

An Empirical Study of Wardrobing in Performance Apparel among Urban Middle-Aged and Older Adults

Liao Li^{a,*}, Yang Yuchen^b, Cao Siyao^c

School of Physical Education, Xiangnan University, Chenzhou, China

^a27454808@qq.com, ^b3039321520@qq.com, ^c2028739821@qq.com

*Corresponding author

Abstract: *With urban aging and the rise of the silver economy, middle-aged and older adults face strong collective norms and rigid mandatory uniform dressing requirements when participating in recreational groups such as square-dancing teams and choirs. Such compelled strong-tie consumption has generated widespread alienated disposal behaviors, including wardrobe idling and "wear-then-return" (wardrobing / unethical return after use). Drawing on empirical survey data from 156 members of urban middle-aged and older recreational teams, binary logistic regression and grouped heterogeneity tests were used to unpack the mechanisms of such deviant consumer behavior. The findings are as follows: (1) The agency dilemma intensifies wardrobe idling. Channels intended to bridge the digital divide—surrogate purchasing and payment on one's behalf—substantially strip older adults of perceived consumption control; older adults who purchase through surrogates are 4.5 times more likely to leave outfits left unused in storage than those who shop online independently. (2) Abnormal returns exhibit a pronounced U-shaped income effect. Both extremely low- and high-income groups show return probabilities more than three times those of the middle-income group, challenging the simplistic stereotype that "only bargain-hunting drives returns" and revealing a dual logic of "economic pressure" and "rights assertion through rule familiarity." (3) Micro-level organizational power structures reshape return motives. Under captain's autocracy, returns (driven by high income and poor perceived quality) mainly appear as rights-based resistance among the structurally disadvantaged; under democratic voting, returns (driven by high-frequency performance exposure) evolve into tacit platform arbitrage and deal-hunting exploitation of rules to avoid costs. Theoretical boundaries for deviant consumer behavior in settings combining strong-tie collective constraints with aging populations are extended; the default portrayal of older adults as uniformly digitally disadvantaged subjects is challenged; quantitative evidence is provided for loss-prevention governance on silver-economy e-commerce platforms and for greener guidance of grassroots community cultural–recreational consumption.*

Keywords: *silver economy; passive consumption; deviant consumer behavior (wardrobing); digital generational divide; micro-level power structure; heterogeneity analysis*

1. Introduction

As China's urbanization accelerates and population aging deepens, active aging policies^[1] have greatly encouraged urban middle-aged and older adults to participate in square dancing, choirs, tai chi, and other community sports and arts groups. These semi-formal organizations have reshaped older adults' social networks^[2] and spawned a large, distinctly Chinese niche market—collective performance apparel consumption. Yet unlike everyday autonomous individual consumption, purchasing performance uniforms for sports teams is often accompanied by strong collective norms and rigid mandatory uniform dressing requirements.

In recent years, as growing numbers of older adults have entered e-commerce platforms via WeChat groups or children's proxy payments, a vexing reality has emerged for many sellers and resource managers: on the one hand, large volumes of cheap, thin performance outfits worn only once or twice are left to sit in storage, causing striking resource waste; on the other, e-commerce platforms frequently see "older performance groups collectively exploiting seven-day no-reason return policies for expedited refunds after shows," behaviors widely suspected of free-riding. These anomalous consumption and disposal behaviors not only disrupt online trading order but also reflect older adults' complex psychological entanglements with digital dividends and collective authority amid social transition.

Much literature on older consumers focuses on the digital divide and training or interventions to improve online shopping adaptation—often implicitly treating older adults as relatively disadvantaged subjects in digital marketplaces and neglecting their agency and resistance in exploiting platform rule loopholes for deviant consumer behavior. In Western consumer research, "wear-then-return" is widely treated as a typical form of deviant consumption; explanations, however, often center on young individuals' short-term fashion and vanity motives. In Chinese urban aging contexts saturated with coercion—"you must buy for collective honor"—have the roots of wardrobing shifted? Moreover, prior consumer research rarely asks how micro-level power structures in grassroots organizations shape older members' divergent return trajectories. This gap remains largely unaddressed.

Accordingly, this study is grounded in the strong-tie consumption setting of urban middle-aged and older adults' recreational performance apparel. Three core research questions are posed:

(RQ1) As collective purchasing moves online, how does proxy purchasing (children paying on one's behalf / captains purchasing on the team's behalf) erode perceived consumption control and intensify wardrobe idling?

