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Public Responses to Plastic Bag Bans: Fairness and Legitimacy

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ABSTRACT

Bans on single-use plastic bags are now common, yet their success depends on how citizens respond. This study examines why perceived procedural fairness of a plastic bag ban relates to two such responses: reusable bag behavior, a private form of compliance, and support for extending the ban, a public form of cooperation. Drawing on the process-based model of legitimacy, it proposes that a fair process makes the ban appear rightful, and that this legitimacy carries fairness into both responses. Survey data were collected from 362 residents of Negeri Sembilan and Penang, two Malaysian states with established statewide bans. Perceived procedural fairness was positively related to perceived legitimacy of the ban, after controlling for perceived policy effectiveness. Legitimacy was positively related to both reusable bag behavior and support for extending the ban. Legitimacy partially mediated the link between fairness and behavior and partially mediated the link between fairness and support. The findings extend research on plastic bag policy, procedural justice and legitimacy, and perceived policy effectiveness. They suggest that how a ban is introduced and enforced shapes whether citizens follow it and whether they will accept the next one.

Keywords: Plastic Bag Ban, Procedural Fairness, Legitimacy, Reusable Bag Behavior, Policy Support, Malaysia
JEL Classifications: L65, Q53

1. INTRODUCTION

Single-use plastic bags have become a central target of environmental regulation. They are a significant source of marine plastic pollution, and governments have responded with a mix of market-based and regulatory tools (Xanthos and Walker, 2017). The number of public policies on plastic carrier bags more than tripled after 2010. These policies now exist on every continent and mostly take the form of bans or levies, with bans the more common (Nielsen et al., 2019). Recent empirical studies provide further evidence that bag bans and charges can reduce plastic-bag litter and influence the use of other plastic products, although their effects depend on the policy instrument and context (Kosore et al., 2024; Papp and Oremus, 2025; van Doorn et al., 2025). Malaysia follows this path. A weekly No Plastic Bag Campaign Day introduced a charge of MYR 0.20 per bag in supermarkets and grocery stores (Zen et al., 2013). Since 2022, several states have moved from charges to full bans (Free Malaysia Today, 2025a).

Whether a ban works depends on the citizens it targets. We define perceived procedural fairness (PF) as residents' appraisal that the procedures used to introduce and enforce a policy give them voice, are applied consistently and without bias, rest on accurate information, allow appeal, and uphold ethical standards (adapted from Colquitt, 2001). Fair procedures carry clear benefits for authorities. Procedural justice generally enhances an authority's legitimacy and encourages people to comply with its decisions and rules (Murphy et al., 2009). The same logic has been shown to apply to local government policies on solid waste management (Ebreo et al., 1996).

However, bans pose a harder test than most rules. They remove a choice that citizens once took for granted, and reviews of bag policies report resistance, uncertain effects, and unintended side effects (Nielsen et al., 2019). Recent studies of plastic-bag policies show that public responses vary across consumer groups and that perceptions, attitudes, and practical constraints can

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shape willingness to reduce bag use (Bai et al., 2024; Geetha and Padmavathy, 2024; Shahrabani, 2025). Charges can change behavior and even raise support for further measures (Thomas et al., 2019). It is far less clear why some citizens embrace a ban while others merely tolerate it. Research on procedural justice and legitimacy has also moved beyond compliance. Legal authorities now seek willing cooperation and engagement as well as obedience, which calls for a broader view of what legitimacy delivers (Tyler and Jackson, 2014). Whether one legitimacy mechanism links the fairness of an environmental policy to both private compliance and public support remains untested.

Addressing this gap is important for two reasons. First, a ban that secures compliance but erodes support may win the present rule and lose the next one. Understanding the shared psychological root of both responses explains how a single policy can shape a sequence of policies. Recent evidence indicates that perceived unfairness can be a substantial barrier to support for environmental policies, while the inclusiveness of policymaking procedures can help sustain public support when trust is limited (Bergquist, 2025; Haesevoets et al., 2024). Second, Malaysian states are introducing bans at different times and with different grace periods. Policymakers need to know whether investment in consultation, consistent enforcement, and channels for appeal pays off, or whether citizens respond only to how well a policy appears to work.

