Data Analysis of Public Willingness Toward the Waste Charging Policy in Hong Kong

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Abstract

This study analyzes Hong Kong citizens' attitudes toward the waste charging policy via a questionnaire and ordinal regression. Key findings show younger age, higher fairness perception, and government trust significantly boost support, more likely to support than older. Information on landfill saturation and South Korea's case significantly increases support. Recommendations include tiered pricing, targeted communication, and community engagement to address fairness and knowledge gaps.

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1 Introduction

1.1 The reasons for implementing municipal solid waste charging

Waste generation has persistently constituted a critical challenge for human society. The volume of municipal solid waste demonstrates a consistent upward trajectory, which is intricately correlated with the expansion of urban populations. Statistically, a direct proportionality exists between population growth and the augmentation of waste output. As of 2024, Hong Kong ranked fourth globally in terms of population density (Wikipedia contributors, 2025), a demographic indicator that significantly intensifies the burden on waste management infrastructure.

Provisional data from the Census and Statistics Department of the Hong Kong Special Administrative Region Government (2025) indicate that the population of Hong Kong reached 7,534,200 by the end of 2024, reflecting an increment of 6,400 compared to the end of 2023, equivalent to a 0.1% growth rate. This growth trend represents the third consecutive year of population increase in Hong Kong. Such demographic developments exacerbate the pre-existing challenges in waste disposal, thereby necessitating the formulation of effective strategies to address the escalating environmental and logistical complexities.

The city's heavy dependence on landfilling as the principal waste disposal method has resulted in the near-exhaustion of existing landfill capacities. According to the Environmental Protection Department (EPD), 5.67 million tons of solid waste were disposed of via landfilling in 2021, with municipal solid waste (MSW) constituting over 70% of this total. Food waste (30%), plastics (21%), and waste paper (20%) were the predominant components of MSW, while the recycling rate stagnated at a mere 31%.

Notably, Hong Kong is equipped with three strategic landfills: the West New Territories Landfill, the Southeast New Territories Landfill, and the Northeast New Territories Landfill, with a combined storage capacity of approximately 140 million cubic meters. However, all three landfills are approaching saturation (EPD). Since January 6, 2016, the Southeast New Territories Landfill has exclusively received construction waste. Although the West New Territories Landfill commenced expansion in 2024, projections indicate that two of these landfills will reach full capacity by 2026 (Zero Waste Advocate, 2024).

Residents of Shenzhen, in close proximity to Hong Kong, have also voiced concerns due to incidents such as the fire at the Ta Kwu Ling Recycling Depot in 2013, the first-ever sewage leakage at the Northeast New Territories Landfill in August of the same year, and persistent odors emanating from the waste sites. Addressing these issues at the source thus constitutes the second key rationale behind the Hong Kong government's introduction of the waste-charging policy.

1.2 The unique policy setup of Hong Kong

1.2.1 The Evolution of MSW Management Policies in Hong Kong

On May 20, 2013, the Environment Bureau published Hong Kong: Blueprint for Sustainable Use of Resources 2013-2022, which outlined a three - pronged approach to future municipal solid waste management policies and measures: 1) Policy - Legislative Measures for Source Reduction; 2) Territory - wide Waste Reduction Campaigns; and 3) Infrastructure Enhancement for Waste Management. However, during a special meeting of the Panel on Environmental Affairs on June 1, 2013, members of the Liberal Party argued that continuously expanding landfills was an unwise solution to the waste problem. They contended that addressing solid waste issues required long - term, sustainable strategies. Specifically, the government should first improve the infrastructure for waste sorting and recycling and strengthen support for the recycling industry. By promoting the 3R principles of *Reduce, Reuse, and Recycle*, the aim was to reduce urban waste and alleviate the pressure on landfills.

This led to the emergence of a new blueprint in 2035, which introduced a novel strategy of waste charging. The goal of this new policy was to foster the development of a circular economy and reduce reliance on landfills for waste disposal. Nevertheless, a survey conducted by the *Takungpao* website revealed that approximately 91.8% of the public expressed opposition to this new strategy. This significant level of public discontent underscores the challenges the government faces in implementing waste management reforms and highlights the need for more effective communication and public engagement strategies.

1.2.2 The Specific Policies in Hong Kong

Taipei has achieved a 50% reduction in waste volume and a recycling rate exceeding 58% through a model of "designated bag charging + scheduled collection + community co-governance". South Korea, meanwhile, has pushed its national recycling rate to 80% via "tiered pricing + intelligent monitoring + heavy penalties". In contrast to these mature models in Taipei and South Korea, Hong Kong's policy—while drawing inspiration from their charging mechanisms—exhibits notable differences. The waste charging policy in Hong Kong is primarily structured around three target groups:

1) **Individuals/Families**: Waste disposal requires the use of designated garbage bags (HK$0.11 per liter) or HK$11 per piece of labeling. Low-income households are eligible for subsidies, and some residents can receive free designated bags for the first six months.
2) **Groups (Institutions, Companies, and Premises)**: Large waste items are subject to a "gate fee" based on weight (HK$365–395 per metric ton), while general waste must be disposed of in designated bags or with labels at the same rates as individuals.
3) **Building Management, Cleaning, and Waste Collection Personnel**: Building management entities are responsible for promotion and

supervision; cleaning staff ensure waste compliance; and collectors have the authority to reject non-compliant waste.

Hong Kong's waste charging policy stands out for its unique approach of leveraging property management companies and commercial networks to create a market - based support system for policy implementation. This innovative strategy aimed to integrate private - sector resources into public waste management, fostering a more sustainable and efficient disposal model. However, in the face of significant public opposition, the government has announced a postponement of the policy's rollout. The decision reflects the challenges of balancing regulatory objectives with public acceptance, underscoring the need for more comprehensive public engagement and communication strategies to address concerns and build consensus before resuming implementation.

1.3 Summary

Faced with the challenges of municipal waste management, the Hong Kong government has been actively seeking solutions. However, implementing these policies remains difficult.

Existing research mainly focuses on policy design logic and international experience, but there is a lack of systematic empirical study on Hong Kong citizens' attitudes, perceptions, and the influencing factors of the waste charging policy. Addressing this gap, this study aims to collect attitudinal data from Hong Kong residents through a questionnaire survey. The data will then be deeply analyzed using statistical methods to explore public opinions and inform policy improvements.

2 Literature Review

This literature review synthesizes three key studies to contextualize public willingness to pay (WTP) for waste management, with implications for policy design in urban environments.

2.1 Regional Disparities in WTP for Waste Charges

Studies highlight significant regional variations in WTP, shaped by economic development and urban contexts. Li et al. (2018) compare Shenzhen and Qingdao in China, finding that stakeholders in Shenzhen (a first-tier city) were willing to pay RMB 30/ton for construction waste landfill charges, significantly higher than Qingdao’s RMB 20/ton. This disparity stems from Shenzhen’s scarcer land resources and higher environmental costs, underscoring how regional socioeconomic conditions influence WTP.

