KyunHwa Kim

Department of Economics
University of Southern California
3620 S. Vermont Ave. KAP 300
Los Angeles, CA 90089

+1-(213)-550-6366
kyunhwak@usc.edu
https://kyunhwakim.com

EDUCATION

Ph.D. in Economics, University of Southern California, Los Angeles, CA (2017, expected)
Advisor: Yilmaz Kocer

M.A. in Economics, University of Southern California, Los Angeles, CA (2016)

B.A. in Economics, Yonsei University, Seoul, Republic of Korea (2009)

RESEARCH INTERESTS

Microeconomics, Industrial Organization, and Game Theory

RESEARCH PAPERS

[1] Fit, Quality and Optimal Blurring of Advertising
: Two Attributes of Goods and Bayesian Persuasion (Job Market Paper)

[2] The Preference for Quality and Optimal Fit Revelation (Working Paper)

[3] Multi-Stop Shopping and Multi-Purpose Shopping (Working Paper)

SCHOLARSHIPS

Teaching Assistantship, University of Southern California (2013-present)

Summer Research Fellowship, University of Southern California (2016)

Yonsei International Foundation Scholarship Award (2015)

Merit Fellowship, University of Southern California (2011-2013)

Teaching Assistantship, Yonsei University (2009-2011)

Research Assistantship, Brain Korea 21 Project (2009-2011)

External Scholarship and Fund Scholarship (Shinsegae Co.Ltd), Yonsei University (2007-2009)

Honors and Awards and University Designated Scholarship, Yonsei University (2005-2006)

PRESENTATIONS

Brown Bag Seminar, Department of Economics, University of Southern California (2016)

Western Economic Association International Annual Conference, Portland (2016)

Western Economic Association International Annual Conference, Hawaii (2015)

TEACHING EXPERIENCE

University of Southern California, Teaching Assistant (2013-present)
- Principles of Microeconomics (2016)
- Intermediate Microeconomics (2013, 2016)
- Money, Banking and Finance (2014-2015)
- Economic Policy Issues (2014)

Yonsei University, Teaching Assistant (2009-2011)
- Topics in Macroeconomics: Business Cycles, Macroeconomics (2011)
- Introduction to Economics (2010)
- Public Political economics (2010)
- Game Theory and Application (2009)

RESEARCH EXPERIENCE

Research Assistant in Yonsei-SERI Centre (2009-2010)

SKILLS

MATLAB, Stata, Mathematica

English (fluent), Japanese (basic), Korean (native)

PERSONAL INFORMATION

Citizenship: Republic of Korea (F-1 Visa)

Date of Birth: November 7th, 1986

REFERENCES

Yilmaz Kocer
Assistant Professor of Economics, University of Southern California
Phone: (213) 740-3512
E-mail: kocer@usc.edu

Anthony Dukes
Associate Professor of Marketing, University of Southern California
Phone: (213) 740-3846
E-mail: dukes@marshall.usc.edu

Guofu Tan
Professor of Economics, University of Southern California
Phone: (213) 740-3520
E-mail: guofutan@usc.edu

ABSTRACTS

[1] Fit, Quality and Optimal Blurring of Advertising : Two Attributes of Goods and Bayesian Persuasion (Job Market Paper)

This study examines firms' strategic decisions regarding how much information to provide to consumers who are uncertain about the fit between their personal tastes and the product's horizontal attributes. Compared to information on product quality which is publicly observable, idiosyncratic fit information is hard to know before the purchase. Thus, firms participate in fit revelation activities such as advertising, free trials, consumer reviews, or return policies in order to help consumers learn. I examine two research questions pertinent to firms' fit-revealing strategies. First, what is the role of inherent quality of the product in providing fit information? Second, how do the market channel−offline or online−affects the means of providing fit information? I find that the results are consistent with the widely held belief that the low quality firm provides more information on fit unless the quality advantage of the high quality firm is large enough, when two firms compete offline. On the other hand, an interesting result arises in online competition. Compared to the high quality firm who sends out bluffing signals (Type-II error), the low quality firm sends out humble signals (Type-I error) in order to survive in the market.