The present study responds to this need by developing and testing a model of how PF shapes reusable bag behavior and support for extending the ban. Using the process-based model of legitimacy (Sunshine and Tyler, 2003; Tyler, 2006), we propose that fair procedures make a ban appear rightful. Recent research on participatory governance and public decision-making similarly highlights the importance of inclusive procedures and the perceived legitimacy of policy decisions (Haesevoets et al., 2024; Herkes and Zouridis, 2023; Juschten and Omann, 2023). Legitimacy is a psychological property of an authority, institution, or social arrangement that leads those connected to it to believe that it is appropriate, proper, and just (Tyler, 2006, p. 375). Once a rule is seen in this light, citizens feel an obligation to follow it that does not depend on sanctions.

Perceived legitimacy of the ban (LEG) carries this effect to two distinct outcomes. We define LEG as residents' felt obligation to obey the ban, even when they disagree with it (adapted from Sunshine and Tyler, 2003). The first outcome is reusable bag behavior (RBB), the frequency with which residents avoid single-use bags by bringing their own or declining them. It captures private compliance with the spirit of the ban. This includes informal venues where enforcement is weak and the choice rests largely with the resident. Recent studies of bring-your-own-bag behavior and single-use plastic bag practices likewise identify the importance of individual attitudes, motivations, knowledge, and practical conditions for reducing bag use (Alteneiji et al., 2024; Geetha and Padmavathy, 2023; 2024). The second outcome is support for extending the ban (SUP), residents' endorsement of applying the same restriction to all informal venues and to other single-use plastics. It captures public cooperation with the authority's wider agenda. The process-based model treats compliance and cooperation as separate goals that legitimacy can serve together (Sunshine and Tyler, 2003; Tyler and Jackson, 2014).

The model also accounts for an instrumental rival. Citizens may support a ban simply because they believe it works. Perceived policy effectiveness relates positively to pro-environmental behavior in waste policy settings (Wang and Mangmeechai, 2021), and its measurement has a verified source (Wan et al., 2014). We therefore estimate the effects of PF while holding perceived policy effectiveness constant.

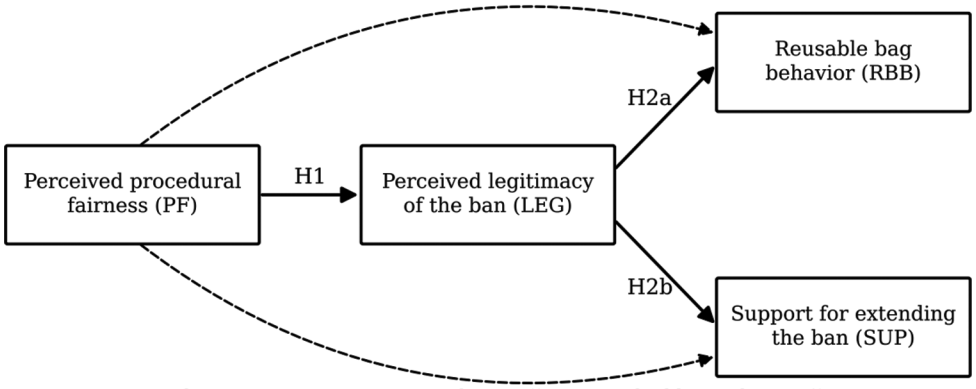
This study makes three contributions. First, it contributes to the literature on plastic bag policy and consumer behavior. Prior work has mapped the spread and design of bag policies (Nielsen et al., 2019; Xanthos and Walker, 2017) and assessed their behavioral effects (Thomas et al., 2019; Zen et al., 2013). More recent studies examine the effects of bans on shoreline litter, marine pollution, and spillover to other plastic products (Kosore et al., 2024; Papp and Oremus, 2025; van Doorn et al., 2025). These studies focus mainly on what policies do to bag use and related environmental outcomes. We extend this literature by identifying why citizens respond to a ban, and by showing that the way a ban is introduced and enforced matters alongside its content. Second, it contributes to the literature on procedural justice and legitimacy. Prior work has established the process-based model mainly in policing and in regulatory domains such as taxation (Murphy et al., 2009; Sunshine and Tyler, 2003), with early evidence from local waste policy (Ebreo et al., 1996). Recent studies of participatory governance and environmental policymaking reinforce the relevance of procedural legitimacy and inclusive decision processes (Haesevoets et al., 2024; Herkes and Zouridis, 2023; Juschten and Omann, 2023). We extend this literature by testing the model on a mandatory environmental ban in Southeast Asia, with private compliance and public support as parallel outcomes. Third, it contributes to the literature on perceived policy effectiveness. Prior work treats perceived effectiveness as a main driver of pro-environmental responses (Wan et al., 2014; Wang and Mangmeechai, 2021). We extend this literature by showing that procedural fairness explains legitimacy beyond perceived effectiveness. Together, these contributions show that a ban's legitimacy is built in part through its process, and that this legitimacy reaches beyond the rule itself to citizens' willingness to accept what comes next. The proposed model is presented in Figure 1.