In Hong Kong, Chung and Yeung (2019) focus on household preferences among three quantity-based charging methods. The study reveals that 67.6% of residents prefer the household volume charging method, with an average monthly WTP of

HKD 38.4. This preference aligns with Hong Kong's high-density living and market-oriented waste management system, where households prioritize individualized charging over shared building-based fees.

Contrastingly, in Gorkha Municipality, Nepal (Maskey & Singh, 2017), the average monthly WTP for improved waste collection is only NPR 73.38 (USD 0.72), reflecting lower economic capacity and limited infrastructure. These cross-regional differences emphasize that WTP is not only a function of policy design but also of local economic development and service accessibility.

2.2 Key Determinants of WTP: Income, Perception, and Awareness

Income and education emerge as universal predictors of WTP. Li et al. (2018) show that a RMB 10,000 increase in monthly household income raises WTP by 2.96%, while Maskey & Singh (2017) find that each NPR 10,000 income increase correlates with a NPR 7.7 higher WTP. Education also plays a role: in Shenzhen/Qingdao, each additional year of education boosts WTP by 1.68%, consistent with Chung and Yeung's (2019) finding that educated Hong Kong residents are more supportive of quantity-based charging.

Perceptions of policy effectiveness and fairness significantly influence WTP. Chung and Yeung (2019) report that Hong Kong residents who view charging policies as "effective" are 25.25% more likely to pay higher fees. Similarly, Maskey & Singh (2017) find that environmentally aware households in Nepal are willing to pay NPR 35.24 more monthly. These insights highlight the importance of public communication to build trust in policy outcomes.

Notably, some factors show contextual variation. For example, while housing ownership correlates with higher WTP in China (Li et al., 2018), this relationship is insignificant in Hong Kong (Chung & Yeung, 2019) and Nepal (Maskey & Singh, 2017), possibly due to differences in tenure systems and social norms.

2.3 Implications for Hong Kong's Waste Charging Policy

2.3.1 Tailoring Charging Methods to Urban Lifestyles

Hong Kong's preference for household volume charging (Chung & Yeung, 2019) suggests that policy makers should prioritize individualized fee structures, such as designated waste bags or smart metering. This aligns with the "polluter pays" principle and matches residents' expectations of fairness in a high-density urban setting.

2.3.2 Balancing Affordability with Environmental Goals

The average WTP of HKD 38.4 (Chung & Yeung, 2019) provides a baseline for policy design, but must be contextualized against Hong Kong's income inequality. A tiered pricing system—higher fees for larger households or excessive waste—could reconcile equity with waste reduction targets, as seen in Shenzhen's differentiated charging (Li et al., 2018).

2.3.3 Enhancing Policy Legitimacy through Transparency

To address the 39% of Hong Kong residents who oppose charging (Chung & Yeung, 2019), the government should emphasize how fees fund recycling infrastructure and public services, mirroring the transparency mechanisms that

boosted WTP in Nepal (Maskey & Singh, 2017). Educational campaigns can also leverage the positive correlation between environmental awareness and WTP identified in all three studies.

2.4 Research Gaps and Future Directions

Current literature lacks longitudinal data on WTP dynamics post-policy implementation, which is critical for evaluating Hong Kong's long-term policy effectiveness. Additionally, studies on vulnerable groups (e.g., low-income households, elderly) are sparse, despite their potential to inform targeted subsidies. Future research could also explore the interplay between waste charging and behavioral nudges, such as feedback on waste reduction achievements, to optimize policy impact.

In summary, these studies underscore that Hong Kong's waste charging policy must balance economic pragmatism with social acceptability, using tailored communication and flexible fee structures to align with residents' values and financial capacities.

3 Method

3.1 Questionnaire Method

3.1.1 Method Overview

The questionnaire method is a well-established research tool within the social sciences. By crafting a series of carefully structured questions, it enables researchers to gather valuable insights directly from participants, offering a window into their attitudes, beliefs, and behaviors. In the context of this study, I employed the questionnaire approach to systematically capture the perspectives of Hong Kong residents regarding the waste charging policy. This was aimed at comprehensively examining the policy's level of public acceptance, the extent of public understanding, and the various factors that influence these aspects.

One of the key strengths of this method is its scalability, allowing for the collection of data from a substantial sample size. This large-scale data collection, coupled with the capacity for quantitative analysis, enhances the scientific rigor and objectivity of the research findings. As a result, the conclusions drawn from this study can be considered robust and reliable indicators of public sentiment towards the waste charging policy in Hong Kong.

3.1.2 Questionnaire Design

The questionnaire was meticulously designed by integrating the core elements of Hong Kong's waste charging policy and the study's objectives. Its content encompasses multiple dimensions, such as the public's awareness of the waste charging policy, evaluations of its rationality, acceptance of charging standards, and expectations for supporting measures.

A diverse range of question types was employed to comprehensively capture respondents' viewpoints. These include single - choice questions, multiple -

choice questions, Likert - scale questions, and open - ended questions.

1) Core Attitude Measurement

   A five - point Likert scale (ranging from "strongly oppose" to "strongly support") was adopted to construct five core items, which were designed based on the "five - dimensional model of policy acceptance" from previous research. These items cover key aspects such as policy support level, perception of fairness, approval of government decision - making, expectation of waste reduction effectiveness, and assessment of the severity of waste management.

   For example, one of the questions states: "*According to the 'polluter pays' principle, do you think 'charging by the amount of garbage' can fairly reflect the environmental burden of different families?*" Respondents can choose from options ranging from "*Very unfair*" to "*Very fair*".

2) Behavior and Cognition Measurement

   Eight items were included to measure behavior and cognition, covering aspects such as the amount of waste discarded, frequency of waste sorting, time invested in recycling, and knowledge of food waste disposal. A single choice questions was used. For instance, "*On average, how many bags of waste does your household dispose of daily? (Standard: Width: 31 cm, height: 53 cm)*", which is used to study the relationship between the amount of garbage thrown by citizens every day and the degree of policy support.

3) Demographic information

   Six items (and a non-mandatory question: Monthly household income) were designed to collect background information, including respondents' identity characteristics (permanent residency status, educational attainment, age, household income, etc.), residential area (covering the 18 districts of Hong Kong), and housing type (public housing, private housing, or others). This information will be utilized for subsequent cross - analysis, aiming to explore potential correlations between different variables. Additionally, it will serve as a control variable in the regression analysis.

3.1.3 Sample Selection

The research targets all residents of Hong Kong, with an extremely large population size (approximately 7.5 million). The calculation of the sample size is primarily influenced by the confidence level and margin of error. After analyzing practical constraints, this study opted to moderately relax the margin of error or lower the confidence level, adjusting the margin of error to $\pm 10\%$.