[2] The Preference for Quality and Optimal Fit Revelation (Working Paper)

While price discrimination is not allowed in many situations, information discrimination is allowed. A seller may wish to provide customized information based on each consumer's personal data, collected by tracking cookies of the consumers' websites, and purchase histories in membership accounts. Such a strategy is called *targeting*. In this paper, I examine the optimal targeting strategy and price decision by a monopolist in a market in which consumers have different vertical valuations. In doing so, I address the following two questions. First, does targeting work? Second, if it does work, what does it look like? My study represents two features of optimal signaling strategy, in a binary signaling setup. First, regardless of the consumer's type, only the good signal receivers end up buying. Second, depending on consumer's type, each consumer receives different type of signal, meaning that the seller strictly benefits from targeting. This strategy is realized in this manner: Consumers who have higher preference for quality get good signals more often, however, these good signals are less attractive compared to those for consumers with lower preference. This analysis can be extended to a dynamic framework in which the personal profile (purchase history) is endogenously designed by each consumer whose preference evolves over time. In this situation, strategic consumers may intentionally postpone their purchase, expecting better deals in the future. Then, the seller may give up targeting them at some point.

[3] Multi-Stop Shopping and Multi-Purpose Shopping (Working Paper)

As there has been a huge shift in shopping patterns during the past few decades, a more realistic approach is required to consider consumers' store choice behavior. In my attempt to better reflect the store choice behavior of consumers, I present a model that relaxes the two dimensions−space and time−of a standard Hotelling model. First, I consider multi-stop shopping, which opens up the possibility that consumers can buy the product at both firms. The fact that the multi-stop shoppers are part of a common demand for both firms mitigates price competition, and this case becomes a special type of monopoly regime. As a result, the prices are strategic independent and the market heterogeneity is not equivalent to the market power, which sharply contrasts with the results of the single-stop model. Second, I consider multi-purpose shopping, which allows consumers to combine two shopping trips that are originally intended to be made at two separate periods−one today and another tomorrow. Following Winter (1993)'s study of two dimensional search, I adopt two parameters−the location and discount factor, which respectively determines the optimal number of stops and shopping purposes. The intuitive results hold true to confirm the following shopping patterns: the consumer with a higher discount factor is more likely to be the multi-purpose shopper, and the consumer located at a less convenient location is more likely to be a multi-purpose shopper.

Research Statement

KyunHwa Kim
University of Southern California

My field of research is industrial organization. During my years in the University of Southern California, I have developed the game theoretic models that provide accessible explanations for issues in industry and marketing. In addition to theoretical contributions in broad topics, my research aims to discover various managerial and policy implications. Specifically, my research focuses on analyzing the strategic decisions of two agents in the market−the firm and the consumer.

First, I have devoted myself to studying the firms' optimal strategy in providing information. Among various marketing mixes such as price, quality, or promotion, I focused on fit revelation activities such as advertising, return policy, and free trials, along with information disclosure and consumer learning. In my job market paper, titled "Fit, Quality and Optimal Blurring of Advertising: *Two Attributes of Goods and Bayesian Persuasion,"* I examined the firms' strategic decisions on the optimal informativeness of signals. This is a distinct feature of my research from previous studies, since my model allows the firm to consider not only whether or not to engage in fit revealing activities, but also how much information to reveal.

My work contributes to the field in two ways. First, from a practical perspective, this model entails rich managerial implications. As the optimal fit revelation activities of firms are affected by two things−the quality and market channels−the results in my model suggest several managerial tactics to survive in the market for the firm who has a disadvantage in quality. When the two firms compete offline, the lower quality firm has to provide more informative advertising than the high quality firm does. On the other hand, in the online competition, compared to the high quality firm who sends out exaggeratedly positive messages, the low quality firm sends out deliberately negative messages about her product in order to build credibility. In advertising, this strategy is referred to as *bluntvertising*. This strategy is the opposite of the traditional method of exaggeration which always reveals its good aspects. In other words, my research provides s starting point to understand the role of product quality and market channels in designing firms' advertising strategies. Also, this study implies that the government needs to support the firm who produces lower quality product and decrease the quality gap between firms, in order to increase the consumer surplus and the investment in quality.

Moreover, from a theoretical point of view, this study contributes to the growing literature on Bayesian persuasion. Kamenica and Genztkow (2011) provide a general model to investigate the best choice the principal can make, if she can choose any information structures. In their recent study (2016), they consider the impact of competition on strategic information revealing when there are multiple senders. My model differs from their studies in two subtle ways. First, their former study (2011) deals with the case of only a single sender, but my model examines two senders competing either offline or online. Second, compared to their latter study (2016) in which multiple senders share a single state of the world, my model adopts two independent dimensions of fit un-

certainty. It comes from the distinct nature of idiosyncratic fit values, which require each firm to reveal information only about her product, not the rival's. This subtle feature brings drastically different results. Unlike Kamenica and Genztkow (2016) model, full revelation does not arise as an equilibrium outcome in my study.