2. THEORETICAL BACKGROUND AND HYPOTHESES

2.1. The Process-Based Model of Legitimacy

The traditional model of regulation treats compliance as a response to deterrence. Citizens weigh the risk of sanctions against the benefits of breaking a rule. The process-based model offers a second route. People defer to authorities they see as legitimate, and they judge legitimacy largely by how authorities exercise power (Tyler, 2006). Sunshine and Tyler (2003) compared legitimacy with instrumental

Figure 1: The proposed model



H3a/H3b: PF → LEG → RBB/SUP (indirect effects). Dashed lines: direct effects.
Controls: age, gender, perceived policy effectiveness.

judgments, such as the risk of sanction and the performance of the authority. Legitimacy shaped public compliance and cooperation, and procedural fairness was its main antecedent. Murphy et al. (2009) showed that the same pattern holds in regulatory settings beyond policing. More recent work on participatory governance and public decision-making also shows that decision processes perceived as participatory, neutral, and fair can strengthen the legitimacy of public decisions (Haesevoets et al., 2024; Herkes and Zouridis, 2023).

We draw three propositions from this model. The first is that legitimacy rests on process. People infer that an authority deserves deference when it gives them voice, applies rules consistently, and acts without bias. The second is that legitimacy produces a felt obligation to obey that operates even when sanctions are weak or absent. The third is that legitimacy has more than one behavioral outcome. Authorities increasingly seek willing cooperation and engagement, not only compliance (Tyler and Jackson, 2014). Research on environmental policy support further indicates that citizens' support reflects both their environmental commitments and the perceived consequences of particular policy instruments (Gerdes et al., 2023; Kaiser et al., 2023).

Plastic bag bans suit this model well. In Penang, for example, the ban applies to hypermarkets, supermarkets, convenience stores, department stores, petrol station shops, pharmacies, fast-food outlets, and other licensed premises (The Star, 2025). Enforcement targets these businesses, not individual shoppers. Much of the ban's success therefore depends on voluntary conduct, especially at informal venues such as night markets and hawker stalls. Each extension of the ban also requires public acceptance. These features make legitimacy, not deterrence, the likely engine of citizens' responses.

2.2. PF and LEG

The first proposition predicts that fair procedures raise legitimacy. We identify three routes. First, voice signals respect. When residents believe they could express views before the ban was introduced, they infer that the state treats them as stakeholders, not subjects. Second, consistency and bias suppression signal neutrality. A ban enforced equally across large chains and small retailers suggests that the authority pursues the public interest, not favored groups. Third, accuracy and correctability signal competence and good faith. A rule based on sound information, with channels to raise concerns, invites trust that the rule is reasonable. These arguments are consistent with research showing that participatory and procedurally inclusive decision processes can strengthen perceived legitimacy and policy acceptance (Haesevoets et al., 2024; Herkes and Zouridis, 2023; Juschten and Omann, 2023).

Unfair procedures convey the opposite. A ban introduced without consultation, or enforced against some traders but not others, may appear arbitrary even to residents who care about plastic waste. Prior findings support this reasoning. Procedural justice enhances legitimacy across regulatory contexts (Murphy et al., 2009), and procedural judgments shape opinions of local waste policies (Ebreo et al., 1996). Recent evidence also suggests that perceived unfairness can constrain support for environmental policies, sometimes more strongly than perceived costs or ineffectiveness (Bergquist, 2025). Accordingly, we propose:
H_1: PF is positively related to LEG.

2.3. LEG, RBB, and SUP

The second proposition explains why legitimacy shapes conduct. Residents who see the ban as rightful feel an obligation to follow it. This obligation extends beyond the shop counter, where compliance is forced, to settings where the choice remains open. A resident who accepts the ban's authority is more likely to bring a bag to a night market, or to decline one when a hawker offers it. Legitimacy turns an external rule into a personal standard. This private behavioral response is also relevant to research on reusable-bag adoption, which identifies the role of attitudes, motivation, knowledge, and perceived practical constraints in reducing single-use bag consumption (Alteneiji et al., 2024; Geetha and Padmavathy, 2023; 2024).