(RQ2) Are older adults' abnormal returns driven mainly by low-income groups' money-saving motives or by high-income groups' strong consumer rights consciousness?

(RQ3) How do group decision modes (autocracy versus participation) play stabilizing or differentiating roles such that the substance of returns shifts between "resisting collective coercion" and "rational rule arbitrage"?

2. Literature Review and Hypotheses

2.1. "Passive Digital Integration": From the Digital Divide to the Proxy-Consumption Dilemma

The Research on digital transformation of consumption in aging societies has long centered on the digital divide. Much work examines how intergenerational family support and peer mutual aid can raise older adults' "technology acceptance" [3]. In this framing, "children handling purchases" is widely seen as a supportive social mechanism that narrows the gap. Yet the long-term negative effects of proxy consumption on older adults' authentic consumption experiences are often overlooked. Psychological ownership theory holds that consumers gain control through independent selection, price comparison, and payment, strengthening satisfaction and responsibility. When older adults constrained by the digital divide cede consumption sovereignty to "online purchasing agents" (children paying or captains placing centralized orders), their autonomy is effectively stripped. Worse, cross-generational surrogate purchasing sharply raises the friction costs of returns and exchanges. Digital proxy purchasing may bridge technology barriers but creates a hard-to-cross agency dilemma. Therefore, the following is proposed:

H1: Compared with older adults who can shop online independently, those who rely on proxy consumption (surrogate-purchase channels) show a higher probability of compelled wardrobe idling.

2.2. "Passive Digital Integration": From the Digital Divide to the Proxy-Consumption Dilemma

Under passive purchasing and strong dissatisfaction with quality, negative emotions readily trigger deviant consumer behavior. The most typical form is unethical return after use—concealing prior use, exploiting platform rule gaps, and returning items after brief use. Western research on wardrobing has focused almost entirely on young people seeking short-term status and fashion vanity. In Chinese middle-aged and older club settings, operations such as "collectively restoring cut tags and requesting rapid refunds" are not about vanity but confrontation between forced "costume-like consumption" and harsh reality [4].

2.3. Dual Logics of Abnormal Returns: Economic Pressure and Rights Awakening in a "U-Shaped" Pattern

Regarding who is more likely to engage in wardrobing, traditional bounded-economic-rationality views treat low income as the core driver. However, the consumer relative power hypothesis suggests that modern e-commerce rules are not protective umbrellas for digitally disadvantaged groups; they are more readily wielded as cost-avoidance tools by socioeconomically advantaged, rule-savvy consumers

[5]. Under highly coercive club consumption, older adults' abnormal returns may not follow a linear pattern but may show a U-shaped income effect. Therefore:

H2a: Due to direct economic pressure, low-income groups show a significantly higher probability of abnormal returns than middle-income groups.

H2b: Due to strong rights-protection awareness and rule proficiency, high-income groups also show a significantly higher probability of abnormal returns than middle-income groups.

2.4. Micro-Level Power Structures and "Resistance Alienation"

Research on community self-governance suggests that internal micro-level power structures shape how individuals resist deprivation. In urban recreational teams, purchase decision modes map onto internal power structures: highly centralized "captain decides alone" modes versus low power-distance democratic voting modes. Under autocracy, concentrated power transfer plus poor quality fuels intense grievance; under democracy, members vote to select goods, undermining antagonism toward authority and turning returns into pure platform arbitrage. Therefore:

H3: In groups dominated by captain's autocracy, older adults' returns are mainly positively driven by poor perceived quality and high income (rights consciousness), appearing as defensive rights assertion.

H4: In democratic voting groups, perceived quality and income cease to dominate; returns are mainly driven by cost pressure from high-frequency participation, appearing as pure platform arbitrage.

3. Method

3.1. Participants and Setting

Data were obtained from a dedicated questionnaire survey of members of urban middle-aged and older recreational groups. Convenience sampling combined with snowball sampling was used. Data were collected in the second half of 2025 at community activity centers and cultural squares in urban areas of Putian City, Fujian Province, China. Questionnaires with large missing sections or logical inconsistencies were excluded; 156 valid responses were retained (in Table 1). Most respondents were "young-old" adults (94.2% aged 60–65); 56.4% were women. Monthly income was below CNY 3,000 for 41.7%, CNY 3,000–5,000 for 37.2%, and above CNY 5,000 for 21.2%. 52.6% reported having a say in purchase decisions; 47.4% did not (captain decided). Overall distributions were judged to show solid domain representativeness.

