

## Disclosure under (dis)fluent conditions

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## **Disclosure under (dis)fluent conditions**

### Abstract

In this paper, we explore how manipulating fluency in disclosure settings could influence disclosure behavior. From a dual-process perspective, we show that decreasing perceived fluency will lead to lower disclosure levels as disfluency prompts effortful deliberation and suspicion. We focus on fast-paced contexts, in which technological innovation allows firms to derive offerings out of consumer data. In two mixed design experiments, we operationalize fluency through data congruency and we show that perceptions of high congruency increase intentions to share personal data. We observe that this effect is partially mediated by sensitivity, and we discuss the malleable nature of data sensitivity as we introduce the concepts of given and perceived sensitivity. With this, we hope to contribute to the research stream looking at the effects of privacy concerns in innovative contexts of consumption.

Key words: *Disclosure, Fluency, Privacy*

Track: *Consumer Behavior*

## 1. Introduction

Consumer disclosure behavior and privacy preferences have long sparked interest in research in a variety of fields, including economics, law, IT, marketing strategy and importantly, consumer behavior. However, due to the dynamism and contextual nature of privacy-related behaviors, researchers keep stressing the importance of studying the effects of privacy concerns in data-sensitive areas of innovation (Bleier et al. 2020). Indeed, technological innovations emerging in the past decade continue to create challenges for this topic of research. In this paper, we focus on the role of privacy and disclosure preferences in the adoption of data-driven innovations in the financial industry. More specifically, we focus on data-based products and services in the FinTech domain.

Developments in data analytics, and a declining cost of data storing and processing have allowed companies to improve their marketing efforts, but equally to develop new products and services, or to personalize them, based on consumer information (OCDE 2015). As such, it is possible to fully repurpose existing consumer data into new offerings by relying on profiling analytics. This has become all the more possible with regulation changes facilitating open data and data portability<sup>1</sup>. Such use of data can lead to deriving products or services directly from aggregated data points. Because of its fast-paced nature, the financial industry is constantly affected by technological innovations. As such, key examples of these uses of consumer information for product development can be found in this industry. We can retrieve two notable examples from two major sectors of the financial industry: lending and insurance, with credit scoring products and the use of data for life insurance premium's definition.

When it comes to lending, credit scoring is an activity that has traditionally relied on profiling analytics. With the implementation of new technologies, emerging FinTech firms (i.e., companies developing financial solutions relying on technological advancements) focused on digital lending have developed credit scoring models using 'alternative' data - that are not directly related to financial history, such as digital footprints - to complement financial data points to assess an individual's creditworthiness (e.g., Berg et al. 2020) or to predict default (e.g., Netzer et al. 2019). This application of consumer information is an important

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<sup>1</sup> The right to data portability was introduced in the Article 20 of the GDPR (General Data Protection Regulation) in 2018, and has been applied to other legislations ever since, for instance it was also included in the CCPA (California Consumer Privacy Act) in 2020 (see for example Section 1798.100(d)).

innovation to consider as it can be a means to generate more financial inclusion, notably for individuals that do not have access to financial institutions, like banks, and therefore lack a financial history (Berg et al. 2020; Bjökegren & Grissen 2019); but also for ‘thin-file’ individuals, whose financial information is sparse and of difficult access (Kulkarni & Dhage 2019; Netzner et al. 2019); or for low-income individuals facing situations that render them financially unstable, and vulnerable to financial shocks (Bjökegren & Grissen 2019; Plaitakis & Staschen 2020; Wei et al. 2016).

When it comes to life insurance premiums – or the amount to be periodically paid for an individual to maintain their insurance coverage – firms can make use of alternative datasets to have a more accurate and updated overview of an individual’s life expectancy. Indeed, different types of information, such as wearable data (showcasing heart rate, sleep patterns or exercise) as well as consumption data could be indicative of an individual’s lifestyle (e.g., Neumann et al. 2022). Insurers can thus have more accurate analytics and in turn generate more personalized policies for their customers, creating a virtuous cycle in which they benefit from individuals being healthier and in turn living longer, and can redistribute the gains by offering customers premium discounts or discounts with partners (e.g., Accenture 2020, Intelligence Insider 2023).

