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**A Note on the Necessity of Rules for**  
**Misleading Representation: Experimental Evidence**

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# A note on the necessity of rules for misleading representation: Experimental evidence<sup>+</sup>

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## Abstract

This paper examines the rules for misleading representation with an experimental approach using internet questionnaire data from a recent research paper. The findings indicate that consumers not close to the good or those who intend to purchase the good understand (alleged) deceptive advertising. Therefore, advertising regulation should protect the marginal consumer rather than the actual or potential purchaser from deceptive advertising. The findings therefore corroborate the rules for misleading representation presently applied in Japan and other countries.

*JEL classification:* K13, L49, M37

*Keywords:* Rules of Misleading Representation, advertising, JFTC

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# A note on the necessity of rules for misleading representation: Experimental evidence

## 1. Introduction

Many competition authorities, including the United States' Federal Trade Commission (FTC), the Australian Competition and Consumer Commission (ACCC),<sup>1</sup> and the Japanese Fair Trade Commission (JFTC),<sup>2</sup> enforce rules concerning misleading representation. For instance, the US Federal Trade Commission Act states: "Unfair methods of competition in or affecting commerce, and unfair or deceptive acts or practices in or affecting commerce, are hereby declared unlawful."<sup>3</sup> The US Supreme Court held that "... the misrepresentation of any fact so long as it materially induces a purchaser's decision to buy is a deception prohibited by Section 5."<sup>4</sup> Typically, the rule governing specific industry or practices is that "the introduction ... of any (wool) product which is misbranded ... is unlawful."<sup>5</sup>

One of the interesting points arising from these rules is that it is not necessary for a consumer to buy the good or service (hereafter, "goods") for the regulation to apply. The common concern of these rules is the producer's misleading representation, not the actual purchase of the goods, caused by the misbranded representation. Further, the entity's intent for the representation of false recognition is not the basis for being 'misleading'. That is, evidence of actual injury is not required; instead, the competition authority's deception analysis focuses on the risk of consumer harm.<sup>6</sup>

Is this a kind of paternalistic regulation? Indeed, the competition law has a scheme of *parens patriae* in the Hart-Scott-Rodino Act. However, this has a very different rationale from the regulation of misleading representation. *Parens patriae* holds that each individual's stake is too small to bring about an antitrust damages suit, and this is then one of the state's purposes for standing to sue. Conversely, deception analysis focuses on the risk of consumer harm. Notwithstanding, there is little empirical evidence concerning this risk of consumer harm. In this paper, we address the lack of

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<sup>1</sup> In the Australian Trade Practices Act 1974, Section 52 defines misleading or deceptive conduct as follows: "A corporation shall not, in trade or commerce, engage in conduct that is misleading or deceptive or is likely to mislead or deceive."

<sup>2</sup> The Japanese Act Against Unjustifiable Premiums and Misleading Representations 1962 describes this as follows: "No entrepreneur shall make such representation ...

(i) Any representation by which the quality, standard or any other matter relating to the substance of goods or services are shown to general consumers to be much better than the actual one or much better than that of other entrepreneurs who are in a competitive relationship with the entrepreneur concerned contrary to the fact and thereby which tends to induce customers unjustly and to impede fair competition."

<sup>3</sup> US Code Title 15, Section 45.

<sup>4</sup> *FTC v. Colgate-Palmolive Co.*, 380 U.S. 374 (1965).

<sup>5</sup> US Code Title 15, Section 68a.

<sup>6</sup> *Algoma Lumber Co.*, 291 U.S. 78 (1934), *Figgie International*, 107 F.T.C. 313 (1986). See *Antitrust Law Developments* (6th) p. 1014.

empirical evidence concerning the rules for misleading representation using an experimental approach based on real (sometimes deceptive) advertising. We use the data from a recent Competition Policy Research Center's (CPRC) research paper (Ogawa et al., 2008). In turn, this employs an internet survey of consumers responding to newspaper advertisements attached to the JFTC's press release on its warnings about three mobile phone companies on 12 December 2006.