This adjustment balances the need for statistical validity with the challenges of conducting large-scale surveys in a densely populated urban context, ensuring the feasibility of data collection while maintaining basic analytical rigor.

For simple random sampling, the sample size n can be calculated using the

following formula:

$$n = \frac{Z^2 \times p \times (1-p)}{E^2} \quad (1)$$

Where Z represents the critical value from the standard normal distribution corresponding to the desired confidence level Z = 1.96 for a 95% confidence level. p denotes the estimated proportion of the characteristic of interest in the population (when no prior estimate is available, p = 0.5 is often used to yield the maximum sample size). E is the specified margin of error, E = 0.10 for a ±10% error range.

$$n = \frac{Z^2 \times p \times (1-p)}{E^2} = \frac{1.96^2 \times 0.5 \times (1-0.5)}{0.1^2} = \frac{3.8416 \times 0.25}{0.01} = 96.04 \quad (1)$$

Therefore, adopting a mixed online and offline approach, this study initially planned to collect 97 questionnaires. However, the final dataset included 102 valid responses that were ultimately used for analysis. This slight over-collection beyond the original target ensured a robust sample size, accounting for potential data exclusions and enhancing the reliability of the study's findings.

3.2 Descriptive statistics

Descriptive statistics are employed as a preliminary analysis to summarize, organize, and derive the basic characteristics of the collected data. For instance, this approach helps to obtain the approximate distribution of policy support levels ranging from "Strongly oppose" to "Strongly support", providing a foundation for subsequent inferential statistics or modeling analyses.

3.3 Chi-square test: Independence analysis

In this study, the application scenario involves testing the correlation between dependent variable (Part 1 Question 1 "*Policy Support Level*") and independent variables (such as, part 4 "*Housing Type*" from the questionnaire).

Data processing entails constructing a 4×5 contingency table (four housing types × five support levels) and calculating the chi-square statistic using the formula

$$\chi^2 = \sum_{i=1}^{4} \sum_{j=1}^{5} \frac{\left(O_{ij} - E_{ij}\right)^2}{E_{ij}} \quad (2)$$

By calculating the chi-square value and degrees of freedom, we can obtain the p-value to decide whether to reject the null hypothesis, thus illustrating the correlation between housing type and support level. Specifically, a p-value below the conventional threshold (0.10) would lead to rejecting the null hypothesis, indicating a significant correlation between housing categories and policy support attitudes.

3.4 Binary logistic regression: Knowledge Correctness Analysis

Notably, the questionnaire includes a knowledge quiz section aimed at testing citizens' basic understanding of municipal waste management. This component seeks to explore the correlation between respondents' grasp of waste disposal knowledge and their support for the waste charging policy.

Notably, in question "*Which of the following items is NOT recyclable?*", there is

only one correct option. Correct selections of "*Mirrors*" were coded as 1, while all other responses were assigned 0. This scoring mechanism aligns with the following formula:

$$P(Y=1)=\frac{1}{1+e^{-(\beta_0+\beta_1X_1+\beta_2X_2+\cdots+\beta_kX_k)}} \quad (3)$$

Where $Y=1$ means correct, X_i is independent variable, β_i is Coefficients.

By analyzing this relationship, the study aims to inform future policy implementation strategies, providing actionable insights for the government should it decide to resume policy rollout.

3.5 Quantitative processing with the Likert scale

The questionnaire also incorporates numerous items using Likert scale quantification. For example, the question "*To what extent do you support this policy?*" offers response options: *Strongly Oppose, Oppose, Neutral, Support, Strongly Support* (a 5-point scale coded 1 to 5). Quantifying these responses involves the following formula:

$$Y=\beta_0+\beta_1X_1+\beta_2X_2+\cdots+\beta_kX_k+\varepsilon \quad (4)$$

Y denotes the score on the Likert scale ; $X_1, X_2, \ldots, X_k$ represent independent variables influencing the scale score, for example, *Strongly Oppose, Oppose, Neutral, Support, Strongly Support* ; β_0 is the intercept term, $\beta_1, \beta_2, \ldots, \beta_k$ are regression coefficients, measuring how each X variable impacts the Likert score, and ε is the random error term, which follows a normal distribution: $\varepsilon \sim N(0, \sigma^2)$, which assumption ensures the model's statistical validity for inference. Therefore, in this practical problem, the formula is transformed into:

$$Y_{\text{support Level}}=\beta_0+\beta_1X_{\text{Fairness}}+\beta_2X_{\text{gavornment\_consideration}}+\cdots+\varepsilon \quad (4)$$

Base on formula 3, the relationships between the dependent variable and independent variables can be discerned through an analysis of the independent variables and their respective coefficients. This analytical approach allows for an assessment of how changes in each independent variable may influence the dependent variable, thereby providing insights into the directional and magnitude effects within the model.

3.6 Wilcoxon Signed-Rank Test

In this study, the questionnaire example involves Part 1 Question 1 (*initial policy support assessment*) and Part 3 (re-evaluated support after presenting information on *landfill saturation* and *South Korea's policy case*). The analytical objective is to examine whether reading such information enhances respondents' policy support levels. Data processing focuses on paired samples: each respondent's pre-test support score (from Part 1) and post-test score (from Part 3), both measured on a 1–5 Likert scale.

By calculating the difference, set the paired samples be (X_i, Y_i), difference value is

$$D_i=X_i-Y_i, (i=1,2,\ldots,n) \quad (5)$$

After removing samples with a difference of 0, the absolute values of the remaining differences are sorted and assigned ranks (with average ranks used for identical absolute values). The sum of positive ranks $(W^+)$and negative ranks (W^-) are

calculated, and the test statistic W is taken as the minimum of (W^+) and (W^-). Since the sample size $(n > 30)$, a normal approximation is used to compute the Z-value

$$Z = \frac{W - \mu_W}{\sigma_W} \tag{6}$$

, incorporating a continuity correction. Statistical significance is defined as $(P < 0.05)$.

3.7 Summary

This study undertakes analysis following the flowchart in Figure 1. Initially, data collection is conducted, followed by the application of descriptive statistics to outline the basic characteristics of the data. Subsequently, a decision node of "whether to conduct further analysis" is employed: if further analysis is unnecessary, results are directly outputted; if required, univariate analysis (utilizing the Wilcoxon signed - rank test) and cross - tabulation analysis (incorporating chi - square tests) are performed on specific variables, both of which support the hypothesis testing stage. Upon completion of hypothesis testing, an ordinal logistic regression model is used to deeply explore variable relationships. Finally, based on the above analysis, targeted policy recommendations are put forward, forming a complete research chain from data acquisition to decision - making support.