In my working paper, titled "The Preference for Quality and Optimal Fit Revelation", I have expanded the research to the market with heterogeneous consumers and examined the optimal information discrimination by the monopolist. If the seller has an access to each consumer's personal information, for example, by tracking cookies in the websites, or purchase histories in membership accounts, he may wish to provide customized information based on this data. Such a strategy is called *targeting*, which is one of the important marketing strategies these days. I examine the optimal targeting strategy and price decision of the firm. This study suggests several practical implications for the seller. First, the seller strictly benefits from targeting. Second, when he designs the strategy, he has to persuade consumers who receive good impressions, not bad impressions to buy, regardless of consumer's type. Depending on each consumer's type, however, the seller has to design the strategy to be realized in this manner: compared to consumers with lower preferences, consumers who have higher preferences receive advertisements more often, but these advertisements are less attractive. This study also has an advertising implication in the firm's decision on R&D (Research and Development).

I am also highly interested in the consumers' optimal purchasing decision. In my the other working paper, "Multi-Stop Shopping and Multi-Purpose Shopping", I extended the two dimensions of Hotelling model−space and time−to explain the various shopping patterns of consumers. Multi-stop shopping opens up the possibility that consumers can buy the product from both firms−firm A and firm B, and multi-purpose shopping allows consumers to combine two shopping trips that are originally intended to be made at two separate periods−one today and another tomorrow. Since the multi-stop shoppers are the common demand of the two firms, the price competition between them is mitigated in the multi-stop shopping model. As a results, each seller acts like a monopolist in the equilibrium. This result sharply contrasts with the results of the single-stop model. In the multi-purpose shopping model, I adopt two parameters, the location and discount facto, which respectively determines the optimal number of stops and purposes, respectively. In the equilibrium, the consumer with a higher discount factor is more likely to be a multi-purpose shopper, and the consumer located at a less convenient location is more likely to be a multi-purpose shopper. As an intuitive result holds true to confirm the various shopping patterns, this study has a potential to suggest a more realistic behavioral approach to understanding the consumers' store choice.

Looking forward, my first priority will be to submit for publication articles that draw from my research while completing the dissertation. I plan to extend to incorporate my the optimal information provision study into the dynamic framework in which a consumer is exposed to the signals over N period. In this situation, the personal profile is endogenously designed by each consumer whose preferences evolve over time. As a result, a strategic consumer intentionally postpones his purchase, expecting better deals in the future and the seller may give up targeting them at some period. Moreover, I also plan to consider duopoly market to incorporate competition on signaling game. I conjecture that this approach will generate a probability distribution of a Markov kernel, and so it will enrich the information structure in the context of dynamic persuasion.

Ultimately, my research on information provision aims to explain broad issues over social science, ranging from voting, media, to stock market, where the information provision does matter. I am committed to contributing to the overall knowledge base in the social sciences.

References

[1] Kamenica, Emir, and Matthew Gentzkow. 2011. Bayesian Persuasion. *American Economic Review,* 101:2590-2615.

[2] Kamenica, Emir, and Matthew Gentzkow. 2016. Competition in Persuasion. *Review of Economic Studies, forthcoming.*

USC Marshall
School of Business

MARKETING DEPARTMENT
Anthony Dukes
Associate Professor

November 14th, 2016

Subject: Reference Letter for **Kyunhwa Kim** (USC)

Dear Hiring Committee,

I am pleased to write a letter of reference on behalf of Ms. Kyunhwa Kim, who is seeking a rookie position in an economics department. I am the external member of her dissertation committee and have known her since Fall 2014. Since that time I have watched her grow and make progress with her dissertation, which I describe here.

Ms. Kim studies topics in I.O. theory. Her job market, "Fit, Quality and Optimal Blurring of Advertising: Two Attributes of Goods and Bayesian Persuasion" examines firms' decisions about how much fit information to provide a consumer. A firm can reveal fit information to consumers when it opens a physical retail store to allow consumers to inspect products before purchase. Alternatively, online retailers routinely enhance their website to facilitate better (or worse!) inspection of their products through visualization or, in the case of apparel, "virtual trial" technology. In this way, Ms. Kim is studying of a relevant topic, which may have implications for consumer information policy. It is also a theoretically challenging problem because the firm must decide how much information to reveal knowing that consumers will draw inferences based on the firm's incentive to reveal that information.

