International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

Households' Intention To Adopt Induction Stoves: Extending The Theory Of Planned Behavior With Government Policy

Irvan Eduardo Purba, Mahrinasari, Dorothy Rouly H. Pandjaitan

Master's Program in Management, University of Lampung, Indonesia.

Email: irvaneduardopurba@gmail.com

Abstract

The adoption of induction stoves has been promoted as a key strategy to support Indonesia's energy transition, reduce greenhouse gas emissions, and achieve Nationally Determined Contribution (NDC) targets. However, despite their environmental and economic benefits, the adoption rate of induction stoves among Indonesian households remains very low. Previous studies have largely focused on technical, economic, and behavioral factors influencing adoption, while the moderating role of government policy has received limited attention. This study examines the effects of attitude, subjective norm, and perceived behavioral control on households' intention to use induction stoves and investigates the moderating role of government policy within the Theory of Planned Behavior (TPB). A quantitative explanatory approach was employed using survey data collected from 130 household respondents across five provinces in Indonesia. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that attitude ($\beta = 0.551$, $p < 0.001$), perceived behavioral control ($\beta = 0.452$, $p < 0.001$), and subjective norm ($\beta = 0.202$, $p = 0.001$) positively and significantly influence intention, with attitude emerging as the strongest predictor. Government policy strengthens the effects of attitude ($\beta = 0.102$, $p = 0.049$) and perceived behavioral control ($\beta = 0.120$, $p = 0.019$), while weakening the effect of subjective norm ($\beta = –0.144$, $p = 0.009$). These findings extend TPB by highlighting the importance of government policy in accelerating household adoption of clean cooking technologies.

Keywords:Theory of Planned Behavior (TPB), induction stove adoption, behavioral intention, government policy, energy transition

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

INTRODUCTION

Climate change has become a critical global challenge, requiring countries to implement effective strategies to reduce greenhouse gas (GHG) emissions. As part of its commitment under the Nationally Determined Contribution (NDC), Indonesia targets a 29% reduction in GHG emissions through domestic efforts and up to 41% with international support by 2030. The household sector plays an important role in achieving these targets, particularly through the transition from fossil-fuel-based cooking technologies to cleaner energy alternatives (Ministry of Energy and Mineral Resources, 2023).

One of the government's strategies to support energy transition is promoting the adoption of induction stoves as a substitute for Liquefied Petroleum Gas (LPG) stoves. Compared with LPG stoves, induction stoves offer higher energy efficiency, lower operational costs, and significantly lower carbon emissions (Hasibuan & Nrartha, 2023; Im et al., 2020). Previous studies reported that induction stoves achieve energy efficiency levels of approximately 80%, compared to only 45% for LPG stoves (Pratiknyo, 2022). Furthermore, households using LPG stoves generate substantially higher carbon emissions than those using induction stoves (Im et al., 2020). Beyond environmental benefits, increased electricity consumption from induction stove adoption could also help absorb part of Indonesia's electricity oversupply, thereby improving the utilization of existing power generation capacity.

Despite these advantages, the adoption rate of induction stoves in Indonesia remains extremely low. National statistics indicate that only around 0.3% of households used induction stoves in 2024, while LPG remained the dominant cooking fuel with a share exceeding 86% (Statistics Indonesia, 2024). This situation suggests that technical and economic benefits alone are insufficient to encourage widespread adoption. Consumer perceptions, social influences, and behavioral considerations may play a crucial role in shaping household decisions regarding induction stove use.

The Theory of Planned Behavior (TPB) has been widely applied to explain behavioral intentions toward environmentally friendly technologies. According to TPB, behavioral intention is influenced by attitude, subjective norm, and perceived behavioral control (Ajzen, 1991). Previous studies have confirmed the significant effects of these factors on the adoption of green products and induction stoves (Karima et al., 2023; Yadav & Pathak, 2017; Astuti et al., 2025). However, findings remain inconsistent across different contexts, particularly regarding the role of perceived behavioral control. Moreover, most existing studies focus primarily on individual and social determinants,

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

while limited attention has been given to the role of government intervention in strengthening behavioral intentions.

In Indonesia, the government has actively promoted induction stove adoption through pilot conversion programs, electricity infrastructure support, public campaigns, and subsidy schemes (Ministry of Energy and Mineral Resources, 2022). These initiatives may not only directly encourage adoption but also strengthen the influence of TPB variables on behavioral intention. Nevertheless, empirical studies integrating government policy as a moderating variable within the TPB framework remain scarce. Existing research on induction stove adoption has largely focused on technical performance, economic feasibility, consumer readiness, or alternative theoretical approaches such as the Push–Pull–Mooring model (Sakinna & Balqiah, 2024), leaving an important theoretical and empirical gap.

Therefore, this study aims to examine the effects of attitude, subjective norm, and perceived behavioral control on households' intention to use induction stoves and to investigate the moderating role of government policy in these relationships. The novelty of this study lies in integrating government policy as a moderating variable within the TPB framework in the context of induction stove adoption in Indonesia. By addressing this gap, the study contributes to the literature on sustainable energy transition and provides practical insights for policymakers seeking to accelerate the adoption of clean cooking technologies.

LITERATURE REVIEW

Theory of Planned Behavior and Household Energy Technology Adoption

The Theory of Planned Behavior (TPB), proposed by Ajzen (1991), remains one of the most widely used theoretical frameworks for explaining consumer behavioral intentions. TPB posits that behavioral intention is determined by three key factors: attitude, subjective norm, and perceived behavioral control (PBC). Attitude refers to an individual's positive or negative evaluation of a particular behavior, subjective norm reflects perceived social pressure from significant others, and PBC represents the perceived ease or difficulty of performing the behavior.