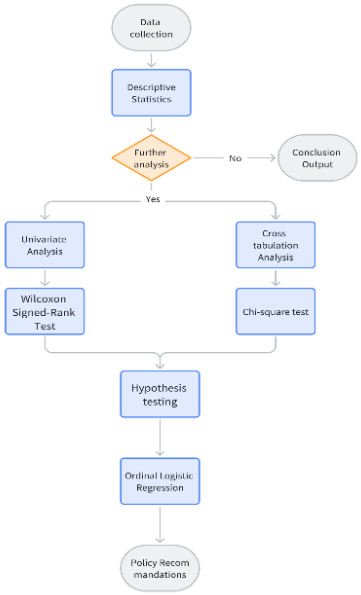

Figure 1Flowchart of data processing method

4 Data processing

This study predominantly gathered categorical variables. The distribution of each variable was obtained through frequency statistics, a component of Descriptive Statistics, as presented in Table 1 of the Appendix. This table offers a clear overview of how responses are spread across different categories for each variable, laying the groundwork for further analysis. It's important to note that the questions in the survey questionnaire were systematically categorized into dependent and independent variables, and subsequent sections of this chapter will delve into the relationships between them, building on the descriptive insights provided by Table 1.

Table 1Overall Statistical Analysis of Collected Data(N=102) (Complete version)

Variables	Category	Count	Percent (%)
Dependent Variable			
support_info (Y_{t-1})	Strongly oppose	21	20.6
	Oppose	20	19.6
	Neutral	25	24.5
	Support	28	27.5
	Strongly support	8	7.8
support_after_info (Y_t)	Strongly oppose	38	37.3
	Oppose	13	12.7
	Neutral	30	29.4
	Support	38	37.3
	Strongly support	5	4.9
Core independent variable			
educationlevel	Primary or below	2	2
	Secondary	10	9.8
	Diploma or Bachelor's	34	33.3
	Master's or above	56	54.9
income	Below HK$15,000	7	7.2
	15,001-30,000	19	19.6
	30,001-50,000	28	28.9
	50,001-70,000	24	24.7
	Above HK$70,000	19	19.6
age	18-24	19	18.9
	25-34	25	24.5
	35-44	27	26.7
	45-54	22	21.6
	55-64	8	7.8
	65+	1	1
household_size	0	9	8.8.
	1	23	22.5
	2	31	30.4
	3	20	19.6
	4	12	11.8
	5 or above	7	6.9
Behavioral variable			

daily_bags	Less than 1 bag	32	31.4
	Exactly 1 bag	43	42.2
	More than 1 bag	27	26.5
	More than 1 bag	0	0
recycle_frequency	Never recycled	17	16.7
	1-2 times	53	52
	3-4 times	13	12.7
	5 times or more	4	3.9
	Recycled daily	17	16.7
recycling_effort	Never recycled	12	11.8
	Slight effort	59	57.8
	Moderate effort	27	26.5
	Significant effort	4	3.9
Cognitive and attitude variables			
fairness	Very unfair	16	15.7
	Unfair	19	18.6
	Neutral	27	26.5
	Fair	36	35.3
	Very fair	4	3.9
government_consideration	Not considered atall	24	23.5
	Considered less	27	26.5
	Average	33	32.4
	Considered fairly fully	16	15.7
	Considered very fully	2	2
policy_helpfulness	Not helpful at all	19	18.6
	Not very helpful	32	31.4
	Somewhat helpful	42	41.4
	Very helpful	9	8.8
waste_severity	Not at all severe	2	2
	Slightly severe	31	30.4
	Moderately severe	63	61.8
	Highly severe	6	5.9
Knowledge variable			
total_score	Overall average accuracy rate	\	48
Space variable			
region	Hong Kong Island	12	11.8

	Kowloon	49	48
	New Territories	40	39.2
	Other	1	0.08
housing	Public rental housing	15	14.7
	Subsidized housing	7	6.9
	Private housing	70	68.6
	Other	10	9.8

4.1 Univariate Analysis

4.1.1 Distribution of Policy Support Level (Dependent Variable Y)

Figure 2 shows the distribution of policy support degrees, categorized into three stances: *opposition* (Levels 1 & 2), *neutrality* (Level 3), and *support* (Levels 4 & 5).

Opposition accounts for 41.0% (21.0% + 20.0%), with Levels 1 and 2 having relatively close proportions. Neutrality, represented by Level 3, makes up 25.0%. Support is the largest group at 36.0% (28.0% + 8.0%), driven mainly by Level 4, as Level 5 has a much smaller share.

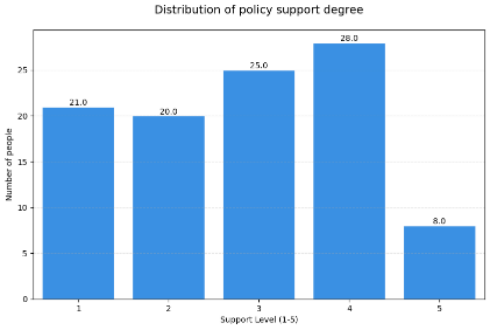

Figure 2Distribution of policy support degree

Overall, opposition has the highest percentage, but support follows closely, while neutrality is the smallest group. This distribution shows a divided public opinion, with a significant opposition presence but also not able support.

Within this research, a two - stage measurement of policy support was integrated into the questionnaire design. Specifically, this setup aims to investigate whether citizens' endorsement of the policy undergoes alteration after being exposed to two key pieces of information: the positive waste management case from South Korea and the critical fact that landfills in Hong Kong are approaching saturation. By introducing this sequential assessment, the study seeks to empirically gauge the potential impact of contextual evidence on public policy attitudes, thereby shedding light on the role of information framing in shaping support levels.

The Wilcoxon signed-rank test was initially applied to analyze the data of post-support and pre-support, aiming to determine whether there was a significant difference between the two. The test generated a statistic of 195.5000 and a p-value of 0.0019. Since the p-value (0.0019) fell below the pre-set significance level of α=0.05, the null hypothesis, which posited "*no difference in the distribution of support levels before and after information provision*", was rejected.

This result firmly established that the intervention of information provision had resulted in a statistically significant disparity in support levels, thereby indicating that information provision exerted a detectable influence on public support.

To further illustrate these findings in a more intuitive manner, Figure 3 presents a comparison of policy support levels (where 1 = *Strongly oppose* and 5 = *Strongly support*) before and after exposure to information. The orange line, representing post-support, and the blue line, denoting pre-support, clearly highlight the notable differences. Prior to the information provision, the support levels (blue line) remained relatively stable across levels 1–3, experienced a slight peak at level 4, and subsequently declined. Conversely, after the information was provided, the orange line sharply ascended from level 3 to 4, reaching a significantly higher peak compared to the blue line at level 4. At level 5, both lines showed a downward trend, yet the orange line exhibited a steeper decline.

