Cited papers in NAIVETE-BASED DISCRIMINATION by PAUL HEIDHUES AND BOTOND KÖSZEGI

* “we analyze a simple reduced-form pricing model in the tradition of **Gabaix, Xavier, and Laibson, David “Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets”, Quarterly Journal of Economics, 121 (2006), 505–540** where firms can, potentially inefficiently, induce naive consumers to pay unexpected charges.”
* “we analyze a model of the credit market with present-biased consumers based on **Heidhues, Paul, and Botond Köszegi “Exploiting Naıvete about Self-Control in the Credit Market”, American Economic Review, 100 (2010), 2279–2303**.”
* “we develop a model of markets with expensive add-ons inspired by Gabaix and Laibson (2006) and especially **Grubb, Michael D. “Consumer Inattention and Bill-Shock Regulation”, Review of Economic Studies, 82 (2015), 219–257**, framing the model in the context of mobile phones.”
* “In as much as consumers who make financial mistakes have lower incomes than average (**Calvet, Laurent E., John Y. Campbell, and Paolo Sodini “Down or Out: Assessing the Welfare Costs of Household Investment Mistakes”, Journal of Political Economy, 115 (2007), 707–747**), such a distributional impact is extremely adverse.”
* “A consumer’s outside option has gross utility 0, but it is available only at the endpoints of [0, 1], so it has utility−t min {y, 1− y}. This formulation of the outside option was first introduced by **Benabou, Roland J., and Jean Tirole “Bonus Culture: Competitive Pay, Screening, and Multitasking”, Journal of Political Economy, 124 (2016), 305–370**. In the classical Hotelling model—where the utility from the outsideoption is fixed—t affects both the level of competition and the attractiveness of theproduct relative to the outside option. Benabou and Tirole’s formulation abstractsaway from the second effect and hence is more appropriate for studying the pureeffect of competition on outcomes.”
* “Previous work (**Eliaz, Kfir, and Ran Spiegler “Contracting with Diversely Naive Agents”, Review of Economic Studies, 73 (2006), 689–714**) has already shown that if firms do not know consumers’ beliefs, then they often screen consumers according to beliefs.”
* “The vast majority of research on classical third-degree price discrimination also makes implicit or explicit assumptions to rule out (nontrivial) screening issues. Typically, researchers assume either that a firm can only choose a linear price, or that each individual consumer has unit demand. We are aware of only two papers that study third-degree price discrimination when screening is also going on, **Herweg, Fabian, and Daniel Müller “Price Discrimination in Input Markets: Quantity Discounts and Private Information”, Economic Journal, 124 (2014), 776–804** and **Bergemann, Dirk, Benjamin Brooks, and Stephen Morris “The Limits of Price Discrimination”, American Economic Review, 105 (2015), 921–57**.”
* “Our leading application is a credit market where partially naive present-biased borrowers underestimate their willingness to pay costly interest on a loan, and firms take advantage of this mistake by lending more than is socially optimal. Our model is a variant of that in Heidhues and Köszegi (2010), which in turn builds on previous work by **DellaVigna, Stefano, and Ulrike Malmendier “Contract Design and Self-Control: Theory and Evidence”, Quarterly Journal of Economics, 119 (2004), 353–402** and Eliaz and Spiegler (2006). While the logic of the equilibrium contracts signed by consumers is similar to that in these previous papers, we move beyond the literature in asking how naivete-based discrimination affects welfare.”
* “Borrowers have time-inconsistent preferences derived from hyperbolic discounting ` a la **Laibson, David I. “Golden Eggs and Hyperbolic Discounting”, Quarterly Journal of Economics, 112 (1997), 443–477** and **O’Donoghue, Ted, and Matthew Rabin “Doing It Now or Later”, American Economic Review, 89 (1999), 103–124**.”
* “Following **O’Donoghue, Ted, and Matthew Rabin “Choice and Procrastination”, Quarterly Journal of Economics, 116 (2001), 121–160**, we assume that in period 0 a consumer has point beliefs β^ about her future β; that is, she believes that self 1 will choose q to minimize q + β^(bl−q)(1 + rl).”
* “Prudence is a commonly assumed property of the consumption-utility function that is equivalent to the precautionary savings motive (**Leland, Hayne E. “Saving and Uncertainty: The Precautionary Demand for Saving”, Quarterly Journal of Economics, 82 (1968), 465–473**). Numerous papers, including empirical studies by **Parker, Jonathan A., and Bruce Preston “Precautionary Saving and Consumption Fluctuations”, American Economic Review, 95 (2005), 1119–1143** and **Ventura, Luigi, and Joseph G. Eisenhauer “Prudence and Precautionary Saving”, Journal of Economics and Finance, 30 (2006), 155–168** and experimental studies by **Deck, Cary, and Harris Schlesinger “Consistency of Higher Order Risk Preferences”, Econometrica, 82 (2014), 1913–1943** and **Noussair, Charles N., Stefan T. Trautmann, and Gijs van de Kuilen “Higher Order Risk Attitudes, Demographics, and Financial Decisions”, Review of Economic Studies, 81 (2014), 325–355**, find that the vast majority of the population is prudent. This suggests that in the credit domain, naivete-based discrimination strictly lowers welfare.”