Over the last decade, TPB has been extensively applied to investigate the adoption of environmentally friendly technologies and sustainable consumption behaviors. Studies have demonstrated that TPB provides a robust framework for understanding consumers' intentions to adopt renewable energy technologies, electric vehicles, green products, and

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

energy-efficient appliances (Yadav & Pathak, 2017; Ogiemwonyi et al., 2020; Thwe et al., 2025).

In the context of induction stove adoption, TPB is particularly relevant because the decision to switch from LPG to electricity is not solely determined by economic considerations but also by psychological perceptions, social influences, and perceived capability to use the technology. Therefore, TPB offers a comprehensive framework for explaining household intentions to adopt induction stoves as part of the clean energy transition.

Scientific Debate on the Determinants of Induction Stove Adoption

Although TPB has been widely validated, recent studies reveal inconsistent findings regarding the relative importance of its constructs in explaining technology adoption intentions.

Several studies report that attitude is the strongest predictor of behavioral intention. Astuti et al. (2025) found that consumers with favorable perceptions regarding energy efficiency, environmental benefits, and economic value were significantly more likely to purchase induction stoves. Similar findings were reported by Yadav and Pathak (2017), who demonstrated that positive attitudes toward environmentally friendly products strongly influence purchase intentions.

However, other studies suggest that subjective norm may play a more dominant role. Karima et al. (2023), examining Indonesian households, found that social support from family members, neighbors, and peers exerted the strongest influence on intentions to adopt induction stoves. This finding indicates that social acceptance remains critical in societies where household energy decisions are often influenced by collective norms rather than purely individual preferences.

Debate also exists regarding the role of perceived behavioral control. According to TPB, individuals who perceive sufficient resources, knowledge, and opportunities are more likely to adopt a new technology (Ajzen, 1991). Studies by Yadav and Pathak (2017) and Thwe et al. (2025) confirmed the significant influence of PBC on green technology adoption intentions. Nevertheless, Astuti et al. (2025) reported that PBC did not significantly affect induction stove purchase intentions in peri-urban Indonesia. These contradictory findings suggest that the influence of PBC may depend on contextual factors such as infrastructure readiness, household income, and accessibility of electricity services.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

The inconsistent empirical evidence indicates that consumer adoption of induction stoves cannot be explained solely through individual psychological factors. External conditions may strengthen or weaken the influence of TPB constructs on behavioral intention.

Government Policy as an External Influence

Recent studies increasingly emphasize the importance of institutional and policy support in accelerating sustainable energy transitions. Government interventions can reduce adoption barriers by providing financial incentives, subsidies, infrastructure improvements, and public awareness campaigns.

Indonesia has initiated several programs aimed at promoting induction stove adoption as part of its strategy to reduce LPG dependency and achieve Nationally Determined Contribution (NDC) targets. Pilot projects conducted by the Ministry of Energy and Mineral Resources and PLN demonstrated the technical feasibility of induction stove utilization among low-income households.

Previous research consistently highlights the importance of policy support. Hakam et al. (2025) found that electricity availability and government support significantly influence consumers' willingness to adopt induction stoves. Similarly, Thwe et al. (2025) reported that government support positively affects electric vehicle adoption intentions. Pratiknyo (2022) also concluded that the economic advantages of induction stoves can only be fully realized when supported by adequate electricity infrastructure and favorable government policies. Despite this evidence, most previous studies have treated government support as either an independent variable or a contextual factor rather than examining its moderating role. Consequently, little is known about whether government policy strengthens or weakens the relationships between TPB constructs and behavioral intention.

Research Gap and Research Position

A review of previous studies reveals three major research gaps. First, most studies on induction stove adoption focus primarily on the direct effects of TPB variables, while limited attention has been given to the interaction between psychological factors and policy interventions (Karima et al., 2023; Astuti et al., 2025). Second, previous studies report inconsistent findings regarding the significance of perceived behavioral control and subjective norm, suggesting the presence of contextual factors that may influence these relationships. Third, empirical studies investigating induction stove adoption in Indonesia

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

remain relatively limited compared with studies on electric vehicles and other green technologies.

To address these gaps, this study extends the Theory of Planned Behavior by incorporating government policy as a moderating variable. Unlike previous studies that primarily examine direct effects, this research investigates whether government policy strengthens or weakens the relationships between attitude, subjective norm, perceived behavioral control, and intention to use induction stoves.

The proposed research framework positions government policy as a strategic institutional mechanism that may facilitate household energy transition by reducing barriers and enhancing consumers' confidence in adopting induction stove technology.

