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Original Article

Adoption of the Theory of Planned Behavior Approach in Exploring the Behavior of Induction Stove Assistance Recipients in Bali

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Abstract

Indonesia relies heavily on imported LPG with subsidies often benefiting higher-income groups. The government launched an energy transition program encouraging households to shift from LPG to induction stoves. This study investigates behavioral factors influencing induction stove adoption among assistance recipients in Bali Province, Indonesia's pilot project for the national initiative. Using the Theory of Planned Behavior (TPB) framework, a quantitative survey was conducted with 300 participants selected from 1,002 beneficiaries in Bali. Statistical analyses examined relationships among attitude toward behavior, subjective norms, perceived behavioral control, intention, and actual behavior. Attitude toward behavior, subjective norms, and perceived behavioral control significantly and positively influence adoption intention and behavior. Intention directly predicts actual induction stove use, validating TPB's applicability in this context. The TPB framework effectively explains household behavioral responses to government-led energy transition programs. However, findings are limited to Bali and require cautious generalization to other regions. This research provides policymakers valuable insights for designing effective behavioral interventions to accelerate national induction stove adoption and improve energy transition program outcomes.

Keywords: Behavioral Determinants, Consumer Acceptance, Cooking Technology Transition, LPG Substitution, Renewable Energy Policy.

1. Introduction

Indonesia's imports of oil or fuel oil in the first semester of 2021 amounted to 10.59 million tons, while LPG imports until the end of 2020 amounted to 6.1 million tons, accounting for 76 per cent of consumption. This data was released in July 2021 by the Central Statistics Agency (BPS, 2021). The state also provides subsidies for LPG, averaging IDR 43 trillion per year (KESDM, 2021), and around 65 per cent of these LPG subsidies are not on target because they are enjoyed by the wealthy. Therefore, on November 16, 2021, President Joko Widodo instructed the State Electricity Company and the State Petroleum Mining Company to immediately carry out an energy transition through the use of electric vehicles and induction stoves. State Electricity Company, as a State-Owned Enterprise and holder of an Electricity Supply Business License, has an obligation to oversee and support the program

"Transferring Import-Based Energy to Domestic Through Conversion of LPG Stoves to Electric Stoves". This conversion program aims to reduce gas imports, increase electricity demand (consumption), reduce the trade balance deficit, and, as an alternative solution, ensure that energy subsidies are correctly targeted.

State Electricity Company then launched the "Electrifying Lifestyle" program, promoting a new lifestyle by using all-electric equipment that is emission-free and environmentally friendly, including an induction stove. The main objective of the conversion campaign from gas to electricity is to reduce the burden of subsidies that are increasingly widening due to fluctuations in world crude oil prices. The benefits of switching from LPG to Electric Stoves are expected to be felt immediately, and the country will save more due to reduced LPG subsidies and no longer depending on imports. This is in accordance with President Jokowi's direction to change import-based energy to domestic-based energy. Utilization of domestic energy use must be prioritized, one of which is by replacing LPG with an induction stove. These benefits not only benefit the government and State Electricity Company, which are currently experiencing an energy surplus, but also benefit the people.

Knowledge, perception, and experience in utilizing gas and electricity will provide an overview of the community's readiness to convert from gas to electricity. Converting from gas to electricity with the help of induction stoves for the community and MSMEs requires an effective persuasion strategy to prevent adverse responses that could hinder the conversion program. (Awinja & Fatoki, 2021). The decision to use induction stoves is the expected behavior of this energy conversion program. The current level of community readiness can provide signals about the proper steps to accelerate the conversion of energy from gas to electricity.

Understanding domestic energy consumption behavior is very important in order to build relationships, predict subsequent behavior, and design programs that can be well-received in the future. A total of 1002 people in Denpasar City have been designated as recipients of induction stove assistance on the first occasion in 2022. Intention represents an individual’s resolution to act in a particular manner or a motivational impulse that prompts the execution of actions, whether undertaken deliberately or subconsciously. It serves as the initial catalyst in the emergence and development of human behavior (Lim & Qi, 2023). The Theory of Planned Behavior (TPB) is well-suited for elucidating behaviors that necessitate deliberate planning and forethought. This theoretical framework rests upon the belief-based premise that an individual’s convictions and perceptions can significantly shape and motivate the execution of particular actions (Jang, 2022). The belief perspective is operationalized through the integration of diverse characteristics, attributes, and qualities of specific information, which collectively cultivate an individual’s inclination or volition to engage in particular behaviors.