The research draws on an experimental data set with three unique features. First, the experiment focuses on any consumer misunderstanding arising from company misrepresentation. In at least some countries, there are many cases of misleading representation, and much advertising/marketing effort goes into data gathering and the analysis of how companies sell their goods. However, few studies are concerned with how consumers misunderstand or are misled by company misrepresentation.<sup>7</sup> From this point of view, the data underlie a unique experiment. Second, the experiment shows the actual situation where a company struggles to create demand through advertising. It is difficult to construct these real economic and social conditions in a laboratory experiment. However, this experiment draws on consumer recognition of actual advertising. Therefore, it meets the reality check of an experimental framework. Finally, this experiment includes a comparatively large number of test subjects. In general, while it is difficult to gather people in a laboratory setting, it is also not easy to control the data-gathering process in questionnaire surveys. The sample includes about 1000 subjects that reflect the demographic distribution of the population. From a statistical viewpoint, this is a good sample for examining actual situations in the real world.

The note is structured as follows. Section 2 briefly describes the related literature. Section 3 presents the experimental framework, and Section 4 provides the results. Section 5 discusses the implications of our findings. Section 6 concludes.

## **2. Related literature**

Nelson (1970, 1974) undertook seminal work on the economics of advertising. Nelson (1970) introduces a useful distinction between "search" and "experience" goods: consumers can assess the former prior to purchase, whereas they can assess the latter only after purchase and use. Nelson (1974) argues that false claims about search goods will not induce purchases as they can be checked prior to purchase. As claims may damage a seller's reputation, only valid claims are rational for search goods. However, there is an incentive to use deceptive advertising for experience goods to induce trial purchases.<sup>8</sup>

Peltzman (1981), the first paper to focus on FTC advertising regulation, concludes that the "toothless tiger" image of FTC advertising regulation is wrong. It then explains that visible and sometimes very substantial effects of regulation arise in the product, advertising and (especially) capital markets using data analysis. This analysis is quite useful as an initial exercise for FTC advertising regulation. Sauer and Leffler (1990) deal with the effects of the FTC's Advertising Substantiation Program for more truthful advertising developed in the early 1970s. They analyze changes in advertising intensity, media choice, media wealth, and the progress of new entrants coupled with changes in

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<sup>7</sup> Another developing area is neuroeconomics or neuromarketing to discuss misrepresentation/misunderstanding; see, e.g., Brocas and Carrillo (2008), Camerer, et al. (2005).

<sup>8</sup> Schmalensee (1978) develops a formal model.

the legal definition of deception and increasingly vigorous enforcement. The findings show that adoption of substantiation requirements increases the credibility of advertising, thereby confirming Peltzman's (1981) conclusion.

Similarly, Gabaix and Laibson (2006) theoretically show that information-shrouded tactics can only be profitable if there are myopic consumers.<sup>9</sup> In an antitrust context, when firms cannot commit to add-on prices, there is room for discussion about whether firms can set add-on prices above marginal cost; see, for example, the Kodak case (Salop 2001, Carlton 2000). Garrod (2007) discusses price transparency and consumer innocence in competitive markets. The paper considers whether firms can profitably conceal their prices for a homogeneous product when consumers differ in their ability to form expectations of market prices, and shows that the ability to conceal prices but still to attract innocent consumers dampens competition and allows prices to be set above marginal cost. He then endorses the European Commission's requirement for airlines to set prices inclusive of taxes, fees and charges.

Miravete (2008) provides an evaluation of how firms use deceptive strategies with a rich data set of detailed information on all tariff options offered by many cellular telephone industries before and after the entry of a second competitor. The results vary depending on the measure of "fogginess" considered, but in general they question the widespread belief that competition permanently encourages the use of deceptive tactics. While the paper does not include any regulation analysis, the results are robust with respect to the existence of uncertainty regarding future consumption at the time of choosing a particular tariff option, so it is highly suggestive for our demand-side analysis.

