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# Effective and Ineffective Service Recovery Recipes in the Peer-to-Peer (P2P) Sharing-Service Model: Using the Fuzzy-Set Qualitative Comparative Analysis (fsQCA) Approach

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**Abstract:** In a peer-to-peer (P2P) sharing-service model, a platform provider (PP) has no direct control over the service quality of peer service providers (PSPs). However, an unpleasant experience with a single PSP may impact customer responses to the PP. Hence, the PP should offer PSPs guidelines on how to cope with service failures. To identify effective/ineffective recovery strategies, this study examined the influence of the characteristics of service failure/recovery and customers that influence customers' behavioral intentions toward the PP. Specifically, it employed multiple regression analysis (MRA) and fuzzy-set qualitative comparative analysis (fsQCA) to analyze the complex relationships between service failure/recovery characteristics (severity of service failure and source of service recovery) and customers' characteristics (PSP experience, age, and gender) regarding customers' behavioral intentions (reuse and switching intentions of the PP). The results show (1) four solutions leading to high reuse intention and two solutions leading to high switching intention of the PP when the severity of service failure is high and (2) three solutions leading to high reuse intention and two solutions leading to high switching intention of the PP when the severity of service failure is low. By investigating recovery configurations reflecting the unique characteristics of P2P sharing services, this study contributes to the literature on both P2P sharing services and service failure/recovery.

**Keywords:** fuzzy-set qualitative comparative analysis (fsQCA); sharing economy; service failure; service recovery; source of service recovery; peer service provider experience; age; gender; reuse intention; switching intention



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## 1. Introduction

Recently, the sharing economy, known as a sustainable solution for green economic development, has grown rapidly [1]. P2P sharing services such as Airbnb and Uber thus have the potential to grow from a global revenue of USD 15 billion in 2014 to USD 335 billion by 2025 [2]. As a new business model, P2P sharing services face unique challenges [3]. Hence, extant research investigated various facets of P2P sharing services, such as conceptualization (e.g., [4,5]), antecedents (e.g., [6,7]), and barriers (e.g., [8]). However, research on service failure/recovery considering the characteristics of P2P sharing services is insufficient [9]. Against this backdrop, this study investigated service failure and recovery in P2P sharing services.

In a P2P sharing-service model, three different actors who create triadic relationships participate in the service delivery process: a platform provider (PP; e.g., Airbnb), a peer service provider (PSP; e.g., host), and a customer [5]. The triadic relationships in P2P sharing services have features that differ from those of traditional services. First, from the customer's perspective, there are two service providers (PP and PSP) [5]. For example, Airbnb (PP) provides a platform service where customers can find the desired accommodation, and a host (PSP) provides his/her private place to these customers. This is fundamentally different from traditional services, in which customers transact with only one object (service firm) at a time [10]. In addition, it brings complexity to customers, such as, "Who

should I complain to and ask to solve the problem?" when a service failure occurs [5]. Second, peers can be either PSPs or customers [5]. For example, customers can use Airbnb (PP) services when they travel and rent their rooms or houses via the Airbnb platform as hosts (PSPs). Since the customers' expectation in the service failure/recovery situation can differ depending on their PSP experience due to homophily [11], customer responses to the service failure/recovery situation can be more complex than when dealing with a traditional service. Given these two complex aspects, this study explored the complexity of attribute configurations that elicit positive/negative customer responses to the PP. To discover effective/ineffective recovery strategies, this study combined linear and nonlinear methods based on complexity theory [12]. Specifically, it examined the influence of the characteristics of service failure/recovery that are generic (severity of service failure and recovery effort) or unique to P2P sharing services (source of service recovery: SSR), as well as the characteristics of customers that are generic (age and gender) or unique to P2P sharing services (PSP experience; PE) that influence customers' behavioral intentions toward the PP (reuse and switching intentions). This study thus contributes to both the theoretical and methodological domains. Theoretically, this study provides a better understanding of the complex formulation of customers' behavioral intentions in service failure/recovery situations with special reference to P2P sharing services. Methodologically, it employed fuzzy-set qualitative comparative analysis (fsQCA), which is a new methodology in the field of P2P sharing services.

The remainder of this paper is organized as follows. Section 2 presents the theoretical background and the proposed model. Then, Sections 3 and 4 describe the research methodology and results, respectively. Section 5 discusses the results and their managerial implications. Finally, Section 6 offers the contributions, limitations, and directions for future research.

## 2. Theoretical Background and Proposed Model

### *2.1. P2P Sharing-Service Model*

P2P sharing services have three key actors: a PP providing the service platform, a PSP offering the core service, and customers [5]. Unlike traditional service employees, PSPs are not professionally trained to deliver services [5]. Hence, PSPs (1) are prone to making mistakes, resulting in service failures, and (2) they have a lack of knowledge about how to deal with a service failure [5]. In addition, PSP's difficulties in appropriately coping with service failure can reflect poorly on the PP [3,13]. For example, an unpleasant experience with a single PSP could negatively impact customers' willingness to reuse the PP in the future [5]. Therefore, it is important for a PP to explore effective/ineffective service recovery recipes based on the characteristics of service failure/recovery and those of the customers.