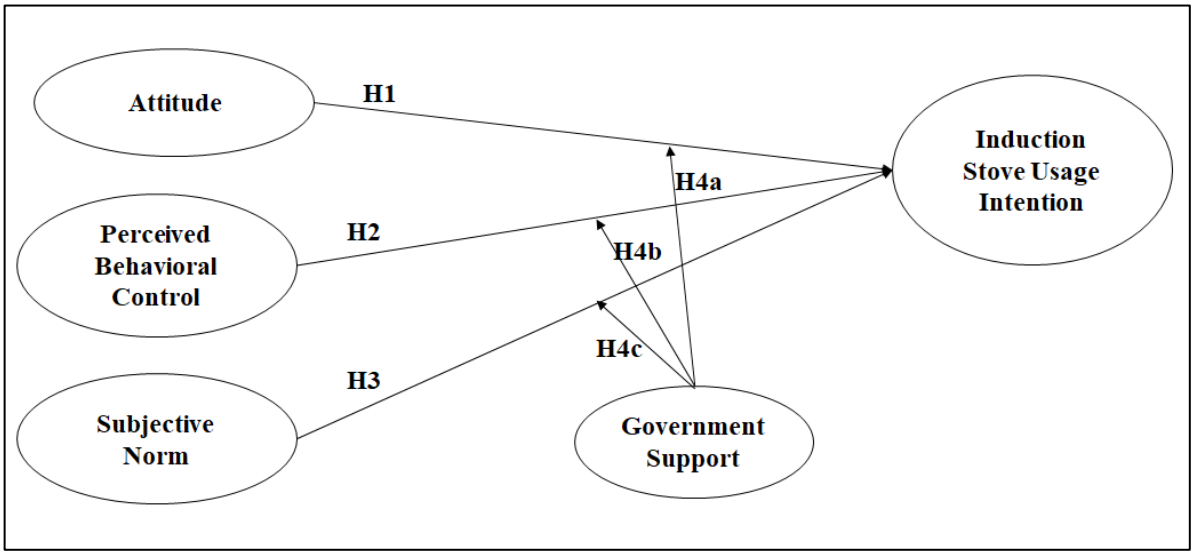


Figure 1: Research Framework

Figure 1 illustrates the proposed conceptual framework. Attitude, subjective norm, and perceived behavioral control are hypothesized to directly influence intention to use induction stoves. Government policy is proposed as a moderating variable affecting the relationships between these TPB constructs and behavioral intention.

Hypotheses Development

Based on the Theory of Planned Behavior and previous empirical findings, the following hypotheses are proposed:

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

H1: Attitude positively influences intention to use induction stoves.

H2: Perceived behavioral control positively influences intention to use induction stoves.

H3: Subjective norm positively influences intention to use induction stoves.

H4a: Government policy positively moderates the relationship between attitude and intention to use induction stoves.

H4b: Government policy positively moderates the relationship between perceived behavioral control and intention to use induction stoves.

H4c**:** Government policy negatively moderates the relationship between subjective norm and intention to use induction stoves.

RESEARCH METHOD

Research Approach

This study employed a quantitative approach using explanatory research design. The explanatory approach was selected to examine the causal relationships between the determinants of intention to use induction cookstoves and to investigate the moderating role of government policy. The study adopted the Theory of Planned Behavior (TPB) as the primary theoretical framework, consisting of attitude, subjective norm, and perceived behavioral control as predictors of intention to use induction cookstoves. Government policy was incorporated as a moderating variable to assess its role in strengthening or weakening these relationships.

Types of Research Data

This study utilized both quantitative and qualitative data. Quantitative data served as the primary source for measuring respondents' perceptions regarding attitude, subjective norm, perceived behavioral control, government policy, and intention to use induction cookstoves. Qualitative data were used as supporting information to provide contextual understanding of government initiatives and energy transition programs related to induction cookstove adoption in Indonesia.

Research Data Sources

The study employed primary and secondary data sources. Primary data were collected directly from household respondents through a structured online questionnaire. Secondary data were obtained from scientific journal articles, government reports, policy documents, publications from the Ministry of Energy and Mineral Resources (ESDM),

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

statistics from government institutions, and relevant literature related to clean energy transition and induction cookstove adoption.

Techniques for Determining Respondents

The target population consisted of Indonesian households that use LPG cookstoves for daily cooking activities. Respondents were selected using a non-probability sampling technique with a purposive sampling approach. The inclusion criteria required respondents to be at least 21 years old and actively use LPG cookstoves in their households. A total of 130 valid responses were collected from five provinces in Indonesia, namely DKI Jakarta, DI Yogyakarta, Lampung, Riau, and South Sulawesi. Data collection was conducted from December 2025 to January 2026.

Research Instruments

The The research instrument consisted of a structured questionnaire developed based on the constructs of the Theory of Planned Behavior (TPB) and government policy. The questionnaire measured five latent variables, namely Attitude (ATT), Subjective Norm (SNR), Perceived Behavioral Control (PBC), Government Policy (GOV), and Intention to Use Induction Stoves (ITN). All measurement items were adapted from previously validated studies and modified to fit the context of induction stove adoption in Indonesia.

All indicators were measured using a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The instrument was designed to capture respondents' perceptions, social influences, behavioral control, policy support, and behavioral intentions regarding the adoption of induction stoves. The operationalization of variables and measurement items is presented in Table 1.

Table 1. Operational Definition of Variables and Measurement Items

Variable	Code	Measurement Item	Adapted From
Attitude (ATT)	ATT1	Using an induction stove will save money.	Astuti et al. (2025)
	ATT2	Cooking with an induction stove will make me feel good.	Astuti et al. (2025)

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Variable	Code	Measurement Item	Adapted From
	ATT3	Using an induction stove will improve my cooking performance and efficiency.	Astuti et al. (2025)
Subjective Norm (SNR)	SNR1	Using an induction stove would improve how I am seen by others.	Hakam et al. (2025)
	SNR2	Using an induction stove will create a positive impression on others.	Hakam et al. (2025)
	SNR3	Using an induction stove instead of an LPG stove is the morally right decision.	Hakam et al. (2025)
Perceived Behavioral Control (PBC)	PBC1	An induction stove is easy to learn to use.	Astuti et al. (2025)
	PBC2	An induction stove is easy to control and operate.	Astuti et al. (2025)
	PBC3	If I want an induction stove, I can obtain it easily.	Astuti et al. (2025)
Intention to Use (ITN)	ITN1	I am interested in using an induction stove rather than an LPG stove.	Karima et al. (2023)
	ITN2	I intend to use an induction stove in the near future because it is more convenient and efficient than an LPG stove.	Karima et al. (2023)
Government Policy (GOV)	GOV1	If electricity subsidies were provided, I would use an induction stove instead of an LPG stove.	Hakam et al. (2025)
	GOV2	If the government rovidedreliable electricity infrastru cture, I would use an induction stove.	Hakam et al. (2025)

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Attitude refers to an individual's positive or negative evaluation of using an induction stove, including perceptions of economic, functional, and emotional benefits (Ajzen, 1991; Astuti et al., 2025). Subjective Norm reflects perceived social pressure from family, friends, and society regarding induction stove adoption (Ajzen, 1991; Hakam et al., 2025). Perceived Behavioral Control describes the extent to which individuals perceive that they have the resources, ability, and opportunity to use induction stoves (Ajzen, 1991) Intention to Use represents an individual's willingness and commitment to adopt induction stoves in the future (Karima et al., 2023). Finally, Government Policy captures respondents' perceptions of policy support, including subsidies and infrastructure provision, which may facilitate induction stove adoption (Hakam et al., 2025).