Emerging from its predecessor model, this behavioral theory offers a more nuanced understanding of how people make choices by incorporating additional psychological dimensions. The framework explores how personal attitudes and perceived societal pressures collaborate to shape an individual's ultimate decision-making process (Ajzen & Fishbein, 1975). According to the psychological framework of Planned Behavior, researchers have expanded the traditional model by introducing a new dimension that captures an individual's personal perception of their capability and autonomy when contemplating a specific action (Ajzen, 1991). This theoretical framework posits that conduct is influenced by three fundamental belief categories: beliefs about anticipated outcomes of actions, beliefs about social acceptance, and beliefs about the perceived manageability of enacting the conduct. These belief categories correspond to attitude toward the conduct, perceived social

expectations, and perceived capacity to perform the conduct, which collectively shape volitional inclination and subsequent enactment of the conduct.

Individual beliefs regarding energy transformation, self-efficacy in enacting related actions, typical behaviors observed, and individual ethical principles have been found to positively affect workers' aspirations to adopt energy conservation practices in the workplace. However, the influence of social pressures seems to be negligible (Gao et al., 2017). Extensive empirical work has adopted the Theory of Planned Behavior (TPP) to investigate pro-environmental behaviors across diverse settings. Prior studies by (Yue & Choy-Leong, 2022), Sigurdardottir et al. (2013), Botetzagias et al. (2015), and Yadav and Pathak (2016), have emphasized sustainable actions in personal contexts, including environmentally responsible purchasing and household energy conservation. In organizational settings, Greaves et al. (2013) and Norton et al. (2015) have similarly employed the TPB to analyze workplace environmental initiatives. Collectively, this body of literature demonstrates the TPB's strong predictive capacity in understanding behaviors such as energy conservation and the adoption of eco-friendly technologies (Botetzagias et al., 2015; Yadav & Pathak, 2016; Yue & Choy-Leong, 2022).

While the Theory of Planned Behavior (TPB) has been widely applied to understand individual actions, a specific research gap exists in its application to public acceptance of top-down government programs, particularly those targeting household energy consumption. Most previous research has focused on individual behavior in general or in work environments (Greaves et al., 2013; Norton et al., 2015), rather than on how TPB factors influence support for state-led energy transitions. This discrepancy is particularly noticeable in the influence of individual beliefs, social expectations, and perceived self-efficacy on the predisposition to utilize particular technological innovations, such as induction stoves.

Grounded in the Theory of Planned Behavior (TPB), this research aims to assess the influence of attitude, subjective norms, and perceived behavioral control on the adoption intentions of electric stoves among induction stove aid recipients in Denpasar, Bali. The findings are expected to provide insights into how psychosocial factors shape public responsiveness to government-led energy transition initiatives.

From a theoretical standpoint, this study contributes by broadening the application of the Theory of Planned Behavior (TPB) within the context of Indonesia's national energy policy, particularly regarding the induction stove assistance program, which is relatively novel and has received limited scholarly attention. From a practical perspective, the findings are anticipated to provide actionable insights for the government and electricity providers in designing more effective communication, educational, and persuasive strategies to foster public acceptance of energy transition initiatives and encourage sustainable household energy practices. Consequently, utilizing TPB as the foundational framework in this research is highly suitable for comprehending the behavior of induction stove assistance recipients in Bali in 2022.

2. Literature Review

2.1. Theory of Planned Behavior (TPB)

Ajzen (1991) Theory of Planned Behavior (TPB) is a frequently used model for understanding the psychological and social factors that affect a person's motivation to act and their resulting actions. According to the TPB, a person's attitude about a behavior, perceived social pressure (subjective norms), and belief in their ability to perform the behavior

(perceived behavioral control) are the main elements that together determine their behavioral intention, which then predicts the performance of that behavior (Hoang & Chovancová, 2022).

Various empirical studies have proven the reliability of TPB in multiple contexts, such as health, education, and consumer behavior. Intervention research on women at low risk of HPV infection showed that all three TPB components significantly influenced prevention intention and behavior (Yarmohammadi et al., 2023). Research in Iran on cardiovascular nutrition also proved that attitude, subjective norms, and PBC together predict behavior, with PBC being the strongest determinant (Khani Jeihooni et al., 2021). Similar findings were also found in research by Isnanda and Nurmala (2022) on type II diabetes prevention, where subjective norms and PBC significantly influenced behavioral intention. Thus, TPB has proven to have predictive power across cultures and social situations.