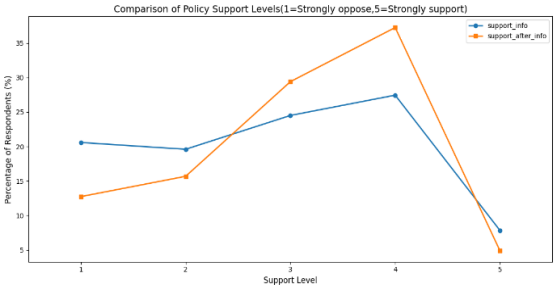

Figure 3Comparison of policy support

In short, exposure clearly shifts support: post - info, far more respondents strongly favor the policy at level 4, while pre - info support is more muted and spread out. The data shows the info significantly boosts "*strong support*" (level 4) and reshapes overall support distribution.

4.1.2 The distribution and usage of kitchen waste trash cans

Figure 4 integrates a pie chart and a bar chart to examine the public's exposure to, and usage of, kitchen waste bins within the research context.

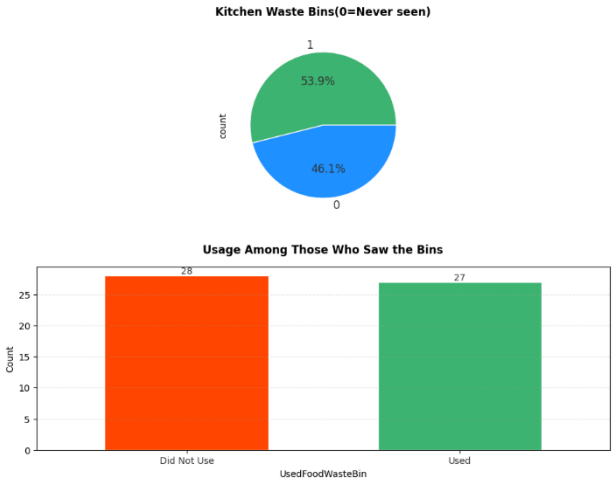

Figure 4The distribution and usage of kitchen waste trash cans

The pie chart reveals that 53.9% of respondents reported having seen these bins (coded as 1), whereas 46.1% had not (coded as 0). The relatively narrow gap between these two proportions indicates that the provision of kitchen waste disposal facilities may not be sufficiently comprehensive.

Focusing on the subgroup who indicated having seen the bins, the bar chart shows that 28 individuals did not use the bins, while 27 did. This results in a nearly equal distribution of usage behavior within the aware subgroup.

In summary, while over half of the sample had encountered kitchen waste bins, the usage and non - usage rates within this aware group were almost balanced.

This finding suggests that mere awareness does not strongly incentivize usage, thereby highlighting a potential disconnect between exposure to waste - sorting infrastructure and actual behavioral engagement with such tools.

4.1.3 The accuracy rate of knowledge quiz questions

Figure 5 assess knowledge accuracy across three waste - related questions (Q1 - Q3). The left bar chart reveals stark differences in accuracy rates: Q1 (Landfill) has a mere 5.9% accuracy, a figure far lower than Q2 (84.3%) and Q3 (53.9%), clearly showing most respondents failed to grasp concepts critical to Hong Kong's landfill severity.

Q2 (Recyclable Material), with its 84.3% accuracy, stands out as the highest, showcasing a significant contrast to Q1 and a notably stronger knowledge base in the Knowledge about recyclables compared to the other two questions.

Q3 (Disposal), reaching 53.9%, reflects moderate understanding, yet still lags behind Q2 by over 30 percentage points.

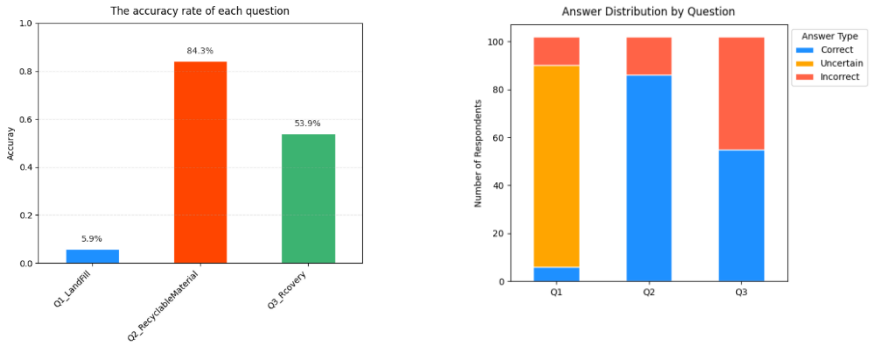

Figure 5The answer of knowledge quiz

The second chart is a stacked bar graph illustrating the response distributions for Questions Q1, Q2, and Q3. In terms of correctness rates, Q2 demonstrates the highest accuracy, as the blue segment representing correct answers occupies the largest proportion in its bar. Q3 follows, with its blue correct segment shorter than that of Q2, while Q1 shows the lowest correctness rate, evident in its significantly shorter blue segment. Notably, Q1 has a disproportionately high proportion of "Uncertain" responses, as the orange segment representing uncertainty towers over both correct and incorrect parts, indicating that many respondents lacked confidence in their answers for Q1 and opted for the uncertain option.

4.2 Cross-tabulation Analysis

Building on the initial analysis, a more comprehensive exploration of how independent variables impact the dependent variable is warranted.

The results of chi - square tests in the Table 3.1 examine the associations between policy support and its influencing factors:

- *FairnessPerception* emerges as the most strongly related variable to policy support, with a very high chi - square value of 110.42, a P - value of 0.0000 (well below the 0.1 significance threshold), and a Cramers V of 0.5202, indicating a strong correlation.
- *EffectivenessPerception* also shows a substantial association, having a

chi - square of 86.61, a P - value of 0.0000, and a Cramers V of 0.4607, suggesting a moderately strong relationship.

- *RecyclingEffectPerception* is moderately correlated, with a chi - square of 44.53, a P - value of 0.0000, and a Cramers V of 0.3815.
- *AgeRange* exhibits a weaker yet still significant (P = 0.0576 < 0.1) association, with a chi - square of 30.00 and a Cramers V of 0.2512.
- *NonRecyclableItem* has a chi - square of 25.65, a P - value of 0.012 (significant at p < 0.1), and a Cramers V of 0.2895.
- *HighestEducationLevel* shows a marginal significance (P = 0.050 < 0.1) with a chi - square of 21.00 and a Cramers V of 0.2475.
- *CurrentSeverity*, which with a chi - square of 18.74, a P - value of 0.095 (significant at p < 0.1), and a Cramers V of 0.2475, also demonstrates a weak correlation.