Data Collection Techniques

Data were collected through an online survey administered using Google Forms. The survey link was distributed through various digital communication channels to reach potential respondents across different regions. Prior to analysis, all responses were screened to ensure completeness and compliance with the predefined respondent criteria. A total of 130 questionnaires were deemed valid and suitable for further analysis.

Theoretical Framework

This study was grounded in the Theory of Planned Behavior (TPB) proposed by Icek Ajzen. TPB explains behavioral intention through three primary determinants: attitude, subjective norm, and perceived behavioral control. In this study, government policy was incorporated as a moderating variable to extend the TPB framework and examine how institutional support influences the relationships between TPB constructs and intention to use induction cookstoves.

The conceptual framework assumes that favorable attitudes, supportive social norms, and higher perceived behavioral control increase intention to use induction cookstoves, while government policy may strengthen or weaken these effects.

Data Analysis Techniques

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software. PLS-SEM was selected because it is suitable for predictive research, complex models involving moderating effects, relatively small sample sizes, and data that may not follow a normal distribution. The analysis was

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

performed in two sequential stages: measurement model evaluation (outer model) and structural model evaluation (inner model).

The measurement model evaluation aimed to assess the validity and reliability of the research constructs. Convergent validity was examined using factor loadings and Average Variance Extracted (AVE), while discriminant validity was assessed through the Heterotrait-Monotrait Ratio (HTMT). In addition, the internal consistency reliability of each construct was evaluated using Cronbach's Alpha and Composite Reliability values.

Following the assessment of the measurement model, the structural model was evaluated to examine the predictive capability of the proposed model and test the research hypotheses. This stage included the assessment of the coefficient of determination (R^2) to measure the explanatory power of the model, as well as predictive relevance (Q^2) to evaluate its predictive accuracy. Hypothesis testing was conducted using the bootstrapping procedure to determine the significance of the relationships among variables. Furthermore, moderation analysis was performed to investigate the role of government policy in strengthening or weakening the relationships between the Theory of Planned Behavior (TPB) constructs, namely attitude, subjective norm, and perceived behavioral contro, and the intention to use induction cookstoves.

Data Credibility and Validity

Data credibility was assessed through validity and reliability testing within the PLS-SEM framework. Convergent validity was established when indicator loadings exceeded 0.70 and AVE values were greater than 0.50. Discriminant validity was evaluated using HTMT values below 0.85. Reliability was confirmed through Cronbach's Alpha and Composite Reliability values exceeding 0.70. These procedures ensured that the measurement instrument accurately and consistently represented the latent constructs under investigation.

Overall, the methodological approach enabled a comprehensive examination of the determinants of induction cookstove adoption intention and the moderating influence of government policy within the context of Indonesia's household energy transition.

RESULTS

Respondent Characteristics

A total of 130 respondents participated in this study. The respondents were selected using purposive sampling and met the criteria of being at least 21 years old and actively using LPG cookstoves in their households. Respondents were distributed across

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

five provinces in Indonesia, namely DKI Jakarta, DI Yogyakarta, Lampung, Riau, and South Sulawesi, providing a diverse representation of household characteristics and energy consumption patterns.

Table 2. Respondent Characteristics Based on Domicile

Province	Number of Respondents	Percentage (%)
Special Region of Yogyakarta	14	10.8
South Sulawesi	28	21.5
Riau	21	16.2
DKI Jakarta	37	28.5
Lampung	30	23.1
Total	**130**	**100**

Source: Primary data, processed in April 2026.

As shown in Table 1, respondents were distributed across several provinces, with the largest proportion originating from DKI Jakarta (28.5%), followed by Lampung (23.1%), South Sulawesi (21.5%), Riau (16.2%), and the Special Region of Yogyakarta (10.8%). This geographical distribution reflects a diversity of regional characteristics, including both urban and non-urban settings, which may influence respondents' perceptions of induction cookstove adoption and electricity-based energy policies. The inclusion of respondents from different provinces enhances the representativeness of the study and provides broader insights into household intentions toward induction cookstove adoption across various socioeconomic and regional contexts in Indonesia.

Table 3. Respondent Characteristics Based on Gender

Category	Frequency	Percentage (%)
Male	63	48.46
Female	67	51.54
Total	**130**	**100**

Source: Primary data, processed in April 2026.

The gender distribution was relatively balanced as shown in Table 3, with female respondents accounting for 51.54% of the sample and male respondents accounting for 48.46%. This composition provides a balanced perspective regarding household

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

decision-making related to the adoption of induction cookstoves. Furthermore, the respondents represented various socioeconomic backgrounds, reflecting the diversity of Indonesian households targeted by the government's household energy transition program.

Cross-Tabulation of Occupation, Income, and LPG Cylinder Usage

The cross-tabulation analysis as shown in Table 4, indicates that household income is strongly associated with the type of LPG cylinder used. Respondents with lower incomes (< IDR 3 million) predominantly used 3 kg LPG cylinders, reflecting a preference for subsidized fuel due to affordability considerations. As income levels increased, the use of 5.5 kg and 12 kg cylinders became more prevalent, particularly among private employees, civil servants, and state-owned enterprise employees.