The third proposition explains why legitimacy also shapes support. Legitimacy encourages cooperation with an authority's wider goals, not only obedience to its current rules (Sunshine and Tyler, 2003; Tyler and Jackson, 2014). Residents who see the current ban as rightful are more willing to grant the state authority over related domains, such as informal venues and other single-use plastics. Evidence from England shows that experience with a bag charge

raised support for charges on other plastic items (Thomas et al., 2019). Recent studies likewise examine public support for plastic-bag charges and broader environmental policies, showing that support varies with policy design, public attitudes, and perceived fairness (Bai et al., 2024; Gerdes et al., 2023; Kaiser et al., 2023). Accordingly, we propose:

H_{2a}: LEG is positively related to RBB

H_{2b}: LEG is positively related to SUP.

2.4. The Mediating Role of LEG

Taken together, H_1 and H_2 describe the full process-based chain. Fair procedures raise legitimacy, and legitimacy shapes both private and public responses (Tyler, 2006). This sequence implies that part of the effect of PF on each outcome runs through LEG.

Fair procedures may shape behavior through routes other than legitimacy, for example by making the ban's rules clearer to residents. Support for further restriction, by contrast, depends on granting the authority more power. In the process-based model, this is the domain where legitimacy should matter most. Accordingly, we propose:

H_{3a}: LEG mediates the positive relationship between PF and RBB

H_{3b}: LEG mediates the positive relationship between PF and SUP.

3. METHOD AND DATA

3.1. Setting

The study was conducted in Negeri Sembilan and Penang, two Malaysian states that moved from bag charges to statewide bans before 2026. Malaysia's earlier approach relied on a pollution charge of 20 sen per bag at permanent business premises under the Roadmap Towards Zero Single-Use Plastics 2018-2030 (Free Malaysia Today, 2025b). Negeri Sembilan introduced a statewide ban in 2022, and Penang followed in March 2025 (Free Malaysia Today, 2025a). From September 01, 2025, Penang's ban covered hypermarkets, supermarkets, convenience stores, department stores, petrol station shops, pharmacies, fast-food outlets, and other licensed premises (The Star, 2025). In November 2024, the Ministry of Natural Resources and Environmental Sustainability stated that the policy was already in force in both states. By the time of data collection, residents of Negeri Sembilan had lived under the ban for about 4 years and residents of Penang for more than a year. Restricting the sample to these states ensured that every respondent lived under an established ban, not a charge.

3.2. Participants and Sampling

The target population was adult residents of Negeri Sembilan and Penang. Data were collected in March 2025 through a professional online panel provider. Eligibility required that respondents (a) were aged 18 or older, (b) had lived in Negeri Sembilan or Penang for at least 6 months, (c) shopped at a supermarket, convenience store, or other shop at least once a week, and (d) were aware that single-use plastic bags were banned at fixed business premises in their state. Respondents who failed any screening question were exited from the survey.

Quota sampling was used to obtain approximately equal numbers from each state, a balanced gender split, and coverage of four age bands (18-29, 30-44, 45-59, and 60 and above). Initially, we contacted 600 respondents.

3.3. Procedure

Respondents received an invitation explaining the purpose of the study. It stated that participation was voluntary, that responses were anonymous, and that respondents could withdraw at any time. No names, addresses, or identification numbers were collected. Data were stored in password-protected files accessible only to the research team.

The questionnaire was developed in English and translated into Malay using the back-translation procedure (Brislin, 1970). One bilingual researcher translated the items into Malay, a second translated them back into English, and the team resolved discrepancies. Respondents could complete the survey in either language. Before the full launch, the questionnaire was released to 15 panel members as a soft launch. Their responses were checked for completion time, item nonresponse, and comprehension problems before fieldwork continued.

The questionnaire had six blocks, presented in a fixed order: screening questions, RBB, SUP, LEG, PF and perceived policy effectiveness, and demographics. Placing the outcomes before the predictors reduced the chance that respondents would infer the intended links between constructs. Each block opened with a brief introduction. Two attention-check items were embedded. The first, in the RBB block, read "Please select "Often" for this item." The second, in the LEG block, read "To show that you are reading carefully, please select "Disagree" for this item."

3.4. Data Quality and Final Sample

Four exclusion rules were set before fieldwork. Cases were removed if they (a) failed either attention check and gave identical responses to all 19 items in the PF, LEG, RBB, and SUP blocks.

