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Exploring information privacy regulation, risks, trust, and behavior

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ABSTRACT

Over the past few decades, governments worldwide have grappled with their approaches to regulating issues associated with information privacy. However, research on individuals' perceptions of regulatory protections and the relationships between those perceptions and behavioral choices has been sparse.

In this study, we develop and test a model that considers relationships between an antecedent variable (regulatory knowledge); a mediating structure that encompasses perceived privacy regulatory protection, trust, and privacy risk concerns; two outcome variables (protection behavior and regulatory preferences); and direct and moderating effects of perceived rewards. Using a sample of young UK consumers that we collected in cooperation with the European Commission, we find strong support for our overall model and for most of our hypotheses.

We discuss implications for research, managerial practice, and regulation.

1. Introduction

Beginning in the 1970s, worldwide attention has been focused on information privacy. By 1986, privacy had been denoted as one of the four "ethical issues of the information age" [46]. As the years have passed, concerns about information privacy have only increased. A 2008 poll found that "72 percent of consumers are concerned that their online behavior [is] being tracked and profiled by companies" [18]. In a spring 2011 survey, 98 percent of 1000 smartphone users indicated that privacy was an important concern when using a mobile device, and over one-third of them (38%) identified privacy as their top concern [32]. It is clear that consumers are worried about privacy.

Over this same time frame—from the 1970s to today—governments around the world have grappled with their approaches to regulating issues associated with information privacy. Their approaches have differed greatly, however [27,49,69], and it is apparent that varying regulatory approaches to cross-border data flows are causing great consternation among firms that compete internationally (e.g., [39,68]). Examples of the tension abound. For example, in mid-2014, the European Court of Justice ruled that Google must erase links to certain content about individuals on the web when those individuals request this action [66], a ruling that many legal observers believe will have significant implications for many other firms that do business in Europe [78]. Ironically, it appears that consumer concerns associated with surveillance, reported extensively during 2013 and 2014 (see synthesis in [29]), are being directed more at commercial than governmental data interchanges [44].

One tacit assumption on the part of governmental regulators seems to be that regulations impact behavior. Ironically, in spite of the spike in international regulatory attention that is devoted to privacy issues and the tensions associated with them, there has been very little research on that relationship at either a corporate or an individual level. At the corporate level, one must look back nearly two decades to find a few studies (e.g., [70,73]). At the individual level, as will be discussed in the next section, there have been eight studies to date, but none of those studies have considered a comprehensive model that addresses the complexity of individuals' decision making.

Therefore, in this paper, we describe a study that explores new and richer relationships than those studied in the previous works in this area. Using a sample of young U.K. consumers that was gathered in cooperation with the European Commission, we test this model and find strong support for most of our hypotheses.

This study makes three important contributions to the literature.

First, the study is the first to construct a consolidated model that addresses a number of constructs related to governmental regulations and outcomes that had only been considered

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separately in previous studies. Those earlier works had independently identified some variables and relationships that may explain a number of perceptions, attitudes, and behavior associated with privacy regulation. In this study, we extend these works by identifying the common components in their analyses.

Second, this paper provides empirical justification for relationships between several constructs that had heretofore been untested. We test a model that considers relationships between an antecedent variable (regulatory knowledge); a mediating structure that encompasses perceived privacy regulation protection, trust, and privacy risk concerns; two outcome variables (protection behavior and regulatory preferences); and direct and moderating effects of perceived rewards. This study is the first to look across that spectrum of relationships by considering some selected variables within each domain associated with privacy regulation.

Third, this study provides a starting set of measurement scales that can be used by future researchers as they delve more deeply into four constructs that had been given only limited attention in prior research—regulatory knowledge, privacy risk concerns, regulatory preferences, and perceived rewards—and their relationships.

This paper proceeds as follows. First, we provide background for the study by considering previous research. Then, we develop our own research model and detail the hypotheses of this model. Next, we discuss the study's method and detail our findings. We then discuss implications of this study not only for researchers but also for management and regulation.