Table 4. Cross-Tabulation of Occupation, Income Level, and LPG Cylinder Usage

Occupation	Monthly Income (IDR)	3 kg	5.5 kg	12 kg	Total
Housewife	< 1 million	4	1	0	5
	1–3 million	4	1	0	5
Other Occupations	1–3 million	8	1	0	9
	3–6 million	5	0	0	5
State-Owned Enterprise Employee	3–6 million	1	1	2	4
	6–9 million	1	1	2	4
	9–12 million	0	2	5	7
	> 12 million	0	1	2	3
Civil Servant / Military Police	3–6 million	5	2	2	9
	6–9 million	1	4	5	10
	9–12 million	1	2	0	3
	> 12 million	0	0	1	1
Private Employee	1–3 million	12	0	0	12
	3–6 million	10	4	2	16
	6–9 million	2	4	3	9
	9–12 million	1	0	2	3
Student Entrepreneur	< 1 million	7	0	0	7

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

Occupation	Monthly Income (IDR)	3 kg	5.5 kg	12 kg	Total
	1–3 million	5	0	2	7
	3–6 million	4	4	0	8
	6–9 million	0	3	0	3
Total		71	31	28	130

Source: Primary data, processed in April 2026.

Among high-income households (≥ IDR 9 million), the adoption of 12 kg non-subsidized LPG cylinders was notably higher, especially among employees of state-owned enterprises and government institutions. This pattern supports the energy ladder theory, which suggests that rising household income encourages a transition toward cleaner, more convenient, and higher-quality energy sources. The findings indicate that economic capacity plays a significant role in household energy choices and may influence the potential adoption of induction stoves as an alternative clean cooking technology.

Measurement Model Evaluation

The measurement model was evaluated through convergent validity as shown in Table 5, internal consistency reliability, and discriminant validity tests. The results indicate that all constructs satisfied the recommended thresholds, confirming the adequacy of the measurement model for further structural analysis.

Table 5. Measurement Model Assessment

Variabel	Kode	Cronbach's alpha	Composite reliability (ρA)	Composite reliability (ρC)
Attitude	ATT	0.889	0.900	0.931
Perceived Behavioral Control	PBC	0.904	0.908	0.940
Subjective Norm	SNR	0.937	0.960	0.959
Intention	ITN	0.729	0.732	0.881
Government Support	GOV	0.928	1.095	0.963

Source: SmartPLS 4 Output Data

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

The Average Variance Extracted (AVE) values ranged from 0.887 to 0.964, exceeding the recommended threshold of 0.50. These findings indicate that each construct explained more than 50% of the variance of its indicators, thereby confirming convergent validity. Additionally, Cronbach's Alpha and Composite Reliability values for all constructs exceeded 0.70, demonstrating satisfactory internal consistency and reliability.

To further assess discriminant validity, the Heterotrait-Monotrait Ratio (HTMT) criterion was applied. The results are presented in Table 6.

Table 6. Discriminant Validity Assessment (HTMT)

Construct	ATT	GOV	ITN	PBC	SNR	GOV×ATT	GOV×SNR
ATT							
GOV	0.261						
ITN	0.552	0.226					
PBC	0.146	0.151	0.560				
SNR	0.170	0.290	0.268	0.042			
GOV × ATT	0.095	0.045	0.125	0.027	0.100		
GOV × SNR	0.095	0.019	0.101	0.023	0.025	0.168	
GOV × PBC	0.034	0.039	0.203	0.146	0.028	0.107	0.018

Source: SmartPLS 4 Output Data

All HTMT values were below the recommended threshold of 0.85, indicating that each construct was empirically distinct from the others. Therefore, discriminant validity was successfully established. Overall, the measurement model demonstrated acceptable levels of validity and reliability, allowing the analysis to proceed to the structural model evaluation.

Structural Model Evaluation

The structural model was evaluated by examining the coefficient of determination (R^2), predictive relevance (Q^2), and hypothesis testing results as shown ini Table 7. The

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

model yielded an R^2 value of 0.604 and an adjusted R^2 value of 0.582, indicating that the proposed model explained approximately 60.4% of the variance in the intention to use induction cookstoves. According to Hair et al. (2022), this value can be categorized as moderate to substantial explanatory power.

Table 7. Structural Model Evaluation

Indicator	Value
R^2	0.604
Adjusted R^2	0.582
GoF	0.700
Q^2 Predict	Positive

Source: Primary Data from SmartPLS 4 Analysis Results, processed in April 2026

Furthermore, the model achieved a Goodness-of-Fit (GoF) value of 0.70, indicating strong overall model fit. The Q^2 Predict values for all endogenous indicators were positive, confirming that the model possesses satisfactory predictive relevance.