### **3. Framework of the experiment**

The original research is carried out as follows: "... this study analyzes (1) what kind of expression or contents of advertisements (such as the appealing points of quality and the function of goods, layout and point size) consumers misunderstand, (2) what types of consumers (categorized by their involvement, the sense of value, lifestyle, knowledge and the likes) are likely to misunderstand, and (3) what effect on consumers' misunderstanding a brand image has (built from favorability rating, the feeling of trust, etc.). This analysis is based on a questionnaire on the web targeting consumers, using newspaper advertisements which were attached to the JFTC's press release concerning its warnings against three mobile-phone companies on 12<sup>th</sup> December 2006."<sup>10</sup> (Ogawa et al., 2008)

The outline of the questionnaire is shown in Table 1.

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<sup>9</sup> For a review, see Ellison (2005).

<sup>10</sup> The approach is summed up as follows: "First, based on the data gained through the questionnaire, we analyze the relationship between the point size of letters on the advertisement of the mobile phone companies and consumers' misunderstanding. In addition, ... we conduct quantitative analysis (discriminant analysis) on what expression or contents of advertisements consumers misunderstand, using the data gained through the questions about layout, point size, explanation, etc. Also, we undertake qualitative analysis (text-mining approach), using the answers to open-ended questions about the examples of misunderstanding. Moreover, we carry out the analysis of covariance structure to verify the validity of the mechanism of how consumers misunderstand (hypothetic model) and to ascertain the difference among several groups."

Table 1: Outline of the questionnaire

Research area	All parts of Japan
Research method	Internet questionnaire (Yahoo Japan! Research Monitor)
Subcontracting operator	INTAGE Interactive Inc.
Research period	10/11/2007–10/17/2007
Number of respondents	3119
Valid responses	1043 (503 males and 540 females)
Rate of response	33.4%

Actual advertisings are given in Appendix.<sup>11</sup> The distribution of sex, age, and household income are reflective of the Japanese population. Moreover, the market share of the contracted mobile phone company reflects recent actual data as follows.

Table 2: Distribution of respondents

Contracted company	Number of respondents	%	Actual data (in millions) <sup>12</sup>	%
docomo	554	53.1	52.94	53.4
KDDI	308	29.5	29.21	29.4
Softbank	181	17.4	17.05	17.2
Total	1043	100.0	99.20	100.0

The evaluation method used for understanding consumer misunderstanding is designed using the following steps. First, each company’s one-page newspaper advertisement is displayed for the subjects being tested. Second, they are offered an explanation of the content. Third, the subjects choose one response to the question whether the content explanation is the same as their recognition: “Yes, it is the same,” “Yes and No, partly the same and partly different,” or “No, it is not the same.” Therefore, “Yes” indicates that there is no misunderstanding, and “Yes and No,” and “No” indicate that there is (some) misunderstanding caused by the misleading advertising.

Table 3 provides descriptive statistics of the misunderstanding of the test subjects.

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<sup>11</sup> We summarize the CPRC research using the paper’s conclusion as follows.

(i) The advertising background is not a normal competitive situation as it was just before the introduction of mobile number portability (MNP) in Japan. Against this backdrop, the JFTC issued warnings to mobile companies based on the Misrepresentation Act. However, the number of switching customers under the new regulation compared with the old regulation is rather smaller than expected. This is thought to be because of not only the importance of the portability of email addresses but also the network effects of personal circumstances.

(ii) The research examines the relationship between the point size of the characters and the visibility rate. Small point character representation is not good at the visibility, and the small point anti-positive representation relates to misunderstanding.

(iii) From consumer behavior theory, it is not possible to identify that consumers misunderstand the content using the character point size, layout, type of consumer, or brand image. This may be because a wide range of factors leads to a weakening of the effect of the character point size.

<sup>12</sup> September, 2007, Monthly Subscribers by the Telecommunications Carriers Association. See <<http://www.tca.or.jp/english/database/index.html>>.