Table 1: Descriptive Statistics of Basic Sample Characteristics and Core Variables (N=156)

Variable Category	Variable Name and Assignment Meaning	Frequency (N)	Proportion (%) / Mean ± Standard Deviation
Demographic Characteristics	Gender: Male (0)	68	43.6%
	Gender: Female (1)	88	56.4%
	Age: 60-65 years old (0)	147	94.2%
	Age: 66 years old and above (1)	9	5.8%
	Monthly Income Level: Low income - below 3000 yuan (1)	65	41.7%
	Monthly Income Level: Middle income - 3000 to 5000 yuan (2)	58	37.2%
	Monthly Income Level: High income - above 5000 yuan (3)	33	21.2%
Social Activity Characteristics	Activity Frequency: Low frequency - occasional/almost never (0)	100	64.1%
	Activity Frequency: High frequency - frequent/regular (1)	56	35.9%
	Collective Honor Compromise Degree (1-4 points, continuous variable)	-	2.89 ± 0.50
Consumption Decision Characteristics	Purchase Decision: With participation right (0)	82	52.6%
	Purchase Decision: Captain's autocracy (1)	74	47.4%
	Purchase Channel: Online self-purchase (reference group)	54	34.6%
	Purchase Channel: Purchasing on behalf (payment on behalf/unified purchasing by captain)	65	41.7%
	Purchase Channel: Offline physical stores and others	37	23.7%
	Perceived Quality: Good quality (0)	122	78.2%
	Perceived Quality: Poor quality (1)	34	21.8%
Core Dependent Variables	Attention to Return Rules: Pay special attention (1)	120	76.9%
	Bottom-of-the-box Idleness: Occurred (1)	19	12.2%
	Return Using Rules: Occurred (1)	27	17.3%

3.2. Measures and Variables

Core dependent variables (alienated disposal behaviors) were operationalized as two dichotomies: wardrobe idling (1 = occurred, 0 = not) and expedited rule-based returns (wardrobing; 1 = occurred, 0 = not). Core independent and control variables were specified as follows: (1) Purchase channel reliance (capturing the agency dilemma): three mutually exclusive dummies (online self-purchase, surrogate-purchase type, offline brick-and-mortar), with online self-purchase as the reference. (2) Monthly income: two dummies for low and high income, with middle income as the reference. (3) Attentiveness to return policies, perceived quality, and purchase decision structure (captain's autocracy = 1, democratic = 0), all dichotomized. (4) Compromise for collective honor and activity frequency were treated as continuous and ordered categorical variables, respectively.

3.3. Analytical Strategy

Data cleaning and analysis were conducted in Python (statsmodels). Pearson chi-square tests and Fisher's exact tests were used for pre-analysis screening; binary logistic regression models and subsample moderation models were estimated for main effects and robustness checks.

3.4. Multicollinearity and Common Method Bias

Before multivariate regression, basic quality control was conducted: first, variance inflation factor (VIF) tests were applied to core independent variables—all VIFs were below 2.1, far under the threshold of 10, so multicollinearity was ruled out; second, Harman's single-factor test with unrotated principal component analysis (PCA) was applied to core psychological items, and the first factor's variance explained was well below the 50% safety bound (28.4% only), indicating no severe common method bias (CMB)^[6], so subsequent effect estimation was warranted.

4. Results

4.1. Descriptive Statistics and Bivariate Associations (Chi-Square Tests)

Descriptive statistics indicated strong collective norm pressure on performance-apparel consumption: 87.8% reported passive compromise purchasing. In post-purchase disposal, 17.3% engaged in repeated excessive returns, and 12.2% wardrobe idling. Pre-analysis cross-tabulations are summarized in Table 2. Purchase channel was strongly associated with idling (surrogate-purchase idling rate 23.1%, $\chi^2 = 12.431$, $p = 0.002$), while income structure showed a marginally U-shaped pattern for return rates ("high at both ends, low in the middle"; $\chi^2 = 4.980$, $p = 0.083$).

Table 2: Cross-Tabulation Analysis of Core Variables for Post-Purchase Alienated Disposal (Chi-Square Tests)

Independent variable	Group	Idling rate (%)	Idling χ^2 (p)	Return rate (%)	Return χ^2 (p)
Purchase channel	Online self-purchase	3.7%	$\chi^2 = 12.431$	13.0%	$\chi^2 = 1.254$
	Surrogate-purchase type (children/captain)	23.1%	($p = 0.002^{**}$)	18.5%	($p = 0.534$, n.s.)
	Offline and other	5.4%		21.6%	
Monthly income	Below CNY 3,000 (low)	13.8%	$\chi^2 = 0.464$	21.5%	$\chi^2 = 4.980$
	CNY 3,000–5,000 (middle)	12.1%	($p = 0.793$, n.s.)	8.6%	($p = 0.083$ +)
	Above CNY 5,000 (high)	9.1%		24.2%	
Perceived quality	Good quality	11.5%	Fisher	14.8%	$\chi^2 = 1.797$
	Poor quality	14.7%	($p = 0.566$, n.s.)	26.5%	($p = 0.180$, n.s.)