### *2.2. Service Failure/Recovery Characteristics*

#### 2.2.1. Service Failure Severity and Recovery Effort

Extant research shows that, when customers experience service failure, they perceive the transaction as unfair and desire to recover fairness [14]. To this end, they expect service recovery [14]. Providing service recovery that customers deem appropriate is very important [15,16]. In addition, the degree of the recovery should be comparable to the degree of the failure that must be offset [17]. The severity of a service failure is the magnitude of the loss experienced by the customer as a result of service failure [18]. Hence, the adequacy of service recovery can be determined by the service failure severity. Recovery efforts include psychological and tangible recovery [19]. Psychological recovery means to "make a direct attempt to ameliorate the situation by showing concerns for customer's needs" [19] (p. 390). An apology is the most representative form of psychological recovery [20]. Tangible recovery "offers compensation for real and perceived damages" [19] (p. 390) and occurs mainly through refunds, discounts, and coupons [21]. According to social exchange theory [22], for low-severity service failures, psychological recovery, such as an apology, is sufficient to restore justice. By contrast, for high-severity service failures, compensation is

needed to restore justice. Given the above discussion, this study set two models according to the service failure severity and recovery effort as follows: Model 1 represents a situation in which partial refunds were made when the severity of service failure was high, and Model 2 shows a situation in which an apology was given when the severity of service failure was low.

#### 2.2.2. Source of Service Recovery (SSR)

As mentioned above, P2P sharing services have a triadic relationship among a PP, PSP, and customer [5]. From the customer's perspective, there are two service providers: (1) the PP provides an online platform connecting the customer to the PSP who can provide the necessary services, and (2) the PSP provides the core services that customers want, such as spaces to stay during vacation. Therefore, when customers experience service failures, they can expect service recovery from either the PP or PSP [5]. Given this characteristic, it is necessary to explore which of the two is more effective in providing service recovery [5]. Hence, this study explored the combined effects of SSR and customer characteristics.

### *2.3. Customer Characteristics*

#### 2.3.1. PSP Experience (PE)

In P2P sharing services, peers can be not only a customer, such as a guest, but also a PSP, such as a host [5]. In other words, some customers of P2P sharing services have PE, while others do not. Because of homophily [11], if customers have PE (e.g., rent their spaces via Airbnb and use Airbnb service when traveling), their expectation toward other PSPs and the PP might be different from others who have never experienced the PSP role. Hence, this study explored the combined effect of customers' PE with service failure/recovery characteristics and other customer characteristics on customers' responses to the PP.

#### 2.3.2. Age (A) and Gender (G)

According to the stimulus–organism–reaction framework, people can respond differently to the same stimulus depending on demographic factors [23]. Age and gender are representative demographic factors popular in business management studies that aim to predict customer responses [24,25]. In addition, customers' age and gender are the most commonly collected information in the process of providing services to customers, which makes them important factors for academic exploration and are easy to collect and utilize in practice. However, the existing research does not provide adequate knowledge on the impact of age and gender on customers' responses to P2P sharing services. Hence, this study explored the combined effect of customers' age and gender with other customer characteristics and service failure/recovery characteristics on customers' responses to PP.

### *2.4. Customer Responses to PP*

From the PP's perspective, it is not a problem that customers who experience service failure choose another PSP within the PP's platform as an alternative. However, it becomes a problem when customers do not want to reuse the PP's services or choose traditional service firms (e.g., hotels) as an alternative [26]. Hence, this study set customers' repurchase intentions and switching intentions of PP as outcomes.

### *2.5. Complexity Theory and the Proposed Model*

In P2P sharing services, the relationships among the actors (PP, PSP, and customer) participating in the service production/delivery process are more complicated than in traditional services [27]. For example, customers should contact two different entities (e.g., Airbnb and a host) for a single use of the service. Moreover, the high heterogeneity among the peers participating as PSPs or customers increases the complexity of P2P sharing services [28]. Further, PSPs who provide core services to customers lack professionalism compared to traditional service employees [5]. Therefore, uncertainly is higher when customers reserve P2P sharing services than traditional services [29], and PSP's service and

recovery quality are not consistent [5]. Due to the nature of uncertainty inherent in the P2P sharing services, the complexity of customers' decision process influencing their behavioral intention increases [27]. Hence, the variability in the production and delivery of P2P sharing services is greater than that of traditional services. Given all these characteristics, a configurational approach based on complexity theory is appropriate [30]. Configurational thinking sees causal conditions not as opponents in explaining variations in independent variables but rather as potential collaborators of outcome creation [12], as the focus is on understanding how different conditions combine to produce an outcome and whether there is only one or multiple combinations of conditions that can produce the same outcome [12]. Hence, this study proposed a model based on complexity theory consisting of four causal conditions (characteristics of service recovery: (1) source of service recovery and customer characteristics, (2) PSP experience, (3) age, and (4) gender) and two outcomes ((1) reuse intention and (2) switching intention).