Table 3: Descriptive statistics

	docomo		KDDI		Softbank	
	Number of subjects	%	Number of subjects	%	Number of subjects	%
Misunderstanding (*)	166	15.9	157	15.1	128	12.3
Partial misunderstanding (**)	359	34.4	371	35.6	373	35.8
(*)+(**)	525	50.3	528	50.6	501	48.0
No misunderstanding	518	49.7	515	49.4	542	52.0

We discuss the factors and mechanisms underlying consumer misunderstanding and misrepresentation below.

#### 4. Model and results

##### 4.1 Estimation model

We analyze the relationship between several factors and consumer misunderstanding. First, we model consumer understanding,  $y_i$ , ( $y_i$ : NTTu, KDDIu, or SOFTu) with the following linear function, where  $\alpha$ ,  $\beta_{1i}$ , and  $\beta_{2i}$  are coefficients to be estimated and  $\varepsilon_i$  is an error term with an extreme Type I value as follows:

$$y_i = \alpha + \beta_{1i}y_{-i} + \beta_{2i}x_i + \beta_3z_i + \varepsilon_i \quad (1)$$

where  $y_{-i}$  is the consumer's understanding of the other mobile company's advertising,  $x_i$  is the mobile company used by the consumer (note that consumers have an exclusive option of one of the three carriers), and  $z_i$  are consumer attributes including age, sex, income, and the mobile company that the consumer's friends or family use. As  $y_i$ , the consumer's carefulness latent variable, cannot be measured directly, we assume that a careful consumer ( $y_i > 0$ ) does not misunderstand the advertising and that a careless consumer ( $y_i \leq 0$ ) misunderstands the advertising:

$$y_i = \begin{cases} 1, & y_i > 0 \\ 0, & y_i \leq 0 \end{cases}$$

Although individual carefulness is not observable where identical consumers are distributed, the sample ratio of misunderstanding is estimated to be the estimated probability of misunderstanding the advertising. We can obtain the understanding probability,  $P_i$  using a logit model based on equation (1) as follows:

$$P_i = \frac{1}{1 + \exp(\alpha + \beta_{1i}y_{-i} + \beta_{2i}x_i + \beta_3z_i)} \quad (2)$$

##### 4.2 Result

Table 4 shows the estimation result obtained using maximum likelihood (ML) methods:

Table 4: Estimation Result<sup>13</sup>

Dependent variable: NTTu				
Variable	Coefficient		Std. error	z-statistic
C	0.69		-0.32	2.14
KDDIu	0.28	**	-0.13	2.2
SOFTu	0.21	*	-0.13	1.68
KDDI	-0.40	***	-0.14	-2.74
SOFT	-0.38	**	-0.17	-2.19
Fee/m	-0.05		-0.04	-1.27
m/f	-0.07		-0.13	-0.54
age	-0.05	*	-0.03	-1.68
Log likelihood: -708.90		McFadden R-squared: 0.018		

  

Dependent variable: KDDIu				
Variable	Coefficient		Std. error	z-statistic
C	0.26		-0.34	0.75
NTTu	0.28	**	-0.13	2.19
SOFTu	0.52	***	-0.13	4.04
NTT	-0.40	***	-0.15	-2.74
SOFT	-0.54	***	-0.19	-2.82
Fee/m	-0.07	*	-0.04	-1.71
m/f	0.24	*	-0.13	1.85
age	-0.06	**	-0.03	-2.07
Log likelihood: -700.35		McFadden R-squared: 0.031		

  

Dependent variable: SOFTu				
Variable	Coefficient		Std. error	z-statistic
C	0.61		-0.35	1.73
NTTu	0.21	*	-0.13	1.68
KDDIu	0.52	***	-0.13	4.04
NTT	-0.46	***	-0.18	-2.61
KDDI	-0.50	*	-0.19	-2.58
Fee/m	-0.05		-0.04	-1.18
m/f	-0.07		-0.13	-0.55
age	-0.04		-0.03	-1.37
Log likelihood: -706.07		McFadden R-squared: 0.023		