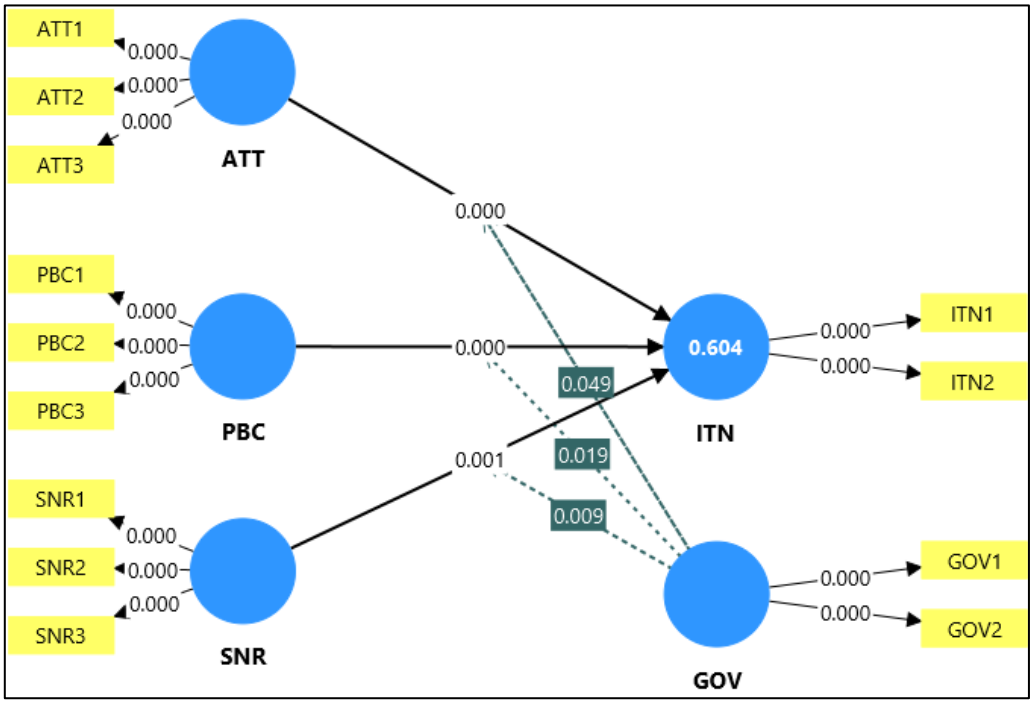


Figure 2: Bootstrapping Results of the Structural Model

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

Figure 2 above, presents the bootstrapping results of the structural model. The figure illustrates the path coefficients and significance levels among the latent variables. The significance of each hypothesized relationship was assessed using a bootstrapping procedure with 5,000 resamples. The results indicate that Attitude significantly influences Intention, while Subjective Norm and Perceived Behavioral Control show varying levels of significance. Furthermore, the moderating effects of Government Policy were evaluated through interaction terms generated within the PLS-SEM framework.

The hypothesis testing results are presented in Table 8, demonstrate that attitude significantly and positively influences the intention to use induction cookstoves ($\beta = 0.551$, $p < 0.001$), supporting H1. This finding indicates that respondents who perceive induction cookstoves as beneficial, efficient, and environmentally friendly are more likely to intend to adopt the technology.

Table 8. Hypothesis Testing Results

Hypothesis	Relationship	β	t-value	p-value	Decision
H1	ATT → ITN	0.551	9.052	0.000	Supported
H2	SNR → ITN	0.202	3.089	0.001	Supported
H3	PBC → ITN	0.452	8.082	0.000	Supported
H4	ATT × GOV → ITN	0.102	1.653	0.049	Supported
H5	SNR × GOV → ITN	-0.144	2.350	0.009	Supported
H6	PBC × GOV → ITN	0.120	2.074	0.019	Supported

Source: Primary Data from SmartPLS 4 Analysis Results, processed in April 2026

Subjective norm also exerts a positive and significant influence on intention ($\beta = 0.202$, $p = 0.001$), supporting H2. This result suggests that social influence from family members, friends, and surrounding communities contributes to the formation of behavioral intentions regarding induction cookstove adoption.

Similarly, perceived behavioral control significantly affects intention ($\beta = 0.452$, $p < 0.001$), supporting H3. Respondents who perceive themselves as capable of operating induction cookstoves and possessing sufficient resources to adopt the technology demonstrate stronger intentions to use induction cookstoves.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Regarding the moderating effects, government policy significantly strengthens the relationship between attitude and intention (β = 0.102, p = 0.049), thereby supporting H4. Likewise, government policy positively moderates the relationship between perceived behavioral control and intention (β = 0.120, p = 0.019), supporting H6. These findings indicate that policy interventions such as incentives, subsidies, public campaigns, and electricity infrastructure improvements enhance the influence of favorable attitudes and perceived capability on adoption intention.

Interestingly, government policy negatively moderates the relationship between subjective norm and intention (β = –0.144, p = 0.009), supporting H5. This finding suggests that stronger government support reduces the dependence of individuals on social pressure when making decisions regarding induction cookstove adoption. In other words, institutional support may partially substitute social influence in shaping household energy transition behavior.

Collectively, these findings confirm the applicability of the Theory of Planned Behavior (TPB) in explaining household intention to adopt induction cookstoves while highlighting the significant role of government policy as a contextual factor influencing behavioral decision-making.

DISCUSSION

The Influence of Attitude on Intention to Use Induction Cookstoves

Attitude has a positive and significant effect on the intention to use induction cookstoves (β = 0.551; t = 9.052; p < 0.001), making it the strongest predictor among all variables. This indicates that households form adoption intentions primarily based on their evaluation of the benefits of induction cookstoves, particularly efficiency, safety, practicality, and environmental advantages.

This finding supports the Theory of Planned Behavior (TPB), which states that attitude reflects an individual's positive or negative evaluation of a behavior and directly influences behavioral intention (Ajzen, 1991). Similar findings were reported by Vysevkova et al. (2026), Karima et al. (2023), and Hakam et al. (2025), who found that positive perceptions of environmental and functional benefits significantly increase willingness to adopt clean cooking technologies.

The results suggest that increasing public awareness of the economic, environmental, and safety benefits of induction cookstoves is essential for strengthening adoption intentions.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

The Influence of Perceived Behavioral Control on Intention to Use Induction Cookstoves

Perceived Behavioral Control (PBC) significantly and positively affects intention to use induction cookstoves ($\beta = 0.452$; $t = 8.082$; $p < 0.001$). Households that perceive induction cookstoves as accessible, affordable, and easy to operate are more likely to adopt the technology.

This finding is consistent with TPB, which defines PBC as an individual's perception of their capability to perform a behavior (Ajzen, 1991). Previous studies have similarly identified PBC as a strong predictor of behavioral intention across various contexts (La Barbera & Ajzen 2020). In the context of energy-efficient technologies, Schleich et al. (2017) and Sovacool et al. (2019) also found that perceived access to resources, infrastructure, and technical knowledge significantly enhances adoption intentions.

These findings indicate that promoting induction cookstoves should be accompanied by efforts to reduce practical barriers through education, infrastructure readiness, and financial support programs.

The Influence of Subjective Norm on Intention to Use Induction Cookstoves

Subjective norm positively and significantly influences intention to use induction cookstoves ($\beta = 0.202$; $t = 3.089$; $p = 0.001$), although its effect is weaker than attitude and PBC. This suggests that social influence contributes to adoption intentions but is not the primary consideration for households.

