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Understanding consumer reactions to product contamination risks after national disasters: The roles of knowledge, experience, and information sources

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ABSTRACT

This study shows that not all consumers intend to decrease purchases of potentially contaminated products after disasters; some rather intend to increase purchases. Purchase intent reductions derive from contamination risk knowledge, which depends on observed behavior of other consumers, objective media information, and past opposition to the technology causing contamination. Technology hazard expertise reinforces the effects of consumers' risk assessments and of past opposition to technology use. By contrast, purchase intent increases derive from empathy and salient social identity shared with disaster victims, which are triggered by affect-laden media exposure, past disaster-related experience, and disaster involvement of consumers' social networks.

1. Introduction

Disasters caused by technological failure frequently lead to large-scale environmental pollution, which in turn creates risks of product contamination affecting consumer decision making. For instance, the 2010 Deepwater Horizon oil spill created uncertainty whether fish from the Gulf of Mexico are safe to eat (Levy and Gopalakrishnan, 2010). Likewise, large-scale chemical accidents create worries about air and groundwater pollution, such as the 2014 West Virginia chemical spill that left 300,000 residents without potable water and temporarily shut down an estimated 16% of the state's economy (Brodwin, 2014). Similarly, Japan's 2011 Tohoku earthquake and tsunami damaged the Fukushima Daiichi Nuclear Power Plant and thus led to widespread radioactive contamination of regions supplying food and other products to eastern Japan and the Tokyo metropolitan area (Carpenter, 2011; Fackler, 2012). These disasters are characterized as chronic technological disasters (Gunter et al., 1999) because their technological origins create long-term contamination hazards and consequent product safety risks for consumers. Also, they are characterized as national disasters because their large-scale nature affects many people and draws attention from media and people across the nation (Dube and Black, 2010).

The marketing literature on chronic technological disasters with consequential product contamination has illuminated consumer purchase reductions (Grande et al., 1999), but not purchase increases, as a response to product-related health risks. By contrast, the marketing literature on national disasters has focused on situations not involving any product-related health risks. For contexts such as the 9/11 terrorist attacks, it has highlighted purchase increases in economic support of disaster victims or regional reconstruction efforts (Dube and Black, 2010; Levine and Thompson, 2004). A recent study by Frank and Schvaneveldt (2014) merged these two streams of literature by investigating effects of the Fukushima nuclear accident in Japan, which was both a national disaster and a chronic technological disaster causing product contamination. Drawing on the psychological trade-off between self-preservation and economic support of disaster-stricken regions, they highlighted that not all consumers intended to decrease their purchases of potentially contaminated products, but rather some consumers intended to increase such purchases. Moreover, they explored the influences of personal characteristics on the extent of purchase reduction vs. increase. While their research thus explored *who* engages in purchase reductions vs. increases, this study is the first to examine *what factors* cause consumers to reduce or increase purchases of potentially contaminated products after national disasters. Knowledge of these factors would enable marketing managers and public policy

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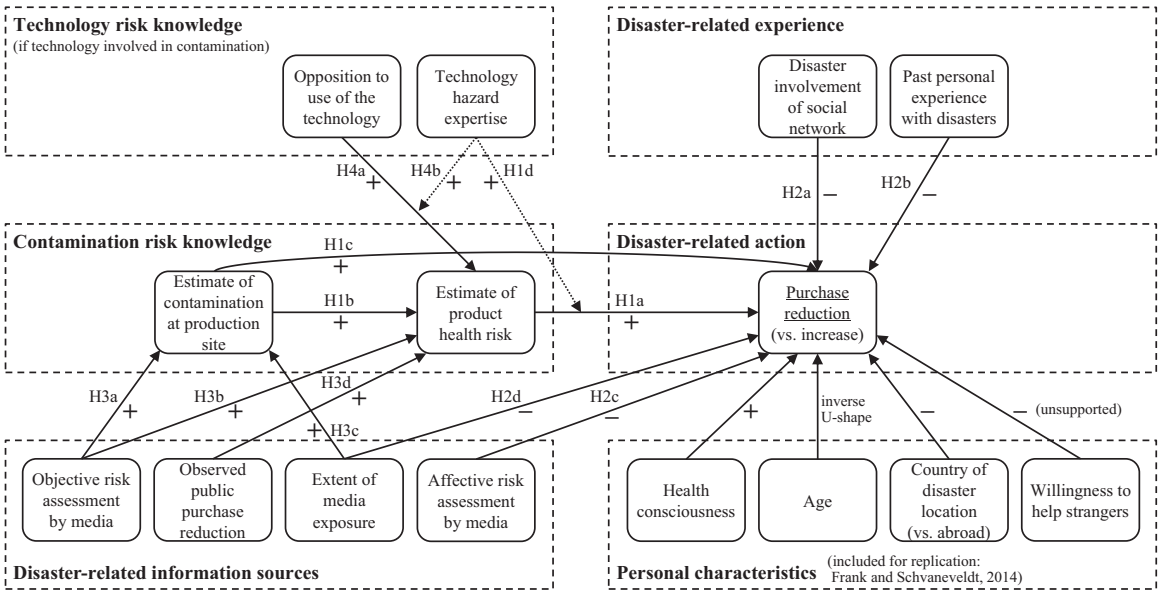