This study set two models according to the service failure severity and the recovery plan. Model 1 represents the case of partial refunds when the severity of service failure is high, while Model 2 represents the case in which an apology is given when the severity of service failure is low. Figure 1 illustrates the proposed models.

- **Model 1.** severity of service failure: high, service recovery plan: refund
- **Model 2.** severity of service failure: low, service recovery plan: apology

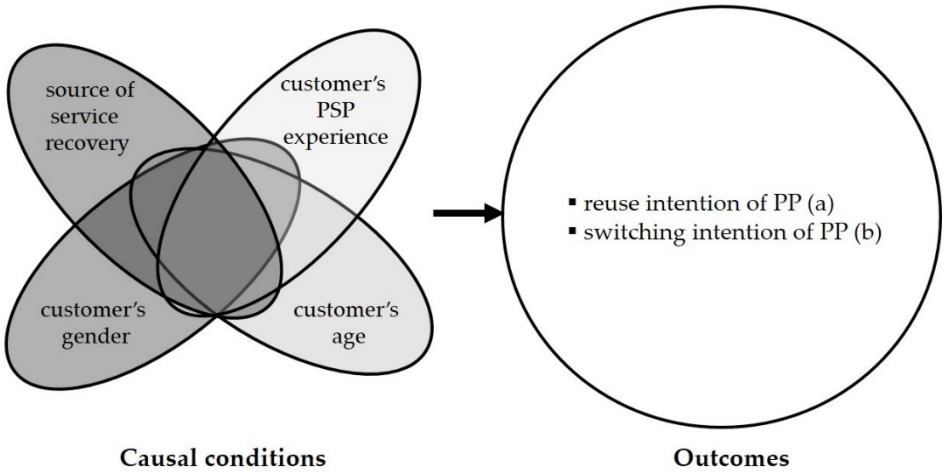


**Figure 1.** Proposed model.

## 3. Methods

According to previous studies, a single methodology has limitations in explaining complex phenomena [31,32]. Hence, this study employed a multistage approach that combines linear and nonlinear analyses [31,33]. This study first conducted a linear multiple regression analysis (MRA) to explore the relationships between causal conditions and outcomes. Then, nonlinear analyses (contrarian case analysis and fsQCA) were conducted to reveal the effective/ineffective service recovery configurations leading to customers' reuse and switching intention of the PP.

### *3.1. Regression Analysis*

To explore the relationships between the causal condition and outcomes, this study employed bivariate MRA. The four causal conditions (i.e., SSR, PE, A, G) and two outcomes (i.e., RI, SI) derived from previous studies on P2P sharing services were included as independent and dependent variables, respectively.

### *3.2. Contrarian Case Analysis and fsQCA*

To support the complex nature of the service failure/recovery situation of P2P sharing services, this study conducted a contrarian case analysis. Contrarian cases have a causal

condition with a positive (negative) relationship with an outcome, while the majority of other cases exhibit a negative (positive) association with an outcome [34]. Those cases are difficult to recognize using symmetrical analysis such as MRA [31,32]. Hence, following prior studies [35], this study employed contrarian case analysis to investigate the existence of contrarian cases. The first step is to transform the variables into quintiles. Subsequently, cross-tabulation analysis is conducted using the quintiles among the constructs. Finally, the meanings of the cross-tabulations must be interpreted. The contrarian case analysis results may support the need for analysis that uncovers asymmetrical relationships among causal conditions and outcomes.

To obtain recovery methods that reflect the asymmetrical relationships among causal conditions and outcomes for effective/ineffective service recovery, the current study employed the fsQCA methodology. The first step is to define causal conditions and outcomes. Based on the study of P2P sharing services and service failure/recovery, this study defined four causal conditions and two outcomes: causal conditions are the source of service recovery, customer's PSP experience, age, and gender; outcomes represent the reuse intention and switching intention of the PP. Subsequently, the defined measures need to be transformed into a fuzzy set, with values ranging from 1 (full membership in the set) to 0 (full non-membership in the set). In this study, the following three methods were used. (1) For all items measured using seven-point Likert scales (reuse intention and switching intention of the PP), the full membership threshold was set at six, the crossover point was set at four, and the full non-membership threshold at two [33]. (2) For binary variables (customers' PSP experience and gender), each term was set to 0 or 1 [36]. (3) For the open-ended variable (customers' age), the full membership threshold was set at a value covering 95% of the whole dataset; the crossover point was set at the value covering 50% of the entire dataset, and the full non-membership threshold was set to cover 5% [37].