We received 381 complete responses. Nineteen cases failed an attention check, 12 were speeders, and seven were straightliners. No duplicates were found. The final sample comprised 362 residents (90.5% of complete responses). Of these, 48.9% were female and the mean age was 37.12 years (SD = 10.55, range 18-68).

3.5. Measures

All items for PF, LEG, RBB, and SUP used five-point scales. Perceived policy effectiveness used a seven-point scale, which follows its source and varies response formats across blocks (Podsakoff et al., 2003).

Perceived procedural fairness (PF) was measured with seven items adapted from the procedural justice scale of Colquitt (2001), rated from 1 (to a small extent) to 5 (to a large extent). The stem read: "The following items refer to the procedures your state government used to introduce and enforce the single-use plastic bag ban. To what extent:" The items were: "Have residents been able to express their views and feelings during those procedures?" "Have residents had influence over the ban arrived at by those procedures?" "Have those procedures been applied consistently?" "Have those procedures been free of bias?" "Have those procedures been based

on accurate information?" "Have residents been able to appeal the decisions arrived at by those procedures?" and "Have those procedures upheld ethical and moral standards?"

Perceived legitimacy of the ban (LEG) was measured with four items adapted from the obligation-to-obey items of Sunshine and Tyler (2003), rated from 1 (strongly disagree) to 5 (strongly agree). The items were: "People should accept the plastic bag ban, even if they think it is wrong." "People should follow the plastic bag ban even when they do not understand the reasons for it." "People should follow the plastic bag ban, even when they disagree with it." and "Disobeying the plastic bag ban is seldom justified."

Reusable bag behavior (RBB) was measured with four items developed for this study. Respondents indicated how often they had performed each behavior in the past 4 weeks, from 1 (never) to 5 (always). The items were: "I brought my own bag when shopping at supermarkets or convenience stores." "I brought my own bag or container when buying from night markets, wet markets, or hawker stalls." "I declined plastic bags when a seller offered one." and "I carried small purchases without a bag instead of asking for one." The second item covers informal venues where enforcement is weak, so reusable bag use there depends largely on the resident's choice. Asking about specific behaviors over a fixed period reduces the influence of general self-presentation on self-reports (Podsakoff et al., 2003).

Support for extending the ban (SUP) was measured with four items developed for this study, rated from 1 (strongly disagree) to 5 (strongly agree). The stem read "I would support extending the ban to." followed by "all night markets, wet markets, and hawker stalls," "polystyrene food containers," "plastic straws and cutlery," and "single-use plastic packaging for takeaway food."

Control variables. Age and gender were controlled. Perceived policy effectiveness was also controlled, because it is the main instrumental alternative to procedural explanations of legitimacy (Sunshine and Tyler, 2003). It was measured with five items adapted from Wan et al. (2014), rated from 1 (strongly disagree) to 7 (strongly agree). The items were: "The alternatives to plastic bags made available under the ban (such as reusable bags in shops) are sufficient to help me avoid plastic bags." "The state government provides clear guidelines on the plastic bag ban." "The state government's promotion clearly explains the benefits of the plastic bag ban." "The state government's policy encourages me to avoid single-use plastic bags." and "The state government's policy facilitates me to avoid single-use plastic bags."

3.6. Common Method Variance

To address common method variance, which can arise because all variables came from the same respondents at one point in time, several procedural remedies were applied at the design stage (Podsakoff et al., 2003). First, the questionnaire was divided into separate blocks presented in a fixed order, with the outcome variables (RBB and SUP) placed before the predictors (LEG, PF, and perceived policy effectiveness), so that respondents were less likely to infer the intended relationships between constructs. Second, response formats varied across blocks: behavior was rated on a frequency scale, PF on an extent scale, and the remaining constructs on agreement scales of five or seven points. Third, respondents were assured of anonymity, told that there were no right or wrong answers, and informed that participation was voluntary. Fourth, the behavioral items asked about specific actions over a fixed period (the past 4 weeks), which reduces the influence of general self-presentation on self-reports. Finally, each block opened with a brief introduction, and two attention-check items were embedded to discourage careless responding. Statistically, Harman's single-factor test showed that a single factor accounted for 29.11% of the total variance, below the 50% threshold (Podsakoff et al., 2003). Together with the procedural remedies, this result suggests that common method variance is unlikely to be a serious concern in this study.

3.7. Analytical Approach

The measurement model was assessed through confirmatory factor analysis (CFA) with maximum likelihood estimation. Convergent validity was examined through standardized loadings, composite reliability (CR), and average variance extracted (AVE). Discriminant validity was examined with the Fornell–Larcker criterion and heterotrait–monotrait (HTMT) ratios (Fornell and Larcker, 1981; Henseler et al., 2015).