2.2. Attitude toward Behavior

The psychological reaction a person experiences when confronting a particular behavior reveals their true inner attitude toward that experience. The more positive the psychological disposition toward a particular conduct, the more likely an individual is to pursue and commit to that course of action (Ajzen, 2005). Research findings substantiate this connection. A specific investigation into consumer choices in Malaysia revealed that an individual's mindset, social expectations, and perceived ability to act were critical determinants in predicting consumers' likelihood of selecting sustainable merchandise (Yuan et al., 2023). Similarly, research in Iran found that positive attitudes toward healthy eating directly facilitated changes in nutritional behavior (Khani Jeihooni et al., 2021). The results presented here emphasize that positive sentiments constitute a significant predictor of inclinations toward action.

H1: Attitude toward behavior has a positive effect on intention.

2.3. Subjective Norms

Social pressure and the anticipated judgments of important people in one's life can shape the likelihood of an individual choosing to take a specific action. When individuals perceive these expectations as congruent with their own attitudes and beliefs, the resulting behavioral intention is strengthened. Research data collected from investigations involving female participants in Iran demonstrate that social expectations and peer influences significantly impact an individual's likelihood of adopting preventative actions (Yarmohammadi et al., 2023). Comparable results were reported in diabetes prevention research in Indonesia, where subjective norms emerged as a strong predictor of intention (Isnanda & Nurmala, 2022). Conversely, alternative research focusing on social media-driven organic product buying patterns revealed that social pressure and group expectations had a less significant influence compared to individual attitudes and the consumer's perceived ability to make a purchase (Al Falah et al., 2024; Handranata et al., 2022). Overall, research demonstrates that peer and social dynamics play a pivotal role in shaping an individual's potential future actions and decision-making processes.

H2: Subjective norms have a positive effect on intention.

2.4. Perceived Behavioral Control/PBC

Perceived behavioral control (PBC) is conceptualized as an individual's appraisal of their capability to execute a behavior, encompassing intrapersonal attributes such as skill level and confidence, as well as environmental factors including support systems and potential barriers (Krisdayanti & Ratnadi, 2024). PBC has been identified as a robust predictor of intention and, in many instances, also exerts a direct influence on behavior (Ajzen, 2002). Research on cardiovascular nutritional behavior demonstrates that PBC is the most dominant determinant

of intention, surpassing the effects of attitude and subjective norms (Khani Jeihooni et al., 2021). Likewise, studies in Indonesia on e-commerce adoption confirmed that PBC significantly shapes behavioral intention, whereas the influence of norms is relatively modest (Fatonah et al., 2018; Shufiana et al., 2021). These findings underscore that individuals with higher perceived control and self-efficacy are more likely to exhibit stronger intentions and actual behavioral enactment.

H3: Perceived behavioral control has a positive effect on intention.

H4: Perceived behavioral control has a positive effect on actual behavior.

2.5. Intention and Behavior

Behavioral intention represents the factor most proximal to actual behavior (Siagian & Adlina, 2025). Ajzen (1991) theorized that a firm behavioral intention, combined with high perceived control, increases the probability of translating intention into action. This principle finds empirical support in HPV prevention research, where intention mediates the relationships among attitude, subjective norms, and perceived behavioral control (Yarmohammadi et al., 2023). Likewise, in the domain of environmentally friendly product purchases, intention has been shown to channel the influence of these three determinants on purchasing decisions (Yuan et al., 2023). Therefore, behavioral intention functions as the principal link connecting psychological determinants to observable behavior.

H5: Behavioral intention has a positive effect on actual behavior.

3. Methods

This research is a survey, employing an exploratory, descriptive, and experimental design to collect information through interviews with recipients of induction stove assistance. The data in this study were collected only at one point in time, so it is cross-sectional (can provide information about what happened in the population when the research was conducted). The population of this study was 1,002 recipients of induction stove assistance from the State Electricity Company Bali Distribution Unit in 2022. The number of respondents was determined to be 300 people based on the Slovin formula.

The study relied on primary data collected from respondents' perceptions. The variable indicators, as defined in Table 1, were measured using the 5-point Likert scale detailed in Table 2, capturing respondents' levels of agreement or disagreement with each statement. Research data was gathered using a digital questionnaire instrument shared on the Google Forms platform, with prior comprehensive testing to ensure its accuracy and dependability. The questionnaire comprised two sections: the first gathered general demographic information, while the second addressed items pertaining to the study constructs.