The fsQCA algorithm is applied to the result of the calibration, thus producing a truth table of $2^k$ rows, where k represents the number of causal conditions and each row represents a possible configuration. In the next step, it is necessary to refine the truth table by the levels of frequency and consistency [12]. The frequency level is the number of observations for each possible configuration. The degree to which cases correspond to the set-theoretic relationships expressed in a solution is consistent. To ensure that a minimum number of empirical observations is achieved in the assessment of subset relationships, a frequency cut-off point must be set. For small and medium-sized samples, the frequency threshold should be set at 2, while for large-sized samples, with more than 150 observations, the threshold should be set at 3 (or higher) [12]. As our samples were 66 for high severity and 62 for low severity, the threshold was set at 2, and the lowest acceptable consistency for observations was >0.75, which is the minimum recommended value identified by [12]. Finally, redundant elements must be removed to complete the fsQCA and identify sufficient configurations.

### *3.3. Research Design*

This study examined an accommodation-sharing service as the context because it is a well-established international P2P sharing service [5]. To obtain effective/ineffective service recovery configurations for a P2P sharing-service model, a 2 (SSR: peer service provider vs. platform provider) X 2 (service recovery plan according to the severity of service failure: apology for low-severity vs. refund for high-severity) between-subject experimental design was used. Participants were randomly assigned to one of four experimental conditions. The source of service recovery was either Home-Share, the accommodation-sharing firm (PP), or the host of an accommodation-sharing service company (PSP), called Ainsely. Ainsely was chosen as the name of the host for its gender neutrality. The manipulation of the severity of service failure and the service recovery plan was as follows. First, the low-severity service failure was manipulated as a situation in which "a customer arrived at the host's place but had to wait 15 min", and the recovery was manipulated as "receiving an apology". Second, the high-severity service failure was manipulated as a situation in which

"a customer arrived at the host's place but had to wait an hour, and as a result, he/she missed the beginning of the performance, which was the main purpose of the trip", and recovery was manipulated as "getting a 20% refund on the service", Finally, participants were asked to answer their host experience and enter their age and gender.

### *3.4. Measures*

The reuse and switching intentions of the P2P sharing service were measured using two items each proposed by [38,39]. All items were measured on a seven-point Likert scale. To verify the reliability and validity of the measures, this study conducted reliability analysis and confirmatory factor analysis (CFA). Table 1 presents the outcome of analyses. The reliability of all items was established (Cronbach's alpha > 0.70; composite reliability (CR) > 0.60). Validity was also established: the values of average variance extracted (AVE) of each variable were greater than 0.50, and the square root of each factor's AVE was larger than its correlation with other factors [40]. The model fit was also acceptable (Chi-sq/df = 2.960, TLI = 0.932, GFI = 0.989, CFI = 0.989, RMSEA = 0.068).

**Table 1.** CFA and reliability.

| Construct | Cronbach's Alpha | Mean(SD) | CR | AVE | Construct | |
|---|---|---|---|---|---|---|
| | | | | | **RI** | **SI** |
| **RI** | 0.958 | 4.824 (1.291) | 0.837 | 0.720 | **0.849** | |
| **SI** | 0.988 | 3.973 (1.610) | 0.766 | 0.620 | −0.518 | **0.788** |

Note 1. RI: Repurchase Intention, SI: Switching Intention, CR: Composite Reliability, AVE: Average Variance Extracted. Note 2. Diagonal elements (in bold) are the square root of the AVE. An off-diagonal element is the correlation between constructs.

## 4. Results

### *4.1. Data Collection and Sample*

An online survey using MTurk was administered to those who were currently residing in the US, were 18 years or older, and used an accommodation-sharing service. Out of the 247 total participants, 128 responses were used for analysis, excluding those who did not use an accommodation-sharing service for the past year or did not answer the reverse-coded question appropriately (valid response rate of 51.82%). Since fsQCA is applicable for very small (<50) to very large (>thousand) sized samples [35], the 128 responses collected for this study were sufficient for fsQCA. Respondents were relatively evenly distributed between genders (male 51.5% and female 48.5%). The majority of respondents were aged between 20 and 39 (64.8%). The respondents' profiles were confirmed to be similar to those of accommodation-sharing service customers [41].

### *4.2. Regression Analysis*

To explore the relationship between customers' behavioral intentions and the variables of interest, this study conducted bivariate MRA. The results show that customers' switching intention toward the PP had a significant relationship with PSP experience (high-severity: $\beta = 0.804$, $p < 0.05$; low-severity: $\beta = 1.424$, $p < 0.01$). However, other variables did not have significant relationships with customers' behavioral intentions ($p > 0.05$). The nonsignificant impacts of other variables are contrary to the results of previous studies, e.g., [42–45]. This result implies that the topic is complex and further analyses that can reflect the complex phenomena are needed [31]. Hence, this study conducted contrarian case analysis and fsQCA considering the complex relationships between causal conditions and outcomes. Table 2 presents the regression analyses' results.