Table 3. 1Policy support and its influencing factors

Variable	Chi2	P – value (p<0.1)	Cramers V
FairnessPerception	110.42	0.0000	0.5202
EffectivenessPerception	86.61	0.0000	0.4607
RecyclingEffectPerception	44.53	0.0000	0.3815
AgeRange	30.00	0.0576	0.2512
NonRecyclableItem	25.65	0.012	0.2895
HighestEducationLevel	21.00	0.050	0.2475
CurrentSeverity	18.74	0.095	0.2475

Overall, these results indicate that while *FairnessPerception*, *EffectivenessPerception*, and *RecyclingEffectPerception* have relatively stronger associations with policy support, demographic factors (*AgeRange*, *HighestEducationLevel*) and other perceptions (*NonRecyclableItem, CurrentSeverity*) also contribute to varying degrees, albeit weaker, to the understanding of policy support levels.

4.3 Analysis of Regression

This study took citizens' attitudes toward the waste charging policy as the dependent variable and all other factors as independent variables in a regression analysis. By examining the positive or negative signs of the coefficients, the direction of influence between each independent variable and public attitudes toward the policy was identified.

The reprocessing of data, the five-point Likert scale data (e.g., *support_info*) in the original dataset were originally too dispersed. To address this, they were collapsed into three categories: *Opposition* = 0, *Neutral* = 1, and *Support* = 2, to facilitate subsequent analysis.

4.3.1 Model Significance Test

Table 2Model significance test

Types Of Models	-2 Log-Likelihood Value	Chi-Square Value	Df	P-Value
Only Intercept Model	208.629	-	-	-
Ordinal Logistic Regression Model	98.248	110.381	34	<0.001

Table 2 shows, the final model demonstrated a significant chi-square value ($p < 0.001$), indicating that its overall fit surpasses that of the intercept-only model. This statistical significance suggests the model effectively captures the variance in the data beyond what an only intercept model could explain, highlighting its utility in representing the underlying relationships among variables.

4.3.2 Chi-Square Goodness of Fit Test

As shown in Table 3, both Pearson and Deviance tests for the ordinal logistic regression model yielded p-values approaching 1 when applied to Hong Kong citizens' attitude data toward the government's waste charging policy. This indicates no significant discrepancy between the model's predicted support levels (ranging from "*Opposition*" to "*Support*") and actual survey responses, confirming an excellent fit.

For instance, the model effectively reproduced the observed distribution where 42% of respondents showed neutral attitudes toward the policy, aligning closely with the empirical data. The near-unity p-values suggest the model can reliably simulate Hong Kong residents' attitudinal patterns, such as how perceived policy fairness (a key predictor in the model) influences support—findings that could inform targeted communication strategies for policy implementation.

Table 3Goodness of Fit Test

Method	Chi-Square Value	Df	P-Value
Pearson	112.214	158	0.998
Deviance	98.248	158	1.000

4.3.3 Pseudo R-Square

Three pseudoR^2 metrics (Table 4) were employed to evaluate the model's explanatory power for Hong Kong citizens' attitudes toward the government's waste charging policy.

Table 4Pseudo R-Square

Index	Value
Cox and Snell	0.680
Nagelkerke	0.769
McFadden	0.529

Cox and Snell's pseudoR^2 (0.680) measures the proportion of variance in the dependent variable (e.g., *Support levels* ranging from "*Opposition*" to "*Support*") explained by the model, with higher values indicating better fit. In

this case, the metric suggests the model accounts for 68% of the variation in public support, such as differences influenced by factors like perceived policy fairness.

Nagelkerke's pseudoR^2 (0.769 > 0.7), an adjusted version that caps at 1, further highlights strong explanatory power, which signifies the model effectively captures relationships between independent values and citizens' attitude, including the observed 42% neutral rate in survey data.

McFadden's pseudoR^2 (0.529) assesses the model's improvement over a null model (which assumes no predictors), indicating a moderate yet meaningful enhancement. Specifically, it demonstrates that adding variables like perceived personal cost improves predictive accuracy by 52.9% compared to an only Intercept model.

4.3.4 Parameter Estimation and Interpretation of Key Variables

In this regression, the null hypothesis (H_0) for each independent variable is: "*The regression coefficient of this independent variable is 0, there is no significant effect on the dependent variable*". The following Table 5 is an analysis of the results of the null hypothesis test based on the P-value of Wald's test:

1) **Significant positive impact (Coefficient > 0 and p < 0.05)**

   Younger age groups showed significantly stronger support for the waste charging policy, with the 18 – 24 cohort having an odds ratio (OR) of 1,165 (OR = $e^{7.064}$, p = 0.004), meaning they were over a thousand times more likely to support higher policy levels than those aged 65+. *Since there are relatively few data points with an age of 65 or above in this dataset, this analysis is provided for reference only.*

2) **Significant negative impact (Coefficient < 0 and p < 0.05)**

   Respondents with the lowest level of perceived policy fairness had just 0.87% of the odds to support higher policy levels compared to the reference group (OR = $e^{-4.754}$), highlighting how unfair distribution significantly reduces public acceptance. This underscores fairness as a core decision factor, urging policymakers to prioritize equitable policy design. Similarly, those with extremely low trust in government policy exhibited a starkly negative effect (OR = 0.0084), meaning they were over 99% less likely to support the policy. This reveals a direct correlation between public trust and support, emphasizing the need for strengthened policy communication and feedback mechanisms to address legitimacy concerns.

Table 5Summary Table of Variable Coefficients

Value	Coefficient	Standard Error	Wald	P-value
Age =65+				
Age Range (18-24)	7.064	2.443	8.364	0.004
Age Range (25-34)	6.563	2.639	6.182	0.013
Age Range (35-44)	4.922	2.403	4.195	0.041
Age Range (45-54)	3.397	2.525	1.809	0.111

Age Range (55-64)	3.344	0.000*	-	-
Fairness = fair				
Fairness= unfair	-4.754	1.362	12.176	<0.001
Fairness= neutral	-1.715	1.045	2.673	0.102
Government consideration=Considered fully				
Government consideration= not fully	-4.789	1.309	13.390	<0.001
Government consideration= average	-1.155	0.953	1.465	0.226
Highest Education Level =Master or above				
Secondary	-2.670	1.563	2.935	0.087
Diploma or Bachelor	-1.814	1.165	2.412	0.120
Primary or below	-9.487	0.000*	-	-
Waste severity= highly severe				
Not at all severe	-15.083	0.000*	-	-
Slightly severe	-0.764	0.853	0.807	0.369
Moderately severe	-0.685	0.835	0.673	0.412
Other independent variables				
Local Resident	0.375	1.052	0.127	0.721
Public Rental	-0.805	1.031	0.615	0.433
Private Rented	-0.545	1.045	0.270	0.603
Self-Owned	-0.427	1.047	0.166	0.684
Daily waste bags >1	-0.887	0.662	1.805	0.179
Daily waste bags <1	-0.660	0.512	1.662	0.197
Household Income ($5,000-10,000/month)	0.540	0.667	0.655	0.418
Household Income ($10,000-15,000/month)	0.420	0.676	0.385	0.535
Household Income ($1,5000-20,000/month)	0.280	0.742	0.142	0.706
Household Income ($20,000+ /month)	0.040	0.744	0.003	0.956
Recycle frequency	0.320	0.244	1.726	0.189
Household size	0.092	0.283	0.105	0.746
Policy helpfulness=no	-0.003	3.000	0.000	0.999
Policy helpfulness=average	-0.424	0.703	0.368	0.544
Policy helpfulness=yes	-0.316	0.701	0.203	0.652
Recycling effort=Significant effort				
Never recycled	-0.230	0.661	0.121	0.727
Slight effort	-0.134	0.661	0.041	0.840
Moderate effort	-0.025	0.662	0.001	0.969
Total score=3				
Total score=0	-0.600	0.482	1.543	0.214