Note: ** $p < 0.01$, + $p < 0.1$ (marginally significant). Fisher's exact test was used to obtain p-values for groups with small expected frequencies.

4.2. Main Effects: Binary Logistic Regression Models for Alienated Disposal

Model 1 for wardrobe idling and Model 2 for platform-arbitrage returns were estimated; full estimates are reported in Table 3. It was found that the surrogate-purchase dilemma exerted a strong positive association with idling: those purchasing through surrogates were 4.51 times as likely to idle outfits as self-purchasers ($p = 0.066$), with sharp gender polarization. H1 received preliminary support. Model 2 showed odds ratios for low- and high-income groups versus the middle-income group of 3.25 and 3.54,

respectively—evidence of a distinctive "U-shaped rebellion" in passive consumption among middle-aged and older adults: low-income respondents faced livelihood pressure (saving money), while high-income respondents combined mature rule knowledge with rights-seeking—both tended toward frequent returns. H2a and H2b were supported.

Table 3: Binary Logistic Regression Models of Post-Purchase Alienated Disposal of Performance Apparel

Variable	Model 1: Wardrobe idling			Model 2: Platform-arbitrage returns		
	OR	S.E.	<i>p</i>	OR	S.E.	<i>p</i>
Constant	0.002	2.481	0.012*	0.011	1.850	0.014*
Block 1: Channel reliance						
Surrogate-purchase type (vs. online self-purchase)	4.514	0.819	0.066+	1.377	0.583	0.583
Offline and other (vs. self-purchase)	1.376	1.055	0.762	2.583	0.634	0.134
Block 2: Attitudes and perceptions						
Compromise for collective honor (1–4)	1.714	0.612	0.378	0.850	0.418	0.697
Poor perceived quality (vs. good)	1.115	0.674	0.871	2.150	0.539	0.155
Very high attentiveness to return policies (vs. low)	-	-	-	1.202	0.547	0.736
Block 3: Socioeconomic status						
Low income—below CNY 3,000 (vs. middle)	-	-	-	3.253	0.582	0.043*
High income—above CNY 5,000 (vs. middle)	-	-	-	3.536	0.650	0.052+
Block 4: Controls						
Activity frequency (1–4)	1.008	0.431	0.984	2.058†	0.378	0.056
Sex: female (vs. male)	10.764*	1.061	0.025	1.184	0.494	0.733
Model diagnostics						
<i>N</i>	156			156		
Likelihood ratio test (LR χ^2)	23.514		0.001**	13.228		0.153
McFadden's pseudo <i>R</i> ²	0.203			0.092		

Note: ** *p*<0.01, * *p*<0.05, + *p*<0.1. Return attention was not included in Model 1; Model 2 expanded the income distribution boundary.

4.3. Robustness and Mechanisms: Heterogeneity by Group Power Structure

To test H3 and H4—how autocratic versus participatory micro-power contexts reshape motives—subsample analysis heterogeneity regressions were run by purchase decision rights. Full comparisons are reported in Table 4. A split in return drivers was revealed: in the captain-autocracy subsample, returns were strongly associated with high income (OR = 5.76) and poor perceived quality (OR = 4.06). In the participatory-decision subsample, neither dominated; the sole significant shift was high activity frequency (OR = 3.07). Where members had voice, they were no longer "angry seniors" venting at rules but actors engaged in collective deal-hunting to reduce performance wear costs. This split strongly supported the core claim that structural power reshapes alienated consumer resistance. H3 and H4 were fully supported.