**Table 2.** Results of regression analysis.

| | | | (Standardized) β | t | *p*-Value | VIF |
|---|---|---|---|---|---|---|
| **Model 1-a** | RI | (constant) | 1.930 | 1.911 | 0.061 | |
| | | SSR | −0.525 | −1.804 | 0.076 | 1.003 |
| | | PE | 0.190 | 0.619 | 0.538 | 1.013 |
| | | G | 0.292 | 0.983 | 0.329 | 1.021 |
| | | A | 0.002 | 0.117 | 0.907 | 1.020 |
| **Model 1-b** | SI | (constant) | 7.035 | 6.269 | 0.000 | |
| | | SSR | 0.347 | 1.074 | 0.287 | 1.003 |
| | | PE | 0.804 | 2.358 | 0.022 | 1.013 |
| | | G | −0.399 | −1.211 | 0.231 | 1.021 |
| | | A | −0.023 | −1.332 | 0.188 | 1.020 |
| **Model 2-a** | RI | (constant) | 3.488 | 2.811 | 0.007 | |
| | | SSR | −0.062 | −0.169 | 0.866 | 1.019 |
| | | PE | 0.369 | 1.003 | 0.320 | 1.040 |
| | | G | −0.079 | −0.217 | 0.829 | 1.021 |
| | | A | −0.011 | −0.680 | 0.500 | 1.021 |
| **Model 2-b** | SI | (constant) | 4.931 | 3.391 | 0.001 | |
| | | SSR | −0.090 | −0.211 | 0.834 | 1.019 |
| | | PE | 1.424 | 3.308 | 0.002 | 1.040 |
| | | G | −0.162 | −0.380 | 0.705 | 1.021 |
| | | A | −0.007 | −0.340 | 0.735 | 1.021 |

Note 1. Model 1-a: $R^2$ = 0.222, adjusted $R^2$ = 0.143; Model 1-b: $R^2$ = 0.251, adjusted $R^2$ = 0.175; Model 2-a: $R^2$ = 0.071, adjusted $R^2$ = 0.030; Model 2-b: $R^2$ = 0.258, adjusted $R^2$ = 0.177. Note 2. RI: repurchase intention, SI: switching intention, SSR: source of service recovery, PE: PSP experience, G: gender, A: age. Note 3. Dummy variables: SSR (0: PSP, 1: PP), PE (0: presence of a condition, 1: absence of a condition), Gender (0: male, 1: female).

### *4.3. Contrarian Case Analysis Results*

This study conducted contrarian case analysis following the method suggested by [35]. Table 3 shows an example contrarian case analysis of the age and switching intention of Model 1. The results show that more than one-fourth of the total cases (1 + 4 + 2 + 5 + 3 + 3 + 2 + 1 = 21 cases, 21/66, 31.81% of the total cases) exhibit asymmetrical relationships. If asymmetrical relationships are included in the data set, then using fsQCA should be considered [32] as it may explain asymmetrical relationships that regression analysis cannot explain [35]. Therefore, this study employed fsQCA to provide sufficient explanation of the data set.

**Table 3.** Result of contrarian case analysis for age and switching intention for Model 1.

| | | | Percentile Group of Switching Intention | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | | | **1** | **2** | **3** | **4** | **5** | |
| **Percentile Group of Age** | **1** | Count | 1 | 4 | 5 | 1 | 3 | 14 |
| | | (%) | 7.1% | 28.6 | 35.7% | 7.1% | 21.4% | 100% |
| | **2** | Count | 2 | 5 | 0 | 2 | 5 | 14 |
| | | (%) | 14.3% | 35.7% | 0% | 14.3% | 35.7% | 100% |
| | **3** | Count | 2 | 1 | 7 | 1 | 0 | 11 |
| | | (%) | 18.2% | 9.1% | 63.6% | 9.1% | 0% | 100% |
| | **4** | Count | 3 | 5 | 3 | 3 | 3 | 17 |
| | | (%) | 17.6% | 29.4% | 17.6% | 17.6% | 17.6% | 100% |
| | **5** | Count | 2 | 3 | 2 | 2 | 1 | 10 |
| | | (%) | 20.0% | 30.0% | 20.0% | 20.0% | 10.0% | 100% |
| **Total** | | Count | 10 | 18 | 17 | 9 | 12 | 66 |
| | | (%) | 15.2% | 27.3% | 25.8% | 13.6% | 18.2% | 100% |

Note 1. Numbers in (%) are within percentile group of age. Note 2. Numbers in bold boxes are the contrarian case numbers.