The use of consumer data can thus be highly beneficial both for companies and consumers. On the one hand, businesses gain by having an improved image of their customers. On the other hand, users gain access to better products, tailored to their specific needs. However, a key issue with data repurposing is whether individuals will feel at ease sharing their information for seemingly unrelated uses. Our goal with this paper is to understand contextual factors that could facilitate data exchanges between consumers and companies in the FinTech industry. We rely on previous research on consumer privacy preferences, arguing for the context-dependence and malleability of privacy concerns (e.g., Acquisti et al. 2012) in order to respond to Bleier et al. (2020) call for research on the effects of privacy concerns in data-sensitive areas for innovation.

## **2. Conceptual framework**

With this project we focus on privacy concerns and disclosure behavior in contexts in which the requested data is at the core of the product being offered, and as such, consumers engage in more tangible data exchanges rather than unclear tradeoffs for personalization benefits (Kim et al. 2021).

We look at disclosure preferences from a dual-process perspective, distinguishing intuitive and deliberative information processing (e.g., Kahneman 2011) and we build on prior work showing how disfluency prompts effortful deliberation, which in turn overrides and corrects intuitive behavior (e.g., Bago et al. 2020). Here, we refer specifically to processing fluency, which refers to the subjective experience of cognitive ease that is associated with information processing (Alter and Oppenheimer 2009b). Although researchers have previously looked at the effects of fluency as a domain-general cognitive factor on disclosure decisions (see Alter and Oppenheimer 2009a), they have done so by looking at specific operationalizations of fluency (i.e., they have operationalized fluency by using fonts that are more or less difficult to read). As this finding is less applicable in today's conditions, we attempt to find new operationalizations of fluency through congruency, or relevance between the context in which the disclosure takes place, and the type of data that individuals are being asked to disclose (Lwin et al. 2007). As illustrated with naïve theories, researchers have argued that elements that are learned over time can help individuals interpret context-specific cues of fluency (see Schwarz 2004 for a review). We attempt to build on that by using mental associations defining a data item as more congruent with a specific context. As such, we expect that congruency, acting as a fluency cue, will positively influence intention to share personal data.

We also consider the notion of data sensitivity, as one of the key variables looked into when exploring disclosure behavior. The negative influence of sensitivity on disclosure has been documented (e.g., Brandimarte et al., 2013; Acquisti et al., 2012) as the risk associated with the disclosure is directly linked to the degree of data sensitivity (Mothersbaugh et al., 2012). Importantly, this effect also hinders consumer acceptance of personalized products (Xie et al., 2014). Previous evidence shows that individuals place less value in personalized services when they are based on sensitive information, or when they have to provide additional sensitive information for it (Mothersbaugh et al., 2012).

However, privacy literature consistently views sensitivity as a given variable. Yet, it has been argued that sensitivity assessments can vary with the situation (Malheiros et al., 2012). This echoes notions of boundary protection (Altman 1975) and of contextual integrity of privacy (Nissenbaum 2004) stating that the norms and expectations about data use are attached to the context in which disclosure takes place. As such, we expect that contextual cues of fluency will negatively impact perceived sensitivity. And considering the well documented effect of sensitivity on disclosure, we expect sensitivity to act as a mediator in the relationship between congruency and intention to disclose personal information.

### 3. Methodology

#### 3.1 Study 1

Study 1 (pre-registered<sup>2</sup>) was conducted to show the main effect of congruency on sensitivity and willingness to disclose. It consisted of a mixed design, in which we manipulated, within-subjects, the degree of congruency (high; low) and between-subjects we manipulated the context (credit scoring; advertisement customization; life insurance). Participants were randomly assigned to read 1 of 3 context descriptions (credit scoring, ad customization, life insurance). After reading the context, respondents indicated their willingness to disclose (WTD), perceived sensitivity, and congruency (scale borrowed from Lwin et al. 2007) of a list of 12 pre-tested data items ( $N_{\text{pre-test}}=201$ ). Nine of these twelve data items, consisted of 3 groups of 3 items highly congruent with one context but incongruent with the other two contexts. The remaining 3 items are incongruent with all contexts. Besides our measures for WTD, sensitivity and congruency, we controlled for: privacy importance (scale borrowed from Martin et al. 2017), context familiarity, implications, trust, and socio-demographic characteristics (age, gender, education, and income).

Data collection was done through Qualtrics Sample Services and took place between 30/11/2022 and 04/01/2023. We obtained a final sample of  $N=303$  answers, with  $M_{\text{age}}=49.99$ , and 50.2% female respondents.