Information, in Ms. Kim's model, is related to consumer "fit" instead of quality information, which has been studied considerably. Specifically, she studies the firm's decision to reveal consumer's idiosyncratic fit before the purchase opportunity. The key departures from the literature on firm disclosure is that the firm can send an imperfect signal to the consumer about her fit. This means that the firm can decide to leave the consumer less than perfectly informed about her fit with its product. In this way, the setting relates to the recent literature on Bayesian persuasion (e.g. Kamenica and Gentzkow 2011). Unlike that literature, however, Ms. Kim offers more of I.O. application, by introducing competition among two firms (senders). Firms are vertically differentiated and consumers know each firm's quality. Thus, the firms strategically decide to communicate information regarding idiosyncratic fit, only.

Ms. Kim finds that, interestingly, the higher quality firm (any positive vertical differentiation) reveals no information in equilibrium. By contrast, the other firm reveals full information. The mechanism of this result turns on the following trade-off. The firm wants to reveal a better signal, but its credibility is weakened when it is good. The need to communicate a good signal is weaker when the firm's quality is higher. That is, the firm wants to send good signals as much as possible to increase the sale, but sending good signals more often undermines the credibility of these signals. Without full credibility, it less likely that the consumer will purchase the products. Given the topic and rigor of this paper, I expect it could be published in a solid IO journal, such as *IJIO* or *JEMS*, or top marketing journal, such as *Marketing Science*.

University of Southern California
1234 Trousdale Parkway, Los Angeles, California 90089-1234 • +1.213.740.3846 • dukes@marshall.usc.edu

I enthusiastically recommend her for an entry level position in economics. She will hit the ground running in her new position. Her sincere and pleasant manner will also make her a terrific colleague.

Sincerely yours,



Anthony J. Dukes
Associate Professor of Marketing
Phone: (213) 740-3846
Email: dukes@marshall.usc.edu

11/14/2016

To the Junior Faculty Search Committee,

I am delighted to provide a letter in full support of KyunHwa Kim's application. I am the chair of KyunHwa's dissertation committee and have thus had many opportunities to interact with her over the past couple of years.

My bottom line recommendation for KyunHwa is this; she is a very hardworking, inquisitive scholar with an eye focused on economic applications of theory. I believe that she will be a very good addition to economics departments and business schools interested in an economic-relevance-focused IO theorist.

I have known KyunHwa since she has taken my 2nd year PhD Game theory class in 2013, where she showed her ability to tackle methodologically and mathematically sophisticated problems with ease. In the last two years, I am in constant contact with her development as a marketing/IO theorist.

KyunHwa's job-market paper is an IO application of the recently emerging Bayesian Persuasion theory to the competitive advertising problem of two firms, in a variety of setups including online vs offline shopping, with or without price competition (on top of informational advertising competition for the fit uncertainty). However, the main contribution of her paper pertains to the case of online shopping where consumers observe both firm's advertising before making a decision, on which I am going to focus. Suppose there are two firms H and L producing a high quality good and a Low quality good, and a unit measure of consumers with identical quality preferences but idiosyncratic fit characteristics, Fit or No fit with each firm's good, independently. Each firm's good delivers the quality specific utility to the consumer only if it is a good fit; assuming a strong complementarity between the quality (vertical attribute) and fit (horizontal attribute) for the consumers. The firms simultaneously set prices for their goods, and after observing each other's choices, they simultaneously announce their information/advertising strategies. Basically, for each firm, this is a 2 point probability distribution over the posterior expected fit of its good for the consumer, he higher one called a Good fit signal, and the lower called the Bad signal. Bayesian updating implies that these two average out to the prior fit probability when weighted by the likelihoods of ach signal coming up, and that is the only constraint on the signal structure chosen by each firm. Here, the tradeoff each firm faces is then this; either I give the good signal more often, but then the "meaning" (the posterior expectation of the fit) of the good signal will be diluted, implying a lower expected fit. The paper asks how this tradeoff is resolved in the presence of competition (from another firm doing the same). She finds that, the price setting stage does not add any crucial element compared to the case where the firms compete directly in the advertising stage only. If the quality advantage of H is sufficiently high, H need not bother to give any information, and L has no way to compete with H, and everybody buys from H. Intuitively, close competition opens the door to information revelation, in line with the received literature.