### *4.4. fsQCA Results*

The recovery plan offered to customers should vary depending on the service failure severity. Hence, this study set up a situation in which partial refunds were made when the service failure severity was high and a situation in which an apology was given when the service failure severity was low. Then, we tried to derive the configurations of source of service recovery (PP or PSP) and customer characteristics (PSP experience, gender, and age) that induced customers' positive/negative responses toward the PP in each situation.

The results of the fsQCA are as follows. For Model 1 (service failure severity: high; service recovery: refund), four solutions leading to the high reuse intention of the PP (overall solution coverage = 0.642, overall solution consistency = 0.865) and two solutions leading to a high switching intention of the PP (overall solution coverage = 0.456, overall solution consistency = 0.731) were offered. For Model 2 (severity of service failure: low; service recovery: apology), three solutions leading to the high reuse intention of the PP (overall solution coverage = 0.778, overall solution consistency = 0.803) and two solutions leading to a high switching intention of the PP (overall solution coverage = 0.325, overall solution consistency = 0.885) were offered. The solution coverage indicates the extent to which customers' behavioral intentions can be explained by the solution and is analogous to the R2 values reported in regression analyses [12]. Solution consistency reflects the degree to which a subset relationship is approximated [12].

As shown in Table 4 (Model 1-a), four solutions lead to a high level of customers' reuse intention of the PP. The first solution shows that, regardless of age and gender, customers with PSP experience had a high reuse intention when the PSP refunded them. The second solution indicates that, regardless of PSP experience and gender, old customers had a high reuse intention when a PSP refunded them. The third solution shows that, regardless of the source of service recovery, young female customers with PSP experience had a high reuse intention when they received a refund. The last solution indicates that young male customers without PSP experience had a high reuse intention when the PP refunded them.

**Table 4.** Solutions for Model 1-a (high reuse intention of the PP).

| Solutions | SSR | PE | G | A | Coverage | | Consistency |
|---|---|---|---|---|---|---|---|
| | | | | | Raw | Unique | |
| **1** | ○ | ● | | | 0.351 | 0.095 | 0.787 |
| **2** | ○ | | | ● | 0.336 | 0.102 | 0.934 |
| **3** | | ● | ● | ○ | 0.176 | 0.110 | 0.958 |
| **4** | ● | ○ | ○ | ○ | 0.078 | 0.078 | 0.988 |

Solution Coverage = 0.642, Solution Consistency = 0.865. Note 1. SSR: source of service recovery, PE: PSP experience, G: gender, A: age. Note 2. SSR (○: PSP, ●: PP) and PE (○: absence of a condition, ●: presence of a condition), Gender (○: male, ●: female), Age (○: young, ●: old), blank spaces indicate "don't care".

Table 5 (Model 1-b) shows the two reported solutions, leading to a high level of customers' switching intentions for the PP. The first solution shows that, regardless of age, male customers with PSP experience had a high switching intention when a PSP refunded them. The second solution indicates that, regardless of age, female customers with PSP experience had a high switching intention when a PP refunded them.

**Table 5.** Solutions for Model 1-b (high switching intention of the PP).

| Solutions | SSR | PE | G | A | Coverage | | Consistency |
|---|---|---|---|---|---|---|---|
| | | | | | Raw | Unique | |
| **1** | ○ | ● | ○ | | 0.243 | 0.243 | 0.746 |
| **2** | ● | ● | ● | | 0.213 | 0.213 | 0.715 |

Solution Coverage = 0.456, Solution Consistency = 0.731. Note 1. SSR: source of service recovery, PE: PSP experience, G: gender, A: age. Note 2. SSR (○: PSP, ●: PP) and PE (○: absence of a condition, ●: presence of a condition), Gender (○: male, ●: female), Age (○: young, ●: old), blank spaces indicate "don't care".

Table 6 (Model 2-a) shows three solutions, leading to a high level of customers' reuse intention of the PP. The first solution shows that, regardless of the source of service recovery and age, female customers with PSP experience had a high reuse intention when they received an apology. The second solution indicates that, regardless of PSP experience, young female customers had a high reuse intention when a PSP apologized to them. The third solution shows that, regardless of PSP experience, old female customers had a high reuse intention when a PP apologized to them.

**Table 6.** Solutions for Model 2-a (high reuse intention of the PP).

| Solutions | SSR | PE | G | A | Coverage | | Consistency |
|---|---|---|---|---|---|---|---|
| | | | | | Raw | Unique | |
| **1** | | ● | ● | | 0.444 | 0.163 | 0.782 |
| **2** | ● | | ● | ○ | 0.308 | 0.167 | 0.861 |
| **3** | ○ | | ● | ● | 0.306 | 0.166 | 0.877 |

Solution Coverage = 0.778, Solution Consistency = 0.803. Note 1. SSR: source of service recovery, PE: PSP experience, G: gender, A: age. Note 2. SSR (○: PSP, ●: PP) and PE (○: absence of a condition, ●: presence of a condition), Gender (○: male, ●: female), Age (○: young, ●: old), blank spaces indicate "don't care".