We run ANCOVAs with repeated measures to observe the effect of the manipulations on both sensitivity and willingness to disclose. When it comes to sensitivity, we find no main effect of congruency ( $p>.05$ ) and a significant interaction effect between congruency and context ( $F(2, 292)=52.511, p=.000$ ) showing significantly higher ratings of sensitivity in low-congruency conditions for participants in the life insurance or advertisement contexts ( $M_{\text{insurance\_high}}=4.735; M_{\text{insurance\_low}}=5.428; M_{\text{ads\_high}}=3.845; M_{\text{ads\_low}}=5.451$ ). This effect is not replicated in the credit scoring context.

When we look at WTD, we find no significant effect of congruency ( $p=.683$ ), and a significant interaction effect between congruency and context ( $F(2, 292)=22.397, p=.000$ ). For advertisement and insurance contexts we find higher WTD for high (vs low) congruency items ( $M_{\text{insurance\_high}}=4.611; M_{\text{insurance\_low}}=2.961; M_{\text{ads\_high}}=3.794; M_{\text{ads\_low}}=2.979$ ). As for sensitivity, these effects cannot be replicated in the credit scoring context.

We conduct a mediation analysis using model 1 of the MEMORE Macro for data with repeated observations (Montoya 2019). This analysis confirms a relationship between

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<sup>2</sup> Pre-registration for study 1: [https://aspredicted.org/TV9\\_FFC](https://aspredicted.org/TV9_FFC)

congruency and willingness to disclose partially mediated by sensitivity (total effect=.9058;  $p=.000$ ; indirect effect=.2363;  $p=.000$ ; direct effect=.6694,  $p=.000$ )

### 3.2 Study 2

We conducted study 2 (pre-registered<sup>3</sup>) in a very similar fashion as study 1, but with a few modifications based on a post-test (conducted on 26/07/2023, N=83). The post-test indicated that the diverging results from the credit scoring context were due to the inclusion of the social security number as one of the three congruent data items. It was argued that it is common sense to not disclose this information, as it exposes them to risks like identity theft. From open-ended questions, we identify leading topics influencing disclosure choices: having nothing to lose/to hide; uncertainty about the projected type; logical thinking (including the following three sub-topics: common sense; data already available; evaluation of costs and benefits); feelings of discomfort; and expected data misuse by the company. As such, study 2 consists of a mixed-design study in which we manipulated, within-subjects, the degree of congruency (high; low) and between subjects we manipulated the context (credit scoring, life insurance). Participants were randomly assigned to read 1 of 2 context descriptions and were asked to indicate for a set of 3 high congruency data items and then a set of 3 low-congruency data items, their willingness to disclose, sensitivity, congruency, and the degree to which they find the data to be personal, as well as a set of questions covering the topics observed in the post-test (we developed two-question scales for each topic). We controlled for general privacy predispositions and socio-demographics (age, gender, education, income), as well as context familiarity, implications, trust, and credibility.

As for previous analyses, we conducted ANCOVAs to see the effect of the manipulations on both Sensitivity and WTD. When we look at Sensitivity, we observe a significant main effect of congruency ( $F(1, 327)=3.449$ ,  $p=.054$ ) and no significant effect of the interaction between the congruency and context manipulations ( $p=.526$ ), showcasing a negative effect of congruency on sensitivity. However, the effect remains small. We also find significant effects of the privacy importance measure ( $F(1, 327)=9.937$ ,  $p=.002$ ) and personal ( $F(1, 327)=231.128$ ,  $p<.001$ ). From the parameter estimates we see a positive effect of privacy importance ( $\beta=.179$ ) indicating that the more a person states caring about privacy, the higher their sensitivity ratings will be. The positive effect of the personal measure ( $\beta=.704$ ) indicates that the more an individual finds an item to be personal, the more they will find the item to be sensitive.

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<sup>3</sup> Study 2 pre-registration: [https://aspredicted.org/G6R\\_G69](https://aspredicted.org/G6R_G69)

Looking at WTD, we find a significant main effect of congruency ( $F(1, 327)=83.878$ ,  $p<.001$ ) and no significant interaction effect, showcasing a positive effect of congruency on intention to disclose. We also find significant effects of the privacy importance measure ( $F(1, 327)=6.068$ ,  $p=.014$ ), trust ( $F(1, 327)=20.288$ ,  $p<.001$ ), and personal ( $F(1, 327)=15.753$ ,  $p<.001$ ). From the parameter estimates we see a negative effect of the privacy importance measure ( $\beta=-.219$ ) showing that the more an individual says they care about privacy, the less willing they will be to disclose. The personal measure also shows a negative effect ( $\beta=-.287$ ), indicating that participants are less willing to disclose highly personal data. We find a positive effect of trust ( $\beta=.372$ ), showing that the more an individual trusts a company, the more they will share information with them.