The study applied Partial Least Squares (PLS), a variance-based SEM technique, to test the structural relationships proposed within the conceptual framework (Figure 1). Structural model analysis was conducted subsequent to constructing the relational model and verifying the model's overall goodness-of-fit. This analytical step aimed to examine the linkages among the latent variables under investigation. Hypothesis testing was carried out in two phases, namely the assessment of direct effects and the evaluation of mediation effects.

Table 1. Variables dan Operational Definitions

No	Variables	Operational Definition
X1	Attitude Toward Behavior (ATB)	Attitudes or feelings felt by respondents towards the induction stove assistance program
X2	Subjective Norms (SN)	Subjective norms are the environmental conditions in which respondents are located who tend to accept or refuse induction stove assistance
X3	Perceived Behavioral Control (PBC)	The behavior of the recipient of induction stove assistance which is the result of control carried out on himself
Y1	Intention (I)	The purpose or purpose of an act or the will to use an induction stove
Y2	Behavior (B)	Behavior or activity carried out in using an induction stove

Table 2. Description of Five-Point Likert Scale

Scale	Description
1 – Strongly Disagree	Completely disagree with the statement, indicating the respondent feels the statement is not relevant to their experience.
2 – Disagree	Mostly disagree, but acknowledge there is some relevance to their experience or perception.
3 – Simple Disagree	Respondent is doubtful or neutral, showing neither clear agreement nor disagreement.
4 – Agree	Mostly agree with the statement, consistent with their experience or perception.
5 – Strongly Agree	Completely agree, showing strong alignment with the respondent's experience or perception.

Figure 1 offers a schematic depiction of the research's theoretical structure.

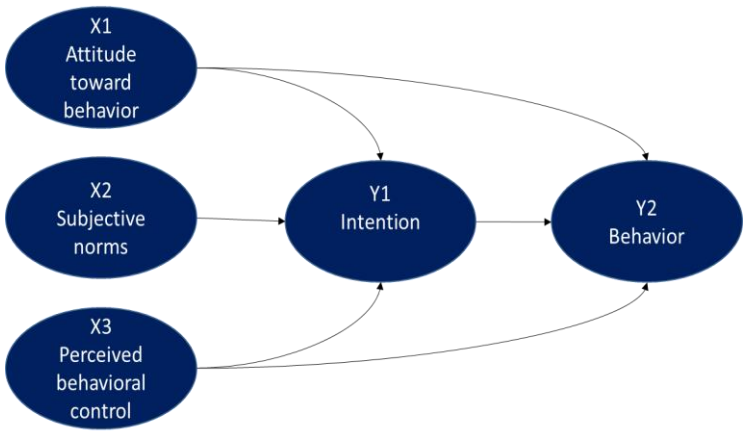

Figure 1. Conceptual Framework

4. Results and Discussion

4.1. Research Results

4.1.1. Description of the Research Sample

This study analyzed various respondent characteristics, including gender, age, education level, occupation, business sector, business scale, frequency of induction stove usage, cooking frequency, and type of stove previously used. The sample comprised 300 respondents, and their demographic characteristics are summarized in Table 3.

Table 3. Characteristics of Respondents

Characteristics of Respondents		Frequency	Percentage (%)
Gender	Male	116	38,70
	Female	184	61,30
	Total	300	100,00
Age	30-40 yo	132	44,00
	41-50 yo	100	33,30
	51-60 yo	68	22,70
	Total	300	100,00
Education	Bachelor	39	13,00
	Public High School	56	18,70
	Junior High School	125	41,70
	Primary school	80	26,70
	Total	300	100,00
Occupation	Housewives	49	16,30
	Private Employees	221	73,70
	Civil Servants	11	3,70
	MSMEs	19	6,30
	Total	300	100,00
Frequency of using induction stove	Always	178	59,30
	Not always	122	40,70
	Total	300	100,00
Cooking frequency	1-3 times/week	54	18,00
	4-6 times/week	63	21,00
	Every day	183	61,00
	Total	300	100,00
Previous Types of Stoves	Firewood	40	13,30
	Gas Stove	252	84,00
	Kerosene Stove	8	2,70
	Total	300	100,00

Source: Primary data processed (2024)