2. Background

Our review of previous research in this domain reveals only eight studies that have examined, at the individual level, perceptions of or preferences for governmental privacy regulations (as either an independent or dependent variable) and their association with various constructs (perceptual and/or behavioral). Table 1 details these eight studies.

These studies have provided some insight into this phenomenon. A number of important antecedents have been considered. For example, cultural values [49,51], previous experiences [58], and awareness of laws [25] have been included in some studies. The manner in which regulatory attributes result in actions taken by individuals [25,45,82] and in the determination of regulatory preferences have also been explored in some papers [40,49]. Additionally, several mediating and moderating variables have been included in various studies. For example, demographic variables such as age, gender, and occupation [25,40,79,85] and individual attitudinal measures such as online privacy concerns [45,82] have been incorporated into some models. Thus, some forward movement has been observed in the research stream; at the same time, however, it is clear that these studies have not coalesced into a body of knowledge that can provide guidance to researchers, practitioners, managers, and regulators.

Therefore, to take one step toward a more cohesive knowledge base, we consider a model that looks across the "APCO" (antecedents–privacy concerns–outcomes) framework proposed by Smith et al. [71] by including constructs inspired by some of the previous studies in Table 1 (regulatory knowledge, perceived privacy regulatory protection, privacy risk concerns, protection behavior, and regulatory preferences), a construct that has been considered frequently in the broader privacy domain but that has heretofore been overlooked in studies on regulation (trust), and a construct (perceived rewards) that other privacy-related research studies have shown to be of some importance for individuals' decision making (e.g., [1,23,86]) but that has also been overlooked in regulation studies. Our objectives in testing this model are to provide a more cohesive view of privacy regulation findings and to extend those findings by incorporating what we believe to be some

Table 1
Previous studies—governmental regulation and outcomes (individual level).[a]

Article	Sample	Antecedents[b]	Dependent variable	Mediators/moderators
Dommeyer and Gross [25]	137 respondents to a mailed survey; list generated by broker	Awareness of privacy-related laws and privacy-protecting strategies	Use of privacy-protecting strategies (self-reported)	Age, gender, telephone number listing status, desire to receive direct marketing solicitations
Lee [40]	23 adults (selection procedure unclear)	Advocacy level	Desire for online regulation	Age, occupation
Lwin et al. [45]	180 adults provided by commercial research firm (experimental treatments applied)	Perceived influences (policy, regulation)	User intentions (self-reported)	Data sensitivity, data congruency, online privacy concern
Milberg et al. [49]	595 members of Information Systems Audit & Control Association at 63 chapter meetings	Cultural values	Privacy concerns, regulatory approach, corporate privacy management, privacy problems	Regulatory preference
Okazaki et al. [58]	510 mobile phone users, recruited by a professional research firm (experimental treatment applied)	Prior negative experience	Information privacy concerns, trust, risk, sensitivity of information request, perceived ubiquity	Preference for degree of regulatory control
Turow et al. [79]	1500 adults in a telephone survey (random dial sample)	None	Level of knowledge of privacy rules	Gender, age, race/ethnicity, education, family income, parental status
Wirtz et al. [82]	182 online subjects (recruited from commercial database)	Business policy, governmental regulation	User intentions (self-reported)	Privacy concerns
Xu et al. [85]	178 online web respondents (experimental treatments applied)	Individual self-protection, industry self-regulation, government legislation	Context-specific concerns for information privacy	Perceived control over personal information, age, gender, education, desire for information control, trust propensity, privacy experience

[a] Our search for articles was conducted using several online databases of scholarly articles. We began by searching salient keywords and proceeded by following citation trails that showed which articles were being cited by others. While we cannot claim that this list is fully exhaustive, we believe that it is largely comprehensive within the boundaries of our search algorithm.

[b] Antecedents, dependent variables, and mediators/moderators were categorized by this study's authors based on their reading of the cited articles.