According to TPB, subjective norm reflects perceived social pressure from family, friends, and significant others (Fishbein & Ajzen, 1975; Ajzen, 1991). However, respondents generally did not strongly associate induction cookstove use with social status or prestige. This result aligns with findings from La Barbera & Ajzen (2020), who reported that subjective norm often has lower explanatory power than attitude and PBC. Thwe et al. (2025) argued that social norms influence environmental behavior but are often mediated by personal beliefs and perceived benefits.

Therefore, adoption programs should emphasize practical benefits while utilizing community leaders and early adopters to foster positive social perceptions.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

The Moderating Role of Government Policy in the Relationship Between Attitude and Intention

Government policy positively moderates the relationship between attitude and intention (β = 0.102; t = 1.653; p = 0.049). This finding indicates that favorable policies strengthen the effect of positive attitudes on households' intention to adopt induction cookstoves.

The result extends TPB by showing that contextual and institutional factors can enhance the influence of psychological determinants (Ajzen, 1991). This finding is further supported by the recent study of Vysevkova et al. (2026), which conducted a systematic review and meta-analysis of 23 studies examining public support for environmental policies. The study found that the Value-Belief-Norm (VBN) framework is capable of explaining public support for environmental policies, although its explanatory power varies across contexts. More importantly, the authors identified perceived policy effectiveness and perceived policy fairness as the strongest predictors of policy support, exceeding the explanatory power of several core VBN constructs. These findings suggest that government interventions perceived as effective and fair can substantially enhance public acceptance of environmentally responsible behaviors and sustainable technologies.

Thus, public campaigns should be complemented by supportive policies such as subsidies, infrastructure improvements, and awareness programs to maximize adoption intentions.

The Moderating Role of Government Policy in the Relationship Between Perceived Behavioral Control and Intention

Government policy also positively moderates the relationship between PBC and intention (β = 0.120; t = 2.074; p = 0.019). Households who already perceive themselves capable of using induction cookstoves become even more willing to adopt the technology when government support is available.

This finding supports the extended TPB perspective of La Barbera and Ajzen (2020), which emphasizes the interaction between perceived control and contextual factors. Similar evidence was reported by Schleich et al. (2017) and Sovacool et al. (2019), who found that subsidies, infrastructure readiness, and institutional support increase individuals' perceived capability to adopt energy-efficient technologies.

Therefore, policies should focus not only on promotion but also on reducing practical barriers through financing schemes, electricity upgrades, and technical assistance.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

The Moderating Role of Government Policy in the Relationship Between Subjective Norm and Intention

Government policy negatively moderates the relationship between subjective norm and intention (β = −0.144; t = 2.350; p = 0.009). This is the most important finding of the study, indicating that stronger government support reduces the influence of social pressure on adoption decisions.

The result suggests that when credible institutional support exists, households rely more on their own assessment of benefits and capabilities rather than on social approval. This finding is consistent with La Barbera and Ajzen (2020), who argued that increased support and control reduce dependence on subjective norms. It can also be explained through Institutional Legitimacy Theory, where trusted institutions provide legitimacy and confidence for adopting new technologies.

This finding constitutes the study's main contribution, demonstrating that government policy does not merely reinforce all TPB relationships. Instead, it strengthens the effects of attitude and perceived behavioral control while weakening the influence of subjective norm. This highlights a shift from social influence toward institutional influence in shaping household energy transition decisions and enriches the literature on technology adoption and sustainable energy behavior.

CONCLUSION

The findings indicate that attitude, subjective norm, and perceived behavioral control significantly influence households' intention to use induction cookstoves in Indonesia, with attitude emerging as the strongest predictor. These results suggest that positive perceptions regarding efficiency, safety, environmental benefits, and economic advantages play a crucial role in encouraging adoption. In addition, individuals are more likely to adopt induction cookstoves when they perceive sufficient capability, access, and supporting conditions, while social influence also contributes positively to shaping behavioral intentions.

Government policy was found to significantly moderate the relationships between TPB constructs and intention. Specifically, government support strengthens the positive effects of attitude and perceived behavioral control, while weakening the influence of subjective norm. This finding suggests that stronger institutional support enables households to rely more on their own evaluation of benefits and capabilities rather than on social pressure when making adoption decisions. These results extend the Theory of

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Planned Behavior by demonstrating that government policy can alter the relative influence of behavioral determinants in the adoption of clean cooking technologies.

From a practical perspective, policymakers should prioritize programs that strengthen positive public attitudes toward induction cookstoves by emphasizing their economic, environmental, safety, and efficiency benefits through awareness campaigns and educational initiatives. Efforts should also focus on enhancing perceived behavioral control through electricity infrastructure improvements, easier access to induction cookstoves, and financial support mechanisms such as subsidies, incentives, or installment schemes. Although subjective norm has a relatively smaller influence, community leaders, early adopters, local organizations, and social media influencers may still play an important role in creating positive social perceptions and accelerating technology diffusion.

Wider adoption of induction cookstoves has the potential to reduce dependence on subsidized LPG, improve household energy efficiency, lower greenhouse gas emissions, and optimize the utilization of surplus electricity. Consequently, this transition may support Indonesia's commitment to reducing greenhouse gas emissions by 29% through domestic efforts and up to 41% with international assistance under the Nationally Determined Contribution (NDC) framework by 2030, while contributing to the achievement of Net Zero Emissions (NZE) by 2060.

Several limitations should be acknowledged. The study employed a cross-sectional design and focused on behavioral intention rather than actual adoption behavior. Furthermore, the sample was limited to selected regions in Indonesia, which may restrict the generalizability of the findings. Future research is therefore encouraged to examine actual adoption behavior using longitudinal approaches and to incorporate additional factors such as environmental concern, trust in government programs, perceived risk, technology readiness, and economic incentives to enhance the explanatory power of induction cookstove adoption models.