Based on gender, it is known that there are 184 female respondents, or 61.3 per cent, and 116 male respondents, or 38.7 per cent. Based on age, 132 respondents, or 44 per cent, were 30 to 40 years old; 100 people, or 33.3 per cent, were 41-50 years old; and 68 people, or 22.7 per cent, were 50-60 years old. The number of respondents with a high school education was 125, or 41.7 per cent. The majority of respondents were private employees, totalling 73.7%, followed by other jobs, including housewives, civil servants, and MSMEs. The number of respondents using induction stoves is, in general, 59.3 per cent. The number of respondents based on cooking frequency is generally 61 per cent, with most respondents always cooking or cooking every day. Based on the study results, respondents had previously used various types of stoves before switching to induction stoves, including firewood, gas, and kerosene stoves. The descriptive statistical analysis in this research employs measures of central location and variability, including the lowest value, highest value, average, and typical deviation. A complete frequency distribution, illustrating the response distributions for each variable item, is presented in Table 4.

Table 4. Frequency Distribution of Respondents' Answers

Variables and Indicators		Mean	Category
X1 Attitude Toward Behavior			
X1.1	Getting the help of an induction stove is a stroke of luck	4,24	Very high
X1.2	I am ready with the responsibility of being a recipient of induction stove assistance	4,13	Very high
X1.3	Receiving assistance, means that I have supported the government's program	4,22	Very high
X1.4	I am proud to have been selected as a beneficiary	4,26	Very high
X1.5	Induction stove assistance is a form of government concern for small communities	4,28	Very high
X1.6	Induction hob assistance is not a form of fraud or trap	4,16	Very high
	Mean variable	4,22	Very high
X2 Subjective Norms			
X2.1	I only follow programs started by neighbors, family members or friends	3,56	High
X2.2	I only follow programs introduced by neighbors, friends or village/banjar administrators	3,68	High
X2.3	I only follow programs introduced by the local community	3,58	High
X2.4	I only participated in programs organized by PLN	3,88	High
X2.5	I only follow programs that have been attended by neighbors, friends, or relatives	3,56	High
X2.6	I only follow programs that are officially promoted through social media	3,77	High
X2.7	To join a program, I wait for other people's experiences	3,51	High
	Mean variable	3,65	High
X3. Perceived Behavioral Control			
X3.1	I use the induction stove immediately after it is received	4,07	Very high
X3.2	I will immediately submit a complaint if there is a problem in the use of the induction stove	4,13	Very high
X3.3	I will share my positive experiences to encourage others to do what I do	4,10	Very high
X3.4	I will help correct the wrong view about induction cooktops	4,10	Very high
	Mean variable	4,10	Very high
Y1 Intention			
Y1.1	I am interested to know more about induction cooktops	4,09	Very high
Y1.2	I try to understand that electrical energy is a more appropriate choice than gas	4,11	Very high
Y1.3	I am interested in proving that using induction stoves is safer and easier	4,17	Very high
Y1.4	I am interested in noting that using an induction hob is more cost-effective	4,14	Very high
	Mean variable	4,13	Very high
Y2 Behavior			
Y2.1	I understand and understand how to use the Induction Cooktop	4,07	Very high
Y2.2	I'm motivated to cook more often since using an induction cooktop	4,03	Very high
Y2.3	I am getting steadier using induction stoves	4,07	Very high
Y2.4	I won't switch back to using a gas stove	3,84	High
	Mean variable	4,00	High

SD = Strongly Disagree, D = Disagree, SD = Simple Disagree, A = Agree, SA = Strongly Agree

Source: Data processed (2024)

The study assessed the measurement model to determine whether each indicator accurately reflected its respective latent construct, drawing on tests of convergent validity, discriminant validity, and internal consistency reliability. As presented in Table 5, all indicators satisfied the required thresholds, confirming that the measurement model demonstrated adequate validity and reliability.

Table 5. Validity and Reliability Test Results

Description	Criteria	Result	Conclusion
Convergent validity test	Indicators are said to be valid if their value is greater than 0.70	All indicator variables have a loading factor value above 0.70.	Valid
Discriminant validity test	The Average Variance Extraction (AVE) value is said to be good if it is greater than 0.50 and the correlation between variables is smaller than the AVE root.	The AVE value of all research variables is above 0.50 and the root AVE value is higher than the correlation between variables	Valid
Reliability test	Cronbach's alpha and composite reliability values should be greater than 0.70.	Each variable has a Cronbach's alpha and composite reliability value above 0.70.	Reliable

Source: Data processed (2024)

The proposed inner model delineates interconnections among latent constructs to estimate the strength and direction of causal effects. The analytical process proceeded in two stages: (1) assessing the coefficient of determination (R^2) as a measure of the model's explanatory capacity, and (2) conducting hypothesis tests to evaluate the significance of the proposed causal links. As shown in Table 6, the resulting R^2 values demonstrate the model's explanatory power for the endogenous constructs, providing an initial basis for evaluating the predictive strength of the structural model.