Fig. 1. Conceptual framework and hypotheses.

makers to design strategies that minimize the economic fallout of chronic technological disasters. We develop hypotheses about direct and indirect effects of contamination risk knowledge, technology risk knowledge, disaster-related information sources, and disaster-related experience on changes in consumer purchasing. As a secondary goal, we seek to replicate some of the results of Frank and Schvaneveldt (2014).

Fig. 1 presents the conceptual framework of our study. In line with Frank and Schvaneveldt (2014), we chose the context of the Fukushima nuclear accident to test our hypotheses. We collected more recent questionnaire-based experimental data on mobile phones and apparel from six countries: Japan (focal disaster location), USA, France (developed economies), Ecuador, Bolivia, and Sri Lanka (developing economies).

The remainder of our article is structured as follows. Section 2 presents the conceptual background and develops our research hypotheses. Section 3 explains our research methodology, including descriptions of our survey design, our data, and their validity. Section 4 succinctly presents the results of our hypothesis tests. Finally, Section 5 discusses the theoretical and practical implications of our study, as well as its limitations and directions for future research.

2. Development of hypotheses

2.1. Consumer reactions to national disasters: self-preservation vs. collective resilience

Consumer purchase reductions of potentially contaminated products have been reported by many studies in the literature and can be explained intuitively by self-preservation instincts (Grande et al., 1999). By contrast, purchase increases of such products despite health risks are counter-intuitive and more intriguing. To explain purchase increases, Frank and Schvaneveldt (2014) reviewed several theories from the disaster sociology literature explaining risk-defiant supportive behaviors after disasters and examined whether these theories can be extended to account for analogous behaviors by consumers. They concluded that the vulnerability framework (Dynes, 2003), emergent norm theory (Turner and Killian, 1987), and affiliation theory (Mawson, 2005) only account for group phenomena in the focal disaster location and thus cannot be extended to explain individual consumer purchasing behavior in locations far removed from the disaster. To explain risk-defiant, supportive consumer purchase behaviors, they extended collective resilience theory (Drury et al., 2009b). As this theory is based on shared social identity, it does not require the immediate presence of disaster victims and is compatible with individual consumer actions.

Collective resilience theory (Drury et al., 2009a,b) is based on self-categorization theory, which suggests that feeling and acting with others as part of a group operates through cognitive self-categorizations (Turner, 1982; Turner et al., 1987). These range from self-categorizations at a personal level to broader self-categorizations with groups with which one shares social identity. Behavior is influenced most strongly by the salient level of identity (Turner, 1982; Turner et al., 1987). Collective resilience theory predicts that national disasters may cause social identity shared with disaster victims to become salient and, thus, to trigger behaviors in support of disaster victims (Drury et al., 2009a,b).

While individuals may support disaster victims through a range of behaviors such as volunteering and donating to disaster victims, Frank and Schvaneveldt (2014) extended this conceptual background to focus on changes in consumer purchasing behavior after national disasters. They posited that self-preservation instincts trigger consumer purchase reductions of potentially contaminated products because individual identity tends to be salient in most individual consumer behavior. At the same time, they suggested that some consumers may increase purchases of potentially contaminated products after disasters to support disaster victims and regional economic reconstruction efforts when they empathize sufficiently with disaster victims. Media reports have given account of such purchases in Japan (Ito, 2015). From collective resilience theory (Drury et al., 2009b), Frank and Schvaneveldt (2014) deduced that such empathy is strongly reinforced when social identity shared with disaster victims becomes salient. As a first step towards investigating the nature of changes in consumer purchasing after national disasters involving product contamination, they confirmed with data from Japan and the USA that a substantial share of consumers intend to make purchase increases. Moreover, they found that purchase intent reductions (vs. increases) vary by consumer age with a peak in the 30s when many consumers have young children. Purchase intent reductions (vs. increases) are more pronounced for fast food restaurants than