Three main points are noted. First, consumer habitude, in which one is careful (it is difficult to misunderstand the advertising), is common across the three companies. The

<sup>13</sup> Method: ML Binary Logit (Quadratic Hill Climbing) with EViews Version 5.0. Included observations: 1043; convergence achieved after four iterations.  
(\*\*\* -1%, \*\* -5% and \* -10% significance)

dependent variable of NTTu is positively correlated with KDDIu and SOFTu with a significant probability (5% and 10%, respectively). There is a similar situation for the dependent variables (KDDIu and SOFTu). In other words, a consumer who is careful about one company's advertising is also careful about the other company's advertising, so he/she is not likely to jump to a misunderstanding through the other company's advertising. Second, a consumer who does not have the company's mobile finds it easy to misunderstand the other company's advertising. The independent variable of possession of the other company's mobile is significantly negatively correlated to the consumer's understanding of the company's advertising (the significance of the independent variables for NTTu: 1% (KDDIu) and 5% (SOFTu), KDDIu: both 1%, (NTTu and SOFTu) and SOFTu: 1% (NTTu) and 10% (KDDIu)). Therefore, a consumer who has a company's mobile is likely to understand correctly the company's advertising. Third, other factors, such as monthly fees, sex and age, have only a weak effect. In the results for KDDIu, the age factor has a negative effect at the 5% level of significance, while the monthly fee and sex factors have some effect at the 10% level of significance. Similar effects are not found for NTTu and SOFTu.

The first and third points suggest that a consumer who is more likely to misunderstand one carrier's advertising tends to misunderstand the other carriers' advertising. Therefore, there is no prominent pattern of misunderstanding among the three companies' advertising; for example, one company's advertising has a prominent misunderstanding trend. The second point implies that a consumer does not misunderstand advertising whose source is familiar to the consumer but may have an inclination to misunderstand tenuous advertising aimed at a consumer who does not possess that company's mobile. Consequently, it is worth protecting consumers from misleading advertising, not just before buying the good but also when attracting consumers far from the good. However, the consumer is not likely to misunderstand their own carrier's advertising if the consumer already possesses information on their own carrier.

Table 5 provides the results for the pooled consumer correct understanding ( $NTTu \wedge KDDIu \wedge SOFTu$ ) estimated using factors of consumer caring for the advertisement and actual carrier changing behavior.

Table 5: Estimation of pooled consumer correct understanding

Variable	Coefficient		Std. error	z-statistic
C	-3.42		-0.56	-6.15
Intent to change	0.68	**	-0.29	2.38
Actual change				
NTT	0.39	**	-0.19	2.05
Log likelihood	-388.61	McFadden R-squared	0.014	

  

Variable	Coefficient		Std. error	z-statistic
C	-3.27		-0.6	-5.42
Intent to change	0.61	*	-0.31	1.99
Actual change	-0.45		-0.78	-0.58
NTT	0.38	**	-0.19	1.98

The dependent variable is pooled consumer correct understanding. The independent variables are “Intent to Change”—the intent to change carriers after the introduction of MNP, “Actual Change”—an index of consumer behavior of actual change carriers following the introduction of MNP, and “NTT”—an index of NTT users (“KDDI” and “Softbank” are not statistically significant.). The results of this table suggest that a consumer who is considering changing carrier does not misunderstand advertising. Furthermore, the actual conduct of a person who is changing carrier is unrelated to the understanding of the misleading advertising. Therefore, consumers intending to purchase a good may or may not collect and retain information, but they do tend to understand any advertising.<sup>14</sup> The misrepresentation is likely to affect only marginal consumers attracted to the good. In this regard, it is necessary to control misrepresentation for marginal consumers, not actual purchasers of the good or consumers who intend to purchase the good. On this basis, a policy where the competition authority’s deception analysis focuses on the risk of consumer harm draws on a form of traditional wisdom. Accordingly, the requirement that is not necessary for a consumer to buy the good itself has some empirical corroboration.