Table 6. Determinant Coefficient R Square (R^2)

	Original R2 Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-statistic (|O/STDEV|)	P values
Y1. Intention	0.708	0.712	0,038	18.737	0,000
Y2. Behavior	0.809	0.816	0,023	35.560	0,000

Source: Data processed (2024)

The Carbon Emission Disclosure variable was determined to be statistically significant, with a p-value of 0.003 in the Coefficients table, falling below the conventional significance threshold. The intention construct exhibited an R-squared value of 0.708, signifying that Attitude Toward Behavior, Subjective Norms, and Perceived Behavioral Control collectively account for 70.8% of the variance in intention. Conversely, the behavior construct demonstrated an R-squared value of 0.809, indicating that Attitude Toward Behavior, Subjective Norms, Perceived Behavioral Control, and intention jointly explain 80.9% of the variance in behavior.

According to Yahaya et al. (2019), the Goodness of Fit Index evaluates the overall effectiveness and coherence of the research model's measurement and structural components, which can be assessed through a specific mathematical calculation method.

GoF = √(AVE x R^2)
GoF = √(0,925x 0,759)
GoF = √0,702
GoF = 0,838
Information :
AVE = average ave = 0.925
R square = average r square =0.759

The computed GoF value of 0.838 underscores the robustness of the integrated model, evidencing a strong alignment between the measurement and structural models, with performance levels far exceeding the moderate benchmark threshold of 0.25. According to Yahaya et al. (2019), the predictive relevance (Q^2) assessment serves to corroborate the model's predictive validity. Minimal discrepancies between the predicted and actual values result in elevated Q^2 scores, thereby denoting enhanced predictive precision. Ideally, the Q^2 value should surpass zero, which would indicate the structural model's satisfactory predictive capability. The Q^2 computation yielded the following result:

$$Q^2 = 1 - (1 - R_1^2)(1 - R_2^2) = 0.944.$$

A Q^2 value of 0.944 demonstrates that the exogenous latent variables possess a high explanatory adequacy for forecasting their respective endogenous variables. In essence, this finding substantiates that the proposed model exhibits excellent predictive relevance and empirical robustness.

4.1.2. Path Analysis and Structural Model Evaluation

As presented in Table 7, the path coefficients and corresponding p-values provide evidence regarding the significance and direction of the hypothesized relationships within the structural model

Table 7. Path Coefficient Value and P-Value

Variable	Coefficient	P Values	Conclusion
Direct Effect			
X1.Attitude toward behavior → Y1.Intention	0.385	0.000	Significant
X1.Attitude toward behavior → Y2.Behavior	0.206	0.001	Significant
X2.Subjective Norms → Y1.Intention	0.161	0.000	Significant
X2.Subjective Norms → Y2.Behavior	0.167	0.000	Significant
X3.PBC → Y1.Intention	0.395	0.000	Significant
X3.PBC → Y2.Behavior	0.308	0.000	Significant
Y1.Intention → Y2.Behavior	0.336	0.000	Significant
Indirect Effect			
X1.Attitude toward behavior → Y1.Intention → Y2.Behavior	0.129	0.000	Significant
X2.Subjective norms → Y1.Intention → Y2.Behavior	0.054	0.001	Significant
X3.PBC → Y1.Intention → Y2.Behavior	0.133	0.001	Significant

Source: Data processed (2024)

The results of the structural equation are as follows:

As illustrated in Figure 2, the path coefficient values indicate the strength of the relationships among the constructs in the research model.