Total score=1	-0.400	0.485	0.680	0.409
Total score=2	-0.200	0.485	0.170	0.680

3) Marginal significant variables (with a coefficient ≠ 0 and 0.05 ≤ p < 0.1)

Respondents with whose highest education level is secondary trended towards lower support for the waste charging policy (p=0.053), falling just short of statistical significance. Theorized explanations suggest that higher-educated groups better grasp the policy's long - term value, while those with medium education focus more on short - term costs.

4) Non-significant variables (Coefficient ≠ 0 but p ≥ 0.1)

Variables such as household income and housing type did not reach statistical significance (p > 0.1) in influencing attitudes toward the policy, potentially due to uneven income distribution in the sample or insufficient differentiation between housing categories. Notably, while the coefficient for "*Daliy waste bag>1*" was negative (Coeff = -0.887), its p-value of 0.179 indicates the association fell short of significance. This suggests the relationship between waste volume and policy support may be mediated by other factors (e.g., fairness), warranting further exploration in future studies to disentangle these complexities.

4.4 Summary

This chapter systematically analyzed Hong Kong citizens' attitudes toward the waste charging policy, revealing a divided public landscape where opposition (41%) slightly outweighs support (36%), with neutrality at 25%.

Key findings highlight that information provision on waste management success and landfill urgency significantly shifted support toward higher levels, while younger age group demonstrated overwhelmingly stronger endorsement compared to older. Perceptions of policy fairness and government trust emerged as critical drivers of opposition, with low-perception groups showing minimal odds of support.

A disconnect between waste bin awareness and usage were identified as notable behavioral and educational challenges. The ordinal regression model, with strong explanatory power, validated these relationships, underscoring the need for policy design prioritizing fairness, targeted communication to build trust, and engagement with younger demographics to foster acceptance.

5 Policy Improvement Suggestions

5.1 Government

Prioritize Fairness in Policy Design:

Given the strong negative association between low fairness perception and support, the government should design a tiered garbage charging system. The current policy only involves weight-based classification, without taking into account the classification of families based on different income levels. For larger families or low - income households, set lower per - unit charges or offer subsidies, while applying higher charges to high - waste - generating households. This can better reflect the environmental burden of different families and address the fairness concerns associated with the "polluter pays" principle.

Amplify Targeted Communication:

Leverage the high receptiveness of 18–24-year-olds by using social media influencers and other platforms to disseminate policy benefits. Meanwhile, address knowledge gaps through social media campaigns and school curricula, framing the policy as a solution to urgent environmental threats.

However, middle-aged and elderly groups should not be overlooked. This age group may benefit more from offline engagement methods. For instance, organizing promotional campaigns in shopping malls to deliver policy briefings, distributing physical brochures on waste sorting, and offering environmentally friendly gifts (e.g., reusable shopping bags or plant seedlings) can enhance their understanding and engagement. These in-person interactions align with their information acquisition preferences and facilitate deeper communication about the policy's long-term environmental and community benefits.

Enhance Trust Through Feedback Mechanisms:

Establish regular town hall meetings or online forums for citizens to voice concerns about policy implementation, mirroring the study's finding that low "*government consideration*" drives opposition.

5.2 Society

Strengthen the construction of supporting facilities:

Collaborate with property management companies to bridge the " lack of awareness of usage" in waste bins (53.9% aware, but usage and non-usage rates being nearly equal within the aware subgroup) through door-to-door education and incentive systems (e.g., redeemable points for consistent recycling). Meanwhile, ensuring the provision of adequate and well-maintained waste disposal facilities is also critical to support behavioral change, as physical infrastructure directly influences practical compliance

with waste sorting norms.

Organizing community science popularization activities

Community volunteers can organize diverse interactive activities—such as short film screenings and educational games—to engage citizens of all ages and educational backgrounds in learning about waste charging. By showcasing positive case studies (e.g., successful waste reduction outcomes from cities with similar policies) through these accessible, entertaining formats, the initiatives can foster broader understanding of the policy's benefits. Interactive elements like games can make complex concepts more digestible for different literacy levels, while inclusive participation across age groups helps build cross-generational support. This approach leverages community trust and non-technical communication to address knowledge gaps and counter opposition rooted in misunderstanding.

5.3 Summary

In policy formulation, the government must comprehensively consider the interests of citizens across diverse socioeconomic strata, ensuring equitable design that addresses the needs of different groups. Transparency is paramount: publicly disclosing details about waste charging mechanisms—including how fees are allocated and utilized—is essential to building public trust. Additionally, timely sharing of post-implementation data, such as improvements in recycling rates, fosters accountability and demonstrates the policy's real-world impact.

Concurrently, communities should collaborate with the government to deliver tailored outreach strategies, adapting communication methods to engage citizens of varying ages and educational backgrounds effectively. By integrating inclusive policy design, transparent governance, and targeted community engagement, stakeholders can foster a shared understanding of the policy's objectives, mitigate opposition rooted in misunderstanding or perceived inequity, and ultimately enhance public support and program effectiveness.

6 Summary

This study systematically examined Hong Kong citizens' attitudes toward the waste charging policy through univariate analysis, cross-tabulation, and ordinal regression modeling. The analysis identified age, perceived policy fairness, and government consideration as the most significant predictors of support. Based on these findings, this study proposed targeted improvement measures from the perspectives of the government and the community.

Reference

[1] Wikipedia contributors. (2025, May 27). List of countries and dependencies by population density.

[2] Census and Statistics Department of the Hong Kong Special Administrative Region Government. (2025). Table 110-01001: Population by Sex and Age Group [Data table]. Hong Kong Special Administrative Region Government Census and Statistics Department.

[3] Environmental Protection Department (EPD), Hong Kong Special Administrative Region Government. (n.d.). Strategic Landfill Sites. Environmental Protection Department, Hong Kong SAR Government.

[4] Xu, L., & Zhang, L. Z. (2018). Sample size estimation for reliability testing. Electronic Product Reliability and Environmental Testing, (z1), 41–43.

[5] Zero Waste Advocate. (2024, November 7). Shifting Hong Kong's Waste Disposal from Landfilling to Incineration [Web log post]. Xueqiu.