REFERENCES

Ajzen, I. (1991). The Theory of Planned Behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211.

Astuti, S.P., Aisyah D. N., Prasetiyawan, A. A., Fravisdha F. V., Hermawan A.H., Pramono A. J. B., Diamonda, S. A. (2025). Driving forces behind electric stove purchase intentions in peri-urban areas of Surakarta city, Indonesia. Energy for Sustainable Development, Volume 85, 101639, https://doi.org/10.1016/j.esd.2024.101639

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

La Barbera, F., & Ajzen, I. (2020). Control Interactions in the Theory of Planned Behavior: Rethinking the Role of Subjective Norm. Europe's journal of psychology, 16(3), 401–417. https://doi.org/10.5964/ejop.v16i3.2056

Hakam D. F., Nuzula N. A., Aprianingsih, A. & Utama A. A. (2025). Youth perspectives on induction stoves: advancing sustainable energy transitions in Indonesian cities. Front. Sustain. Cities, 18 June 2025 Sec. Urban Energy End-Use Volume 7 - 2025. doi: 10.3389/frsc.2025.1554457

Hasibuan, D.A. dan Nrartha, I. M. A. (2023). Perbandingan Ekonomis Penggunaan Kompor Listrik Induksi Dan Kompor Gas Lpg Dari Sisi Penggunaan Di Rumah Tangga. Vocational Education and Technology Journal 5, 1 (2023): 11-21.

Im, H., & Kim, Y. (2020). The Electrification of Cooking Methods in Korea—Impact on Energy Use and Greenhouse Gas Emissions. Energies, 13(3), 680. https://doi.org/10.3390/en13030680

Karima, H. Q., Rachmawaty, D., & Ramdhani, A. Y. (2023). Factor Analysis and Model of Intention to Adopt Induction Stove. Jurnal Ilmiah Teknik Industri, 22(1), 143-152. doi: 10.23917/jiti.v22i1.20598

Kementerian Energi dan Sumber Daya Mineral, Direktorat Jenderal Minyak dan Gas Bumi. (2023, Juni 10). Alokasi anggaran subsidi LPG 3 Kg tahun 2023 capai Rp117,85 triliun, pendistribusiannya harus tepat sasaran. Kementerian ESDM. https://migas.esdm.go.id/post/alokasi-anggaran-subsidi-lpg-3-kg-tahun-2023-capai-rp117-85-triliun-pendistribusiannya-harus-tepat-sasaran

Ministry of Energy and Mineral Resources, Directorate General of Oil and Gas. (2023, June 10). The 2023 budget allocation for the 3 kg LPG subsidy reached IDR 117.85 trillion, and its distribution must be properly targeted. https://www.esdm.go.id/id/media-center/arsip-berita/kementerian-esdm-dan-pln-ajak-warga-jakarta-beralih-ke-kompor-induksi-1

Ogiemwonyi, O., Harun, A. B., Alam, M. N., Karim, A. M., Tabash, M. I., Hossain, M. I., Aziz, S., Abbasi, B. A., & Ojuolape, M. A. (2020). Green product as a means of expressing green behaviour: A cross-cultural empirical evidence from Malaysia and Nigeria. Environmental Technology and Innovation, 20, Article 101055. https://doi.org/10.1016/j.eti.2020.101055

Pratiknyo, E. (2022). Diversifikasi Teknologi Kompor Gas LPG ke Kompor Induksi untuk Pelanggan PLN Daya 450 dan 900 VA. Tesis Magister, Politeknik Negeri Jakarta. Retrieved from https://repository.pnj.ac.id.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Sakinna, C. P, & Balqiah, T. E. (2024). Determining Consumer Intention: Uncovering the Influential Factors in Customer Switching from LPG to Induction Stoves in Indonesia. Eduvest: Journal of Universal Studies, vol. 4 (10), pp. 9196–9212. https://doi.org/10.81295/edujournal.v4i10.13228

Statistics Indonesia (BPS). (2024). Percentage distribution of households by province and primary cooking fuel, 2023 (February 2024). Statistics Indonesia (BPS). https://www.bps.go.id/id/statistics-table/3/Y2xkT1kwVmhNSFZLYm1WUVpXUXJNbXRvVkdjd1FUMDkjMw==/distribusi-persentase-rumah-tangga-menurut-provinsi-dan-bahan-bakar-utama-untuk-memasak--2023.html

Schleich, J., Faure, C., & Klobasa, M. (2017). Persistence of the effects of providing feedback alongside smart metering devices on household electricity demand. Energy Policy, 107, 225–233. https://doi.org/10.1016/j.enpol.2017.05.002

Sovacool, B. K., Hook, A., Martiskainen, M., & Baker, L. (2019). The whole systems energy injustice of four European low-carbon transitions. Global Environmental Change, 58, 101958. https://doi.org/10.1016/j.gloenvcha.2019.101958

Thwe, S. M., Lim, W. M., Koay, K. Y., & Ong, D. (2025). Consumers' motivation to purchase electric vehicles: a mixed-methods belief elicitation study using theory of planned behavior. Acta Psychologica, Volume 258, 105185, https://doi.org/10.1016/j.actpsy.2025.105185

Vysevkova, V., Rabinska, D., Thomas, J. M., Farrow, C., & Reynolds, J. (2026). Explaining support for environmental public policies through the Value-Belief-Norm theory: A systematic review with meta-analysis. Journal of Environmental Psychology, 112, 103071. https://doi.org/10.1016/j.jenvp.2026.103071

Yadav, R. & Pathak, G. S. (2017). Determinants of Consumers' Green Purchase Behavior in a Developing Nation: Applying and Extending the Theory of Planned Behavior. Ecological Economics, Volume 134, Pp. 114-122, https://doi.org/10.1016/j.ecolecon.2016.12.019

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.