Hypotheses were tested with Model 4 in Hayes's PROCESS macro (Hayes, 2022), estimated once for each outcome. Age, gender, and perceived policy effectiveness were entered as covariates. Indirect effects were tested with percentile bootstrap confidence intervals based on 5,000 resamples. Mediation was classified by the signs and significance of the direct and indirect effects (Zhao et al., 2010).

4. RESULTS

4.1. Measurement Model and Descriptive Statistics

Table 1 reports the standardized factor loadings, and Table 2 the validity statistics. The five-factor measurement model fit the data well, χ^2 (242) = 297.74, χ^2/df = 1.23, CFI = 0.98, TLI = 0.98, RMSEA = 0.025. All standardized loadings were significant and ranged from 0.65 to 0.83.

Table 1: Standardized factor loadings (five-factor CFA)

Item	Loading	Item	Loading	Item	Loading
PF		LEG		SUP	
PF1	0.74	LEG1	0.77	SUP1	0.78
PF2	0.78	LEG2	0.75	SUP2	0.79
PF3	0.72	LEG3	0.73	SUP3	0.83
PF4	0.76	LEG4	0.68	SUP4	0.76
PF5	0.70	RBB		PPE	
PF6	0.70	RBB1	0.75	PPE1	0.65
PF7	0.71	RBB2	0.67	PPE2	0.73
		RBB3	0.77	PPE3	0.71
		RBB4	0.80	PPE4	0.75
				PPE5	0.76

n=362. All loadings are significant at P<0.001. PF: Perceived procedural fairness, LEG: Perceived legitimacy of the ban, RBB: Reusable bag behavior, SUP: Support for extending the ban, PPE: Perceived policy effectiveness

Table 2: Discriminant and convergent validity

Construct	1	2	3	4	5	CR	AVE	MSV
1. PF	**0.730**					0.889	0.533	0.278
2. LEG	0.528***	**0.733**				0.822	0.537	0.278
3. RBB	0.349***	0.436***	**0.750**			0.837	0.563	0.190
4. SUP	0.416***	0.450***	0.186**	**0.792**		0.871	0.628	0.203
5. PPE	0.326***	0.256***	0.243***	0.153*	**0.720**	0.843	0.519	0.107

n=362. *P<0.05. **P<0.01. ***P<0.001. Off-diagonal values are latent factor correlations from the CFA. Bold diagonal values are the square roots of AVE. CR: Composite reliability, AVE: Average variance extracted, MSV: Maximum shared variance. HTMT ratios ranged from 0.161 to 0.523

Table 3: Descriptive statistics and correlations

Variable	M	SD	1	2	3	4	5	6
1. PF	3.27	0.83						
2. LEG	3.26	0.81	0.45**					
3. RBB	3.35	0.82	0.30**	0.36**				
4. SUP	3.41	0.85	0.37**	0.38**	0.17**			
5. PPE	4.34	1.00	0.28**	0.21**	0.20**	0.14**		
6. Age	37.12	10.55	0.00	−0.07	−0.05	0.03	0.03	
7. Gender	---	---	0.16**	0.11**	0.07	0.14**	0.04	0.03

n=362. *P<0.05. **P<0.01. Correlations use scale composites. PPE is measured on a seven-point scale and all other constructs on five-point scales. Gender: 1=male and 2=female

Table 4: Mediation results (PROCESS Model 4)

Predictor	LEG			RBB			SUP		
	B	SE	95% CI	B	SE	95% CI	B	SE	95% CI
Constant	1.711	0.255	(1.209, 2.212)	1.700	0.281	(1.147, 2.253)	1.332	0.287	(0.769, 1.896)
PF	0.404	0.048	(0.309, 0.499)	0.149	0.055	(0.041, 0.257)	0.242	0.056	(0.132, 0.352)
LEG				0.270	0.055	(0.162, 0.378)	0.281	0.056	(0.171, 0.392)
Age	−0.006	0.004	(−0.013, 0.001)	−0.003	0.004	(−0.010, 0.004)	0.004	0.004	(−0.004, 0.011)
Gender	0.071	0.077	(−0.080, 0.223)	0.024	0.080	(−0.134, 0.182)	0.127	0.082	(−0.033, 0.288)
PPE	0.079	0.040	(0.001, 0.157)	0.084	0.041	[0.002, 0.165)	0.011	0.042	(−0.073, 0.094)
R^2	0.215			0.166			0.203		
Total effect of PF				0.258	0.052	(0.156, 0.360)	0.356	0.053	(0.252, 0.460)
Indirect effect via LEG				0.109	0.027	(0.059, 0.164)	0.114	0.027	(0.065, 0.172)

n=362. B: unstandardized coefficient. The LEG column is the same mediator model for both outcomes. Total effects are estimated without LEG in the model. Indirect effects use percentile bootstrap confidence intervals based on 5,000 resamples, and their SEs are bootstrap SEs. Gender is coded 1=Male and 2=Female