Finally, Table 7 (Model 2-b) shows two solutions that lead to a high level of customers' switching intentions for PP. The first solution shows that young female customers with PSP experience had a high switching intention when a PSP apologized to them. The second solution indicates that old female customers with PSP experience had a high switching intention when a PP refunded them.

**Table 7.** Solutions for Model 2-b (high switching intention of the PP).

| Solutions | SSR | PE | G | A | Coverage | | Consistency |
|---|---|---|---|---|---|---|---|
| | | | | | Raw | Unique | |
| **1** | ○ | ● | ● | ○ | 0.121 | 0.121 | 0873 |
| **2** | ● | ● | ● | ● | 0.204 | 0.204 | 0.893 |

Solution Coverage = 0.325, Solution Consistency = 0.885. Note 1. SSR: source of service recovery, PE: PSP experience, G: gender, A: age. Note 2. SSR (○: PSP, ●: PP) and PE (○: absence of a condition, ●: presence of a condition), Gender (○: male, ●: female), Age (○: young, ●: old), blank spaces indicate "don't care".

### *4.5. Evaluation of Complexity Theory*

The fsQCA results should be evaluated with respect to the three key tenets of complexity theory: the recipe principle, equifinality principle, and the causal asymmetry principle [37]. The first core tenet, the recipe principle, is that a combination of two or more causal conditions must be considered as a causal recipe of the outcome condition [37]. As shown in Tables 1–4, all configurations are composed of at least two antecedents. Hence, the results support the first tenet. The second core tenet, the equifinality principle, is that many possible paths (not one) lead to the same outcome [46]. The results of fsQCA offer more than two configurations, not just one configuration, leading to customers' positive/negative behavioral intentions toward the PP. Hence, the second tenet is also supported. The last core tenet, known as the causal asymmetry principle, is that the presence and absence of a causal condition depend on how this condition combines with other causal conditions [37]. As shown in Tables 1–4, a specific condition, such as PE, is either present or absent in solutions depending on the way in which it combines with other causal conditions. Therefore, the last tenet is also supported.

## 5. Discussion and Managerial Implications

To better understand customers' behavioral intentions toward the PP in service failure/recovery situations, this study used two distinct methodologies: MRA and fsQCA. Comparing the results of the two methods yielded several implications. This section dis-

cusses the main findings of each model. Managers of P2P sharing services could gain valuable insights into specific service recovery strategies from the discussion in this section.

The MRA results show a significant relationship between customers' PSP experience and their switching intention, while the relationships between the other independent variables and customers' behavioral intentions are not statistically significant. Specifically, customers with PSP experience showed high switching intention when they experienced service failure even though they obtained recovery in both the high- and low-severity service failure situations. On the contrary, the fsQCA results represent a different story. The fsQCA results indicate diverse configurations consisting of various causal conditions rather than only one condition (i.e., PSP experience) leading customers' behavioral intentions. Specifically, each causal condition (i.e., for repurchase intention: SSR, PE, A, G; for switching intention: SSR, A, G) that showed insignificant relationships with customers' behavioral intentions in the MRA is combined with other causal conditions and has a statistically significant effect on outcomes. The next paragraph discusses the main fsQCA findings in detail.

The main findings of Model 1 (severity of service failure: high; recovery effort: refund) are as follows. First, the results confirm that SSR is an important factor leading to customers' behavioral intentions toward the PP. Noticeably, almost all solutions (Model 1-a: solutions 1, 2, and 4 (three out of four); Model 1-b: all solutions) include SSR. Specifically, the results of Model 1-a show that (1) even though PSP restores the service, the reuse intention of the PP is high (solutions 1 and 2). However, depending on customer characteristics (i.e., PE, age, and gender), there is a configuration where the reuse intention of the PP is high when the PP has to restore the service (solution 4). In Model 1-b, (2) the SSR inducing a switching intention of the PP depends on the characteristics of customers, namely PE and gender. Specifically, while male customers with PE had high switching intentions when the PSP refunded them, female customers with PE had a high switching intention when the PP refunded them. Second, the results also show that PE is an important factor inducing a customer's behavioral intention. The fact that most solutions (Model 1-a: solutions 1, 3, and 4 (three out of four); Model 1-b: all solutions) contain PE supports this argument. Given the results of Model 1-a, (1) depending on PE, the SSR leading to customers' high reuse intention of the PP may vary. Specifically, while customers with PE showed high reuse intentions when the PSP refunded them, customers without PE showed high reuse intentions when the PP refunded them. Therefore, it can be inferred that customers with PE believe that the PSP is responsible for service recovery, while customers without PE believe that the PP is responsible for service restoration. In Model 1-b, the results show that (2) customers with PE had a high switching intention of the PP even after service recovery when they experienced serious service failure. It can be interpreted that customers with PE are stricter with the PP than those without PE. Third, the results also support that customers' demographic characteristics are important in inducing customers' behavioral intentions. As such, (1) depending on the customer's demographic characteristics, the SSR and PE that induce customers' behavioral intentions differ. In addition, (2) depending on the type of behavioral intention, influencing characteristics differ. Specifically, in Model 1-a, both age and gender affected the configuration of customers' reuse intention of the PP. For example, young male customers showed high reuse intention when the PP refunded them (solution 4), and old customers showed high reuse intention when the PSP refunded them (solution 2). On the other hand, in Model 1-b, only gender affects the configurations of customers' switching intentions for the PP. Specifically, male customers had high switching intentions, although the PSP refunded them, while female customers showed high switching intentions, although the PP refunded them.

