***     | Significant |
| H6 | Resistance behaviour ← Risk control         | 0.082    | 0.04  | 2.05   | 0.04    | Significant |
| H7 | Resistance behaviour ← Resistance intention | 0.643    | 0.054 | 8.626  | ***     | Significant |

Source: Primary Data

Significant at five per cent level of Significant

The effect of the knowledge about cantrang and the resistance to the cantrang prohibition is indicated

by the standardized factor loading of -0.12. From these results, it can be stated that hypothesis 1 (H1) which states that knowledge about cantrang has a negative impact on the attitude of rejecting cantrang prohibitions is acceptable. That is, the knowledge of the cantrang is getting better, the attitude of rejecting the cantrang ban is low.

The influence of emotion on the attitude of rejecting the cantrang prohibition is indicated by the standardized factor loading of 0.175. The results of the analysis showed that the emotions of fishermen in responding to the cantrang prohibition rules affected the attitude of rejecting the cantrang ban. Thus, hypothesis 2 (H2) which states emotion has a significant and positive effect on the attitude of rejecting a prohibited ban can be accepted.

Hypothesis 3 (H3) which states that fishermen's concern for nature, especially the sea, has a negative effect on the attitude of refusing to prohibit cantrang. This effect is indicated by the standardized factor loading of -0.221. This means that fishermen's concern for nature which is getting lower, causes the attitude of rejecting cantrang prohibitions to be high.

The effect of income on the resistance to cantranging is indicated by the standardized factor loading of 0.534. The higher the income of fishermen if using cantrang will affect the attitude of rejecting the high as well. Thus hypothesis 4 (H4) which states that income has a significant positive impact on the attitude of rejecting cantrang prohibitions is acceptable.

The results of data analysis showed that rejecting had significantly and positively affected the intention in cantrang prohibition. The effect of rejecting intention is indicated by the standardized factor loading value of 0.436. It means that hypothesis 5 (H5) which states that the attitude of rejecting has a positive impact on the intention of rejecting.

The results of data analysis showed that behavioral control had a positive impact on cantrang prohibition behavior. Control of behaviorals related to the high cost of replacing cantrang nets. Fishermen still consider that the costs incurred to replace cantrang nets is still expensive. The influence of the controversy on the resistance behavior of the cantrang prohibition is indicated by the standardized factor loading of 0.082, which means that hypothesis 6 (H6) states that behavioral control has a positive effect on acceptable resistance prohibition behavior.

The effect of intention in rejecting the behavior of rejecting cantrang prohibition is indicated by the value of standardized factor loading of 0.463. From these results, it can be stated that hypothesis 7 (H7) which states that intention in rejecting has a significant positive impact on the resistance prohibition behavior is acceptable. If the intention in resistance is higher, the cantrang prohibition behavior is also higher.

## **Conclusion and Recommendations**

Knowledge and awareness of nature have a negative and significant effect on the attitude of cantrang resistance, emotions. Income of fishermen has a significant positive effect on the attitude of rejecting cantrang prohibitions. The attitude of rejecting has a positive impact on the intention in rejecting the prohibition, the behavioral control has a significant effect on the resistance behavior of the cantrang ban in positive manner, and the intention in rejecting has a significant positive impact on the cantrang prohibition behavior.

In theory, this research will contribute to the results of previous research about the resistance of a product. This study seeks to strengthen external validity about the behavior of the resistance of products that have not been widely studied by previous researchers. Thus, the results of this study are expected to contribute theoretically that the development of Theory of Planned Behavior in addition to variables of caring for nature, emotion, knowledge, and income can strengthen previous findings of the behavior



of rejecting the use of a product. This research will also contribute to government policies in planting values of marine ecosystem care.

### Scope for Further Research

For further research, it is necessary to conduct research on the influence of natural, emotional, knowledge, and income concerns on the attitude of rejecting products other than cantrang prohibition, so that the results of this study can be generalized, so the development of TPB models (Ajzen, 1985) by adding variables of natural, emotional, knowledge and income can be used to examine the behavior of rejecting the prohibition of other products with research areas in other regions.

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