Mediation analysis using MEMORE model 1 show a significant but again partial mediation effect of sensitivity in the relationship between congruency and WTD (total effect=1.4878; CI[1.1790; 1.7966]; indirect effect=-.1242; CI[-.2515; -.0178]; direct effect=1.6120, CI[1.3167; 1.9073]).

After correlation and PCA analyses, we aggregated the measures of our emerging topics, with the exception of ‘evaluation of costs and benefits’ as the analyses for this item were unsatisfactory. Since we aim, with these items, to understand the underlying reasons guiding disclosure choices, we also conduct mediation analyses with the aggregated topics. From these analyses, we observe that congruency significantly influences most of our measures, which in turn influence either sensitivity, or willingness to disclose, or both. Indeed, we find that congruency has a significant positive effect on the sense of having nothing to hide or nothing to lose ( $=.3140$ , CI[.0749; .5532]), a significant negative effect on the uncertainty regarding the image of themselves painted by the data ( $=-.3354$ ; CI[-.5881;-.0826]), a significant negative effect on feelings of discomfort ( $=-.7713$ , CI[-1.0701;-.4726]), a significant negative effect on expected data misuse ( $=-.5976$ ; CI[-.8066; -3885]), and a significant negative effect on the idea that it is common sense to not share personal information ( $=-.5701$ , CI[-.8746;-.2657]).

#### **4. Discussion**

From our two studies, we observed that cueing fluency by presenting data items as more congruent or more relevant with the firms’ context can lead to perceiving these items as being less sensitive and in turn lead individuals to be more willing to share them with the company. However, from our mediation analysis, we can conclude that ease of processing, or



fluency alone cannot completely drive evaluations of sensitivity or intentions to share personal information. From covariate effects we also found an important influence of general privacy predispositions on both sensitivity and willingness to disclose. Interestingly, we found in study 2 a strong influence of evaluations of how personal the information is on both sensitivity and willingness to disclose. The evaluation of how personal a piece of data is has been in the past closely linked to the evaluation of how sensitive a piece of data is, however in the study we found no influence of congruency on the personal evaluation. As such, this measure could reflect, to some degree, the given, or intrinsic aspect of sensitivity, while the evaluation of sensitivity remains a context-dependent element.

From our second study, we highlight the fact that processing fluency not only influences disclosure and sensitivity decisions, but also influences most of the variables used to explain disclosure choices, highlighting the degree to which consumers can be irrational and misguided by environmental cues.

With this project, we contribute to the literature by building on the scarce literature in marketing research focusing on the FinTech context, and on FinTech product adoption. In that sense, we expect to build a bridge between the financial and marketing literature on consumer behavior and consumer psychology to find avenues for increased acceptance and adoption of these novel financial products and services.

Importantly, we also contribute to the privacy literature by exploring empirically the relationship between congruency, sensitivity and willingness to disclose. Previous research had mainly focused on the role of congruency on privacy concerns. With this project we aim to build on this by observing disclosure intention as a predictor of real disclosure behavior. In the future, we expect to develop new experiments allowing us to observe real behavior rather than just intention to disclose. Further, when it comes to disclosure of personal data, most research in the past focused on disclosure of new data, because of our contexts of interest, here we focus on data repurposing for product development. It is interesting to see that previous observations on data repurposing seem to indicate that individuals should feel more at ease when sharing data that is already, to some degree, available or even public. However, our results appear to reveal an opposite trend, as participants clearly are not always as willing to share their data. It is worth noting that we never insisted on this aspect in our experiments, it is possible that taking a stronger stance on the fact that most data items are already available could make this aspect more salient for participants and lead to different behaviors.

Importantly, we contribute conceptually to the literature in our overview of data sensitivity in two ways. First, we bring forward the idea of sensitivity being a malleable variable. Most research on this topic has a more important focus on how other contextual elements facilitate disclosure even when the data is sensitive, taking sensitivity as an exogenous variable. However, we consider the possibility that the degree of perceived sensitivity also varies according to diverse elements in the context. Second, we consider the fact that data sensitivity could be divided into two aspects: inherent sensitivity attached to a specific data item, and perceived sensitivity given to that item as a result of circumstantial variables.

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