[6] Chung, W., & Yeung, I. M. H. (2019). Analysis of residents' choice of waste charge methods and willingness to pay amount for solid waste management in Hong Kong. Waste Management, 96, 136–148.

[7] Li, J., Zuo, J., Guo, H., He, G., & Liu, H. (2018). Willingness to pay for higher construction waste landfill charge: A comparative study in Shenzhen and Qingdao, China. Waste Management, 81, 226–233.

[8] Maskey, B., & Singh, M. (2017). Households' willingness to pay for improved waste collection service in Gorkha Municipality of Nepal. Environments, 4(4), 77.

[9] Xu, L., & Zhang, L. Z. (2018). Sample size estimation for reliability testing. Electronic Product Reliability and Environmental Testing, (z1), 41–43.

Questionnaire content

【Survey Description】

The Hong Kong government announced on August 1, 2024, the suspension of the waste charging scheme and plans to submit a progress report to the Legislative Council by mid-2025 regarding societal preparedness and implementation measures.

This survey aims to understand Hong Kong residents' **awareness, attitudes, and daily waste management behaviors** related to the waste charging policy. The questionnaire is divided into four sections:

- Assessment of policy support
- Household waste disposal and recycling habits
- Policy knowledge test
- Demographic information

【Questionnaire Description】

This survey is conducted in a completely **anonymous manner** and does **NOT** collect any personal contact information or track the identity of respondents. Your answers will be used for academic purposes only and all data will be **kept strictly confidential**.

Your valuable input will help evaluate factors influencing public acceptance of the policy. Thank you for your participation!

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1. Part 1: Assessment of policy support（5 Questions）

The Municipal Solid Waste Charging Policy is based on the "polluter-pays" principle, requiring all household and non-household premises (including commercial and industrial sectors) in Hong Kong to pay according to the quantity of waste disposed.

According to the Environmental Protection Department's estimates, a **3 to 4 person household** using one 10-litre or 15-litre designated garbage bag per day would incur a monthly waste charging fee of approximately **HKD 30 *to* 53** (https://www.stheadline.com/lifetips/3306554/). The more waste disposed, the higher the cost of purchasing designated bags or tags.

(1/5) To what extent do you support this policy?

- Strongly oppose
- Oppose
- Neutral
- Support
- Strongly support

(2/5) According to the 'polluter pays' principle, do you think 'charging by the amount of garbage' can fairly reflect the environmental burden of different families?

- Very unfair
- Unfair
- Neutral
- Fair
- Very fair

(3/5) Do you think the government has fully considered the opinions of citizens from different social classes when formulating the garbage charging policy?

- Not considered at all
- Considered less
- Average
- Considered fairly fully
- Considered very fully

(4/5) How helpful do you think the waste charging policy will be in reducing total waste volume?

- Not helpful at all
- Not very helpful
- Somewhat helpful
- Very helpful

(5/5) How severe do you think Hong Kong's current **waste management** issues are?

- Not at all severe
- Slightly severe
- Moderately severe
- Highly severe

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2. Part 2: Household waste disposal and recycling habits（4 Questions）

(1/4) On average, how many bags of waste does your household dispose of **daily**? (Standard: Width: 31 cm, height: 53 cm)

- Less than 1 bag
- Exactly 1 bag
- More than 1 bag
- I don't know

(2/4) How **frequently** did you sort and recycle waste in the past week? (including paper, plastic, metal, glass, etc.)

- Never recycled
- 1-2 times
- 3-4 times
- 5 times or more
- Recycled daily

(3/4) How much time and effort has it typically taken you to recycle in the past? (including sorting, cleaning, delivery, etc.)

- Never recycled
- Slight effort (basic sorting, no cleaning)
- Moderate effort (sorting + light cleaning)
- Significant effort (thorough sorting + cleaning + dedicated delivery)

(4/4) Have you seen **food waste recycling bins** near your residence?

- Yes

- No

[Additional question] Have you used the food waste recycling bins?

- Yes
- No

---

3. Part 3: Policy knowledge test （4 Questions）

(1/3) Which of Hong Kong's three landfills is expected to reach saturation at the **earliest**?

- New Territories West
- Southeast of the New Territories
- Northeast of the New Territories
- don’t know

(2/3) Which of the following items is **NOT** recyclable?

- Glass bottles
- Mirrors
- Aluminum cans
- Newspapers

(3/3) What do you estimate Hong Kong’s recycling rate was in 2023?

- <20%
- 20-40%
- 40-60%
- >60%

[Additional question] Policy Support (Re-evaluation)

After considering the following two information, please **re-evaluate your support for the waste charging policy**:

1. Hong Kong's Landfills Are Nearing Capacity

"Currently, the three strategic landfills—the West New Territories (WNT) Landfill, the Southeast New Territories (SENT) Landfill, and the Northeast New Territories (NENT) Landfill—serve as Hong Kong’s primary waste disposal sites. Since January 2016, the SENT Landfill has accepted only construction waste. At present, the remaining capacity of the NENT and WNT Landfills is below 20%. Based on the current daily waste intake, both landfills are projected to reach full capacity by 2026. The government is advancing expansion projects for the NENT and WNT Landfills, aiming to begin receiving waste by 2026 to meet Hong Kong’s short-to-medium-term waste disposal needs."

— Excerpt from *Environment Affairs Committee – Background Brief on Hong Kong’s Development of Modern Waste-to-Energy Incineration Facilities*

(Meeting held on June 24, 2024, LegCo Paper CB(1)811/2024(06))

2. South Korea’s Waste Charging Policy Success

Since implementing **waste charging in 1995**, South Korea’s average annual municipal solid waste (MSW) **recycling rate rose** from **6.3%** (1986–1994) to **47%** (1995–2012) (Park & Lah, 2015). By 2022, the rate reached **60%** (Yoo, 2024).

Based on the above two pieces of information, please re-evaluate the degree of support for the garbage charging policy:

- Strongly oppose
- Oppose
- Neutral
- Support
- Strongly support

---

4. Part 4: Demographic information （6 Questions）

This information is only used to analyze differences in waste disposal between different living environments and will not be used to identify individuals.

(1/6) Are you a Hong Kong permanent resident?

- Yes
- No

(2/6) What is your highest education level?

- Primary or below
- Secondary
- Diploma or Bachelor's
- Master's or above

(3/6) How many people do you live with?

- 0
- 1
- 2
- 3
- 4
- 5 or above

(4/6) Which district in Hong Kong do you live in?

(5/6) What type of housing do you live in?

- Public rental housing
- Subsidized housing
- Private housing
- Other

(6/6) What is your age range?

- 18-24
- 25-34
- 35-45
- 45-54
- 55-64
- 65+

(optional) What is your **household** monthly income range?

- < HK$15,000

- Below HK$15,000-30,000
- HK$ 30,001-50,000
- HK$50,001-70,000
- Above HK$70,000