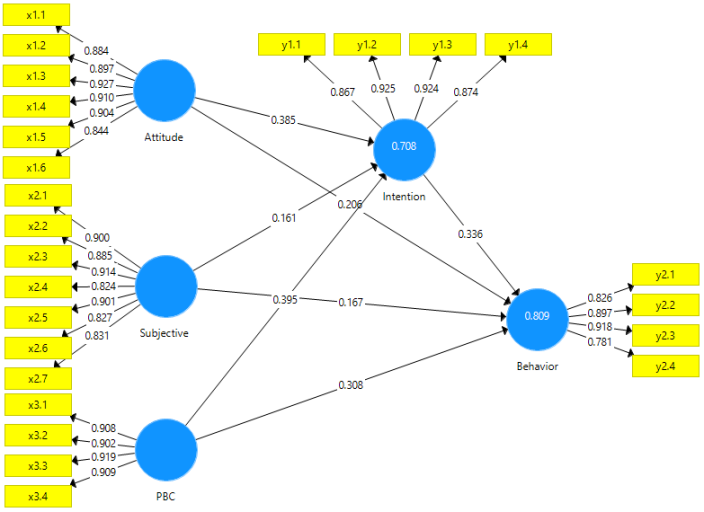

Figure 2. Results of the Path Coefficient Calculation of the Research Model (Coefficient Value)
Source: Data processed (2024)

Meanwhile, Figure 3 presents the T-statistic values used to assess the significance of each relationship within the structural model

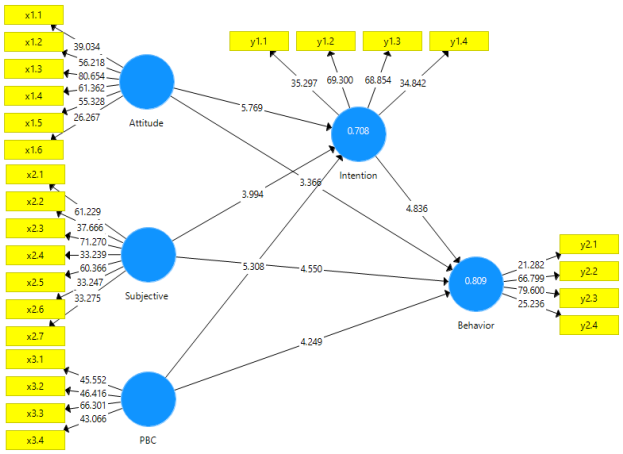

Figure 3. Calculation Results of the Research Model Path Coefficient (T Statistical Value)
Source: Data processed (2024)

The findings from our hypothesis evaluation are presented in the subsequent explanation. Statistical significance is determined when the probability measure falls below the 0.05 threshold, suggesting that the observed outcome is improbable as a random occurrence.

1) Attitude toward behavior exerts a significant influence on intention, with a coefficient value of 0.385. This is evidenced by a p-value of 0.000, which is below the 0.05 threshold. The positive coefficient indicates that a more favorable attitude toward the behavior enhances intention, whereas a less favorable attitude diminishes it.
2) Attitude toward behavior also shows a significant impact on behavior, with a coefficient of 0.206 and a p-value of 0.001, confirming significance below 0.05. The positive sign signifies that the more positive one's attitude, the higher the likelihood of behavioral manifestation, and conversely, a negative attitude reduces behavioral occurrence.

3) Subjective norms significantly affect intention, with a coefficient of 0.161 and a p-value of 0.000 (< 0.05). The positive coefficient implies that stronger perceived social pressure to perform the behavior corresponds with higher intention, while weaker social expectations correlate with lower intention.
4) Subjective norms likewise have a significant effect on behavior, as shown by a coefficient of 0.167 and a p-value of 0.000. The positive relationship suggests that the greater the influence of social norms, the stronger the behavioral performance; conversely, weaker social expectations lead to reduced behavioral engagement.
5) The statistical results indicate that PBC has a noteworthy and positive impact on intention, with a coefficient of 0.395 and a highly significant p-value. Elevated perceived control enhances intention, while limited control diminishes it.
6) Perceived Behavioral Control (PBC) also has a significant impact on behavior, with a coefficient of 0.308 and a p-value of 0.000 (< 0.05). The positive relationship demonstrates that higher perceived ease or ability to perform the behavior enhances actual behavioral performance, while lower control diminishes it.
7) Intention significantly affects behavior, with a coefficient of 0.336 and a p-value of 0.000 (< 0.05). The positive coefficient signifies that stronger behavioral intention leads to greater behavioral realization, while weaker intention results in lower behavioral expression.

4.2. Discussion

Based on the characteristics of the respondents presented in Table 3, most respondents (61 per cent) cook every day. Respondents have used induction stoves for cooking, but their frequency of use is not optimal. There are 47 per cent of respondents who have not fully used induction stoves for cooking. From Table 2, it can also be obtained that before receiving induction stove assistance, 40 per cent of respondents cooked using firewood, and 8 per cent used kerosene stoves for cooking.