Composite reliability ranged from 0.822 to 0.889, and Cronbach's alpha from 0.82 to 0.89. AVE ranged from 0.519 to 0.628, above the 0.50 benchmark for every construct, which supports convergent validity (Fornell and Larcker, 1981). The square root of each construct's AVE (0.720-0.792) exceeded its correlations with all other constructs. Maximum shared variance (0.107-0.278) stayed below the corresponding AVE. HTMT ratios did not exceed 0.523. Together, these results support discriminant validity (Fornell and Larcker, 1981; Henseler et al., 2015). The highest latent correlation, between PF and LEG (r = 0.53), indicates that residents distinguished the fairness of the process from the obligation to obey the ban.

Table 3 reports means, standard deviations, and correlations among the study variables. PF correlated positively with LEG (r = 0.45, P < 0.001), RBB (r = 0.30, P < 0.01), and SUP (r = 0.37, P < 0.01). LEG correlated positively with RBB (r = 0.36, P < 0.01) and SUP (r = 0.38, P < 0.01). Perceived policy effectiveness correlated positively with all four constructs.

4.2. Hypothesis Testing

Table 4 presents the results. PF was positively related to LEG (B = 0.404, SE = 0.048, 95% CI [0.309, 0.499]), supporting H_1. This effect held after controlling for perceived policy effectiveness, which was also positively related to LEG (B = 0.079, SE = 0.040, 95% CI [0.001, 0.157]). The model explained 21.5% of the variance in LEG.

LEG was positively related to RBB (B = 0.270, SE = 0.055, 95% CI [0.162, 0.378]), supporting H_{2a}. LEG was also positively related to SUP (B = 0.281, SE = 0.056, 95% CI [0.171, 0.392]), supporting H_{2b}.

The indirect effect of PF on RBB through LEG was 0.109 (SE = 0.027, 95% bootstrap CI [0.059, 0.164]), supporting H_{3a}. The direct effect of PF on RBB remained significant (B = 0.149, SE = 0.055, 95% CI [0.041, 0.257]), so mediation was partial (Zhao et al., 2010). LEG accounted for approximately 42.3% of the total effect of PF on RBB (B = 0.258, SE = 0.052, 95% CI [0.156, 0.360]).

The indirect effect of PF on SUP through LEG was 0.114 (SE = 0.027, 95% bootstrap CI [0.065, 0.172]), supporting H_{3b}. The direct effect of PF on SUP also remained significant (B = 0.242, SE = 0.056, 95% CI [0.132, 0.352]), so mediation was partial (Zhao et al., 2010). LEG accounted for approximately 32.0% of the total effect of PF on SUP (B = 0.356, SE = 0.053, 95% CI [0.252, 0.460]).

Among the controls, neither age nor gender was significantly related to LEG, RBB, or SUP. Perceived policy effectiveness was positively related to RBB (B = 0.084, SE = 0.041, 95% CI [0.002, 0.165]) but not to SUP (B = 0.011, SE = 0.042, 95% CI [−0.073, 0.094]).

5. DISCUSSION

This study asked why perceived fairness of a plastic bag ban relates to residents' reusable bag behavior and their support for extending the ban. Drawing on the process-based model of legitimacy, we proposed that fair procedures make a ban appear rightful, and that this legitimacy carries fairness into both outcomes. The findings were consistent with this view. PF was associated with stronger LEG, which was in turn associated with more frequent reusable bag behavior and stronger support for extending the ban. The two outcomes followed similar patterns. For both, legitimacy carried part of the effect of fairness, and fairness retained a direct association with each outcome.

5.1. Theoretical Implications

The study extends three literatures: research on plastic bag policy and consumer behavior, research on procedural justice and legitimacy, and research on perceived policy effectiveness.