If the quality gap is not extreme, each firm reveals some information. It turns out that both firms' "good" signals make the agents indifferent (unless there is tie breaking assumed); hence H

gets the customer after a Good fit signal and L gets the customer otherwise. L's advertising strategy is more informative than H, but only to make H stick to his revelation strategy in equilibrium. Roughly, H gives good fit signal as often as possible, with Good signal not meaning much; however, L 's good signal is a huge revelation; rather good news but happens less frequently. L is forced to be humble and honest to get any customers, that is.

KyunHwa is a devoted and motivated researcher with diverse interests and a very good communicator with excellent teaching skills. She is extremely organized, resourceful and a very good presenter. She has an excellent variety of teaching assistantship experience both here in USC and also from before coming to US.

In sum, she is a very good teacher, an enthusiastic scholar and an insightful colleague and I recommend **KyungHwa Kim** to both US and Asian schools. Her first preference is academic environments, but I believe she would prosper an excel in the industry as long as research and scholarly pursuit is part of her job. Please let me know if you have any questions about KyungHwa.

Yilmaz Kocer
Assistant Professor of Economics
Department of Economics
University of Southern California

3620 S. Vermont Ave. KAP 300
Los Angeles, CA 90089
kocer@usc.edu
Office: (213) 740 3512



USC Dornsife
Department of Economics

Guofu Tan
Professor of Economics
Department of Economics
University of Southern California
Los Angeles, CA 90089-0253
(213) 740-3520
guofutan@usc.edu

December 2, 2016

RE: Letter of Recommendation for Kun Hwa Kim

To Whom It May Concern,

I am writing a letter of recommendation for **Kun Hwa Kim** who has applied for a tenure-track position at your institution.

Miss Kim is currently a graduate student in the Department of Economics at the University of Southern California (USC) and is on the job market this year. Her main research is in the area of **Industrial Organization (IO)** with applications to **marketing**.

I came to know Miss Kim a few years ago when she took a sequence of IO courses (Industrial Organization, Antitrust Economics and Regulation) from me. As one of her Ph.D. dissertation committee members, I have had opportunities to observe closely her research progress. She is highly motivated to pursue her research in IO and indeed equipped with a solid understanding of broad topics in microeconomics, ranging from IO, Regulation, Game theory, to Marketing literature (she took several marketing courses from the Marshall School of Business at USC). Based on a comprehensive understanding of theoretic models, her flexibility to connect theory to application is one of her strengths.

In the last couple of years I have observed Miss Kim's steady growth as a researcher. She has devoted herself to studying the strategic decisions of consumers and firms in the market. When taking my IO class, she constructed a "multi-homing" choice model to study consumer shopping-behavior. Since then, she has expanded her research to the optimal information provision, in relation to the growing literature on "Bayesian Persuasion". I thought that it was a nice combination of the two topics. In her job market paper "Fit, Quality and Optimal Blurring of Advertising: Two Attributes of Goods and Bayesian Persuasion," Miss Kim logically examines the fit-revelation competition of two firms that offer differentiated quality. In this study, she incorporates competition effects into signaling framework with sophisticated modeling. I do not

follow well the recent literature on Bayesian persuasion, but my colleague Yilmaz (her main supervisor) will be able to comment on her work more accurately in his letter. I believe that her study is a notable theoretical contribution to competitive information revelation literature. In addition, considering explicitly two distinct information features, "fit and quality", she appropriately applies her analysis to strategy issues such as the role of quality in advertising. As the advertising is the means of persuading consumers to buy, her study on the firms' optimal information strategies offers alternative explanations for various practical issues in markets. Furthermore, I think her study contributes to understanding government policies regarding information regulation and R&D investment.

From her course work and from my interactions with her over the years, I find that Miss Kim possesses a balanced ability to pursue her career as scholar/researcher and that she has a nice personality and is easy to work with. Moreover, her English is fine and she is capable of teaching any course in microeconomics and IO at both the undergraduate and graduate levels. I expect that Miss Kim will do exceedingly well in her career as an economist.

Please feel free to contact me at guofutan@usc.edu if you have any questions.

Yours sincerely,



Guofu Tan
Professor of Economics