According to the results of the direct effect analysis, the constructs of Attitude Toward Behavior, Subjective Norms, and Perceived Behavioral Control demonstrated significant positive paths to both behavioral intention and actual behavior among respondents in Bali's induction stove assistance program. Attitude toward behavior reflects the extent to which an individual holds a positive or negative evaluation of a specific action (Ajzen, 1991), shaped by behavioral beliefs about likely outcomes (Ajzen, 2005). These findings align with studies emphasizing attitude as a pivotal predictor of consumer intention (Huang et al., 2018; Shukla, 2019; Su et al., 2022), though they contrast with Xu et al. (2020), who found no significant effect on green purchase intention.

Subjective Norms capture perceived social pressure concerning forthcoming actions (Ajzen, 1991). The positive influence of subjective norms in this study corroborates Shin & Hancer (2016) but diverges from Yadav & Pathak (2017), who found minimal effects among millennial consumers of organic products. Perceived Behavioral Control denotes perceptions of ease or difficulty in executing a behavior. This study's findings support Yadav & Pathak (2017) but contradict Tan & Goh (2018), who reported no significant PBC-intention relationship.

The analysis also revealed that intention has a significant positive effect on behavior, functioning as a partial mediator between TPB constructs and actual adoption. According to Davis (1989) and Venkatesh et al. (2003), behavioral intention represents the subjective probability of performing a behavior and serves as an antecedent to actual behavior (Nguyen et al., 2021; Yazdanpanah et al., 2020).

The significant influence of PBC on intention (β = 0.395) and behavior (β = 0.308) indicates that perceptions of control such as technical capability and electricity availability are key factors in program success, consistent with research emphasizing infrastructure and user literacy in innovation adoption in developing countries (Chege & Wang, 2020; Eelu & Nakakawa, 2018; Kwabena et al., 2021). The mediating effect of intention confirms its role as an important bridge to actual behavior, parallel with studies on digital finance and MSME technology adoption (Hidayanto et al., 2015; Ifinedo, 2012; Qalati et al., 2020; Sivathanu, 2019).

However, these findings must be interpreted with caution given potential moderating factors. Regional variations in infrastructure quality, demographic differences in technological literacy, and socioeconomic disparities across Bali may influence the strength of TPB relationships. Additionally, the study's cross-sectional design limits conclusions about long-term adoption sustainability and behavioral maintenance beyond initial program implementation.

From a practical perspective, strengthening positive attitudes through education on induction stove benefits, increasing social support through community leaders, and providing technical training will enhance intention and adoption behavior sustainably (Chege & Wang, 2020; Ibrahim et al., 2021; Scott et al., 2017). Thus, behavior-based strategies emphasizing psychological, social, and control factors while accounting for regional and demographic contexts can accelerate clean energy transition programs in Indonesia, similar to effective approaches in MSME performance and digital technology adoption.

5. Conclusion

This study reinforces the applicability and robustness of the Theory of Planned Behavior (TPB) in elucidating the factors that drive acceptance of induction stove assistance among program recipients. The practical implications indicate that, while attitude toward behavior, subjective norms, and perceived behavioral control each directly influence behavior, intention functions as a critical mediating variable, linking these three determinants to the realization of actual behavior.

From the integration of empirical results and theoretical perspectives, three important findings can be drawn. This research contributes to refining the TPB framework by validating its use in the behavioral assessment of induction stove recipients in Bali. It further identifies intention as a central mediator between attitude, subjective norms, and perceived behavioral control with actual behavioral outcomes. Finally, the findings emphasize that strengthening behavioral intention is essential to the success of public initiatives designed to enhance economic participation and household welfare.

Although this study offers valuable contributions, certain limitations should be acknowledged. The analysis relies on cross-sectional data collected at a single point in time. Considering the dynamic social and economic context, future research is encouraged to investigate how changes over time may influence the relationships identified. Furthermore, the respondent scope was limited to induction stove assistance recipients in Bali Province, whereas Solo City also serves as a pilot location for a similar program. Consequently, the findings of this study may not comprehensively represent the behavior of all induction stove assistance recipients across Indonesia.

Future studies are encouraged to adopt longitudinal research designs to provide a more nuanced understanding of the evolution of behavioral intention and adoption patterns as recipients progressively adapt to the prolonged use of induction stoves. Future research can

also expand the study area to other regions to obtain more nationally representative results. Moreover, future empirical research could extend the current model by incorporating socioeconomic indicators, energy knowledge levels, and government policy support to more accurately identify predictors of green technology adoption.

6. References

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