Prior work on plastic bag policy has mapped where policies exist, what form they take, and how they change bag use (Nielsen et al., 2019; Thomas et al., 2019; Xanthos and Walker, 2017; Zen et al., 2013). Our findings point to a psychological pathway behind these effects. Residents who judged the ban's procedures as fair saw it as more rightful, and this view was associated with reusable bag use even at informal venues where enforcement is weak. Evaluations of bag policies that track only consumption may therefore miss part of how a ban works. Recent research on plastic regulation documents effects on shoreline litter and behavioral spillovers to other plastic products, but does not explain the legitimacy pathway examined here (Kosore et al., 2024; Papp and Oremus, 2025; van Doorn et al., 2025).

The process-based model holds that legitimacy rests on procedure and supports compliance and cooperation (Sunshine and Tyler, 2003; Tyler, 2006). Most supporting evidence comes from policing and from regulatory domains such as taxation (Murphy et al., 2009), with early evidence from waste policy (Ebreo et al., 1996). Our results come from a mandatory environmental ban in Southeast Asia. They also respond to calls to look beyond compliance (Tyler and Jackson, 2014). Recent studies of participatory governance and land-use decisions similarly show that inclusive and participatory procedures can strengthen the perceived legitimacy of public decisions (Haesevoets et al., 2024; Herkes and Zouridis, 2023). The partial mediation for support suggests that legitimacy is one route, alongside others, through which fairness is linked to citizens' willingness to grant an authority more power. This pattern aligns with English evidence that experience with a bag charge raised support for further charges (Thomas et al., 2019), and it offers one explanation for that spillover.

Prior work treats perceived policy effectiveness as a main driver of pro-environmental responses (Wan et al., 2014; Wang and Mangmeechai, 2021). Our findings suggest that effectiveness is not the whole story. PF remained related to legitimacy after perceived effectiveness was held constant. Citizens appear to judge a ban by how it was made and applied, not only by whether it seems to work. This interpretation is consistent with recent evidence that perceived unfairness can undermine support for environmental policies (Bergquist, 2025), while public support also depends on environmental attitudes and policy-specific consequences (Gerdes et al., 2023; Kaiser et al., 2023).

5.2. Practical Implications

The findings carry three implications for Malaysian state governments and local authorities. First, consultation and appeal channels deserve investment. Residents who believed they could voice views and raise concerns saw the ban as more rightful. States preparing bans, or extending them to new venues, can hold public consultations and publish how input shaped the final rule.

Second, enforcement should be consistent. Fairness rests partly on the belief that the rule applies equally to all businesses. Visible enforcement against large chains and small retailers alike signals neutrality and supports legitimacy.

Third, the next policy depends on the current one. Because part of the link between fairness and support for extending the ban ran through legitimacy, states that introduce bans through fair processes may find later extensions easier to secure. Treating each ban as a step in a sequence, not a single measure, can guide how authorities design and communicate it.

5.3. Limitations and Future Research

The study has several limitations. The design was cross-sectional and single-source. The data cannot establish that fairness precedes legitimacy, or that legitimacy precedes behavior and support. Residents who already used reusable bags may have judged the ban more favorably. The pathways should therefore be construed as associations consistent with the theory. Procedural remedies and Harman's single-factor test reduce, but do not eliminate, common method concerns. Longitudinal designs that follow residents through the introduction of a ban could test the proposed sequence.

Behavior was self-reported. Although the items asked about specific behaviors over a fixed period, future studies could use observed bag use at points of sale. RBB and SUP were developed for this study. They performed well, but they need validation in other settings. The perceived policy effectiveness measure captured clarity and facilitation more than environmental outcomes. Future work could add beliefs about whether the ban reduces pollution.

The study covered two states whose bans differed in age. Replication in states that still rely on charges, and in other countries, would test the boundaries of the model. Finally, the model treated legitimacy as felt obligation. Future work could examine trust in state government and moral alignment with the ban as further components of legitimacy (Tyler and Jackson, 2014).

6. CONCLUSION

This study set out to explain why residents respond to plastic bag bans in different ways. Drawing on the process-based model of legitimacy, it proposed that fair procedures make a ban appear rightful, and that this legitimacy shapes both private behavior and public support. Data from 362 residents of Negeri Sembilan and Penang supported this view. Fairness reached both behavior and support for extending the ban partly through legitimacy. For policymakers, the results suggest that a ban's success depends not only on what it prohibits but also on how it was introduced and enforced. Citizens who see that process as fair are more willing to follow the present rule and to accept the next one.

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