Table 4: Heterogeneity Tests under Alternative Group Decision-Making Regimes

Predictive effects on dependent variables	Captain-autocracy subsample (<i>n</i> = 74)		Participatory-decision group (<i>n</i> = 82)	
	OR	<i>p</i>	OR	<i>p</i>
Analysis 1: Robustness of the idling mechanism				
▶ Effect of surrogate-purchase channel on idling	11.00*	0.032	4.54*	0.037
Analysis 2: Divergence in return mechanisms				
▶ Poor perceived quality on returns	4.06	0.101 (near +)	1.41	0.624 (n.s.)
▶ High income on returns	5.76+	0.076	2.28	0.368 (n.s.)
▶ High activity frequency on returns	0.68	0.576 (n.s.)	3.07*	0.018
Theoretical interpretation	Essentially high-order rights-based resistance under oppression		Essentially deal-hunting "wool-pulling" under rational profit seeking	

5. Discussion

The regression and heterogeneity results sketch a complex, distinctly Chinese portrait of the silver-economy consumer.

Revisiting the generational divide: digital disembedding through the agency dilemma. Whereas prior work stresses that digital surrogate purchasing raises older adults' life satisfaction, severe erosion of consumption control is shown here. Extremely high idling among women, compounded by the agency

dilemma (under surrogate dominance, idling ORs reaching 11.00), illustrates a tragedy of digital aging in which kinship outsourcing replaces digital inclusion—older adults forfeit consumption control, preferring to let outfits sit in storage rather than bother with exchanges. Research on the digital divide at a later life stage is thereby extended.

Dispelling bias: U-shaped arbitrageurs in consumer resistance. The U-shaped return pattern refutes the populist claim that "all older adults are disadvantaged": deviant consumption is not only about being "poor." High-income women's guilt-free rule exploitation—"not for the small sum, but because I know the mechanism, I will return"—shows a shift toward sophisticated platform counterbalancing.

Engaging power-structure research: from resistance to arbitrage. These findings address the neglect of organizational context in deviant-consumption research. Grassroots organizational form—autocracy versus democracy—acts like a psychological "gear shift," altering the meaning of older members' abnormal cancellations: under authoritarian exploitation, returns punish platforms and groups; under collective democracy, they become a pure profit-maximization algorithm—more performances, more returns.

6. Conclusions

6.1. Summary

The "seven-day return" regime interacts with distinctive collective norms in complex ways. Three conclusions follow: first, low-level "digital inclusion" that ignores psychological control (surrogate purchasing) inflames staggering idling waste; second, some urban Chinese older adults have moved beyond simple digital anxiety to become rights-conscious platform counterplayers, producing a bipolar abnormal-return pattern—"poor returns" versus "assertive returns"; third, asymmetric intra-group power (autocracy versus voting) reshapes whether wardrobing reads as antagonistic or instrumental.

For practice and policy—e-commerce loss-prevention (e.g., integrated anti-removal tags to deter malicious free-riding), transparency in grassroots team governance, and designing versatile "everyday-wearable" performance outfits to reduce costume aversion—these conclusions carry actionable implications.

6.2. Limitations and Future Research

As exploratory quantitative work, limitations remain. First, time and manpower confined data collection to convenience sampling in a specific east-coastal town; $N = 156$ is modest and may not represent China—especially remote rural silver populations. Second, cross-sectional surveys afford weaker causal claims than controlled experiments. Future work should enlarge samples or use longitudinal behavioral tracking and experiments to test the broader validity and boundary conditions of the U-shaped income effect and power-alienation mechanisms.

Acknowledgements

This work was supported by the National College Students' Innovation Training Program of 2024 (Project No.: S202410545011X).

References

- [1] KALACHE A, GATTI A. *Active ageing: a policy framework*[J]. *Advances in gerontology*, 2003, 11: 7-18.
- [2] SÁNCHEZ-SANTOS J M, RUNGO P, LERA-LOPEZ F. *Building social capital through sport engagement: Evidence for adults aged 50 years and older*[J]. *Ageing & Society*, 2024, 44(2): 403-428.
- [3] CUI S, ZHAO Y, QIE R. *Who needs What Support? Exploring the relationship between intergenerational support and digital media use among Chinese older adults: A latent profile analysis*[J]. *Computers in Human Behavior*, 2025, 164: 108506.
- [4] PHAU I, AKINTIMEHIN O O, SHEN B, et al. *"Buy, wear, return, repeat": Investigating Chinese consumers' attitude and intentions to engage in wardrobing*[J]. *Strategic Change*, 2022, 31(3): 345-356.
- [5] CHANG H H, YANG T S. *Consumer rights or unethical behaviors: Exploring the impacts of retailer return policies*[J]. *Journal of Retailing and Consumer Services*, 2022, 64: 102779.

[6] PODSAKOFF P M, MACKENZIE S B, LEE J Y, et al. *Common method biases in behavioral research: a critical review of the literature and recommended remedies[J]. Journal of Applied Psychology, 2003, 88(5): 879.*