The main findings of Model 2 (severity of service failure: low; service recovery: apology) are as follows. First, in low-severity service failure situations, gender is the most important factor leading to customers' behavioral intentions toward the PP. All solutions consider gender. Specifically, in both models (Models 2-a and 2-b), female customers showed a high behavioral intention toward the PP. In Model 2-a, female customers had a

high reuse intention if they received an apology. However, in Model 2-b, despite receiving an apology, female customers showed a high switching intention. This result may be explained by the importance of PE. According to the results of Model 2-b, among female customers, only those with PE showed a high switching intention. It can be interpreted that despite experiencing a low-severity service failure and receiving an apology, female customers with PE are stricter toward the PP. Second, age and SSR are also important factors. Almost all solutions of Model 2-a (age and SSR: solutions 2 and 3 (two out of three)) and Model 2-b (age and SSR: all solutions) include age and SSR. Specifically, in Model 2-a, young customers showed high repurchase intentions when the PP apologized, while old customers showed high repurchase intentions when the PSP apologized. In addition, in Model 2-b, young customers showed high switching intentions when the PSP apologized, while old customers showed high switching intentions when the PP apologized. Consequently, it can be inferred that, for young customers, the PP provides service recovery and, for old customers, the PSP provides service recovery as an effective service recovery strategy.

## 6. Conclusions

The academic contributions of this study are as follows. First, it extends the literature on both P2P sharing services and service failure/recovery. While extant research on P2P sharing services focused on the conceptualization (e.g., [4,5]), antecedents (e.g., [6,7]), and barriers (e.g., [8]) of P2P sharing services, this study investigated service failure/recovery issues. In addition, the research on service failure/recovery that considers the characteristics of P2P sharing services is insufficient [9]. This study extends the literature on service failure/recovery by investigating effective/ineffective service recovery configurations that reflect the unique characteristics of P2P sharing services (i.e., SSR and PE). Second, theoretically, this study provides a better understanding of the complexity formulation of customers' behavioral intentions in service failure/recovery situations, with special reference to P2P sharing services. Third, this study expands the field of application of fsQCA. Most research on P2P sharing services employed asymmetric methods such as MRA [27], with only a few studies having employed fsQCA to identify solutions that trigger customers' intent to use P2P sharing services (e.g., [29,31,47]) or induce positive experiences (e.g., [27,48]). To the best of the author's knowledge, this study is one of the first to perform configural analysis to identify effective/ineffective service recovery strategies in P2P sharing services. Consequently, by implementing complexity theory and fsQCA, this study confirms the importance of examining complex causal patterns of predictors [37]. Finally, this study provides some valuable insights by comparing the results of MRA and fsQCA. Since the MRA approach cannot explain asymmetric contrarian cases, it cannot provide a comprehensive description of the relationships between variables [37]. Hence, MRA fails to explain the complexities that exist in real life [35]. On the contrary, fsQCA generates various detailed solutions reflecting real complexities [35,37]. However, it does not provide generalizable solutions, while the MRA approach can [32]. Given the pros and cons of the two approaches, this study provides a comprehensive perspective by taking advantage of both methods.

Despite its contributions, this study has several limitations, which suggest interesting opportunities for future research. First, this study considered only the characteristics of customers (PSP experience, age, and gender). However, extant research has shown that age and gender differences between customers and service providers induce social biases and, as a result, affect customer responses to services [49,50]. Therefore, the characteristics of PSPs should be considered in future research. Second, although there are two types of service providers (i.e., PP and PSP) from the customer's perspective [5], this study only considered customers' behavioral intentions toward the PP, specifically the reuse and switching intentions, as outcomes. Hence, future studies should consider customers' behavioral intentions toward the PSP as well. Specifically, future studies should consider the intent to give good review scores and write positive/negative reviews, which are important

from the perspective of the PSP [51]. Finally, the sample consisted of US customers, which may limit the generalizability of the findings. Since cultural differences among customers influence their responses to service failure/recovery [52], similar studies in different cultural settings are needed.

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