## 5. Implication

We suggest that a consumer who is not close to the good or who intends to purchase the good understands (alleged) deceptive advertising. Therefore, advertising regulation should protect a marginal consumer rather than an actual or potential purchaser from deceptive advertising. This result has interesting implications for the distribution of liability in the context of law and economics. From the consumer perspective, if there is a perfectly compensatory principle, the consumer is indifferent between selecting goods based on his/her understanding or misunderstanding of advertising. This type of indifference leads to the risk of consumer carelessness under a situation of moral hazard. It is possible for the society to take inefficient practices of excess precaution by producers.

The findings show that where related consumers or consumers who intend to buy do not care about their understanding of advertising, we may have a situation of moral hazard. However, we have a situation where consumers understand all advertising (Tables 4 and 5). Therefore, enforcement of a rule targeted at not only the injured party but also the risk of consumer harm may be incomplete for the consumer, and they both may know it. In a law and economics context, where there are perfectly compensatory and unilateral precautionary principles, a strict liability rule will provide an efficient incentive for the injuring party to take preventive action.<sup>15</sup> In general, a rule of misleading advertising is based on strict liability principle and additionally on the risk of consumer harm.<sup>16</sup> Because of the impossibility of complete rule enforcement, the scope of the ruling target covers not only the injured party but also the risk of consumer harm. Accordingly, the misrepresentation rule is a balance between consumers who

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<sup>14</sup> It is difficult to analyze what type of people actually changed from an old carrier to a new one at the introduction of MNP.

<sup>15</sup> See Section 5, F. Cooter and Ulen (1997).

<sup>16</sup> A punitive damage approach is applied in the US.

realize incomplete enforcement and take self-precautions, and suppliers who know the probability of oversight and the liability principle as well as the scope of the rule. Our research helps explain consumer self-precaution behavior under advertising rules by explaining the role of rules for misleading advertising.

Another implication to be deliberated is firm's incentive of misrepresentation. If an actual purchaser does not misunderstand advertising of a good, the advertising has only limited effect on sales volume. Why does a firm take deceptive advertising? One way of thinking for the incentive to take deceptive advertising is an "anchoring effect" in the behavioral economics area (Ariely et al. (2003), Simonsohn (2000)).<sup>17</sup> It would be needed to study this part of economic mechanism.

## 6. Concluding remark

In this paper, we corroborate the rules for misleading representation using an experimental approach and internet questionnaire data from a recent CPRC research paper. The data set is unique from three perspectives; i.e., it targets consumer misunderstanding of advertising, uses real (sometimes deceptive) advertising, and uses a larger number of subjects than usually found in laboratory experiments.

The analysis shows that consumers do not misunderstand advertising whose source is familiar to them, but may be inclined to misunderstand tenuous advertising aimed at consumers who do not possess the company's mobile. Consequently, it is worth protecting consumers from misreading advertising, not just before buying the good but also when attracting consumers far from the good. The other side of this experiment indicates that a consumer who considers changing carrier does not misunderstand the advertising. Therefore, consumers intending to purchase a good do not tend to misunderstand advertising. Accordingly, it is necessary to control misrepresentation in the producer's misleading advertising, not in the actual purchasing of goods.

Previous studies mainly concern the effect of advertising regulation using aggregate marketing data. However, we examine the mechanism of the actual requirements of law in terms of experimental data and analysis. Although the consequence of the necessity to control misleading advertising has a kind of speculative part, there would be no other data interpretation to reject the rules of misleading advertising. This experiment shows difficulty; for example, the balance of liability, of the framework and enforcement of the misrepresentation regulation. It is necessary for us to accumulate the case study, and the experimental approach is a beneficial tool for examining the real situation.

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<sup>17</sup> However, it is not easy to think the consumer behavior only through the anchoring effect. See Miravete (2008), List (2003), Gneezy and List (2006).

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