* “For instance, a casino may provide alcohol below cost and create an overly glittery environment to encourage naive consumers to gamble more. Our working paper, **Heidhues, Paul, and Botond Köszegi “Using Information about Consumer Naivete to Price Discriminate,” working paper, 2014** formalizes this application.”
* “In our second model of add-on pricing, inspired by Grubb (2015), both naive and sophisticated consumers expect to take costly steps to avoid an expensive add-on, but naive consumers fail to do so.”
* “We develop the model in the context of mobile phone overage charges, but the same mechanism may apply to bank account overdraft fees and hotel add-ons as well. The idea that sophisticated consumers pay avoidance costs is discussed by Gabaix and Laibson (2006) in the context of hotels and by **Armstrong, Mark, and John Vickers “Consumer Protection and Contingent Charges”, Journal of Economic Literature, 50 (2012), 477–493** in the context of bank accounts. One important difference is that consistent with our arguments in Section III.A for studying naivete-based discrimination in pools of consumers with the same beliefs—in our setting both naïve and sophisticated consumers expect to undertake costly avoidance, whereas in previous work only sophisticated consumers do.”
* “Some other applications naturally fit in our category of markets with sophisticated-side distortions. First, firms may offer a rebate that consumers must exert costly effort to cash in, and while all consumers expect to do so, naive consumers forget. This hypothesis is consistent with experimental evidence on overconfidence about memory by **Ericson, Keith Marzilli “Forgetting We Forget: Overconfidence and Memory”, Journal of the European Economic Association, 9 (2011), 43–60**.”
* “Then the savings naive consumers unexpectedly forgo is the additional price, and the effort cost sophisticated consumers pay to return the rebate creates a sophisticated-side distortion. Second, in a dynamic setting firms may increase prices on consumers who automatically renew their contracts, and while all consumers expect to search for better deals to avoid the trap, only sophisticated consumers do. **Kiss, Andras “Salience Switching”, working paper, University of Amsterdam, 2014** documents that consumers forgo substantial savings by failing to switch providers in the Hungarian market for mandatory auto liability insurance. Using a structural model, he also estimates that the primary reason for low switching rates is that consumers do not pay attention to the possibility of switching.”
* “Our analysis reveals that in a market with a homogeneous distortion, the impact of naivete-based discrimination hinges on whether k(·) satisfies decreasing absolute convexity (i.e., whether k′(a)/k′′(a) is increasing in a). In the spirit of the sufficient-statistics approach to welfare analysis (**Chetty, Raj “Sufficient Statistics for Welfare Analysis: A Bridge between Structural and Reduced-Form Methods,” Annual Review of Economics, 1 (2009), 451–488**), decreasing absolute convexity is (at least in principle) verifiable based on observable market outcomes.”
* “Consistent with price unawareness but inconsistent with our other models, UK banks believe that demand for bank accounts is unresponsive to overdraft fees (**Office of Fair Trading, “Personal Current Accounts in the UK”, Technical Report, 2008**, paragraph3.74). Other findings, however, suggest that bank account holders are aware of overdraft fees, although it is unclear whether they understood the fees at the time of account opening. The majority of UK account holders who incurred overdraft charges had heard about such charges beforehand (Office of Fair Trading, 2008, paragraph 4.74), and **Stango, Victor, and Jonathan Zinman “Limited and Varying Consumer Attention: Evidence from Shocks to the Salience of Bank Overdraft Fees”, Review of Financial Studies, 27 (2014), 990–1030** report evidence that many U.S. consumers try (but often fail) to avoid overdrafting.”
* “One of the key assumptions of our model is that naive consumers incur unexpected charges. This assumption is made in different forms in many papers in behavioral industrial organization and is consistent with empirical facts from a number of industries. For instance, **Stango, Victor, and Jonathan Zinman “What Do Consumers Really Pay on Their Checking and Credit Card Accounts? Explicit, Implicit, and Avoidable Costs”, American Economic Review Papers and Proceedings, 99 (2009), 424–429** find that consumers incur many avoidable fees. **Grubb, Michael D., and Matthew Osborne “Cellular Service Demand: Biased Beliefs, Learning, and Bill Shock”, American Economic Review, 105 (2015), 234–271** estimate that mobile phone consumers are inattentive to past usage and underappreciate the variance of their own demand. The Office of Fair Trading (2008) reports that most consumers who use overdraft protection do so unexpectedly. Evidence by **Agarwal, Sumit, John C. Driscoll, Xavier Gabaix, and David Laibson “Learning in the Credit Card Market”, NBER Working Paper 13822, 2008** indicates that many credit card consumers seem to forget or not to know about various fees issuers impose. **Ausubel, Lawrence M. “The Failure of Competition in the Credit Card Market”, American Economic Review, 81 (1991), 50–81** documents that consumers receiving credit card solicitations overrespond to the introductory (“teaser”) interest rate relative to the post-introductory rate, suggesting that they end up revolving debt more than they intended or expected. Regulators are worried about the “bill shock” many mobile phone consumers face when they unknowingly run up charges (**Federal Communications Commission, “Comment Sought on Measures Designed to Assist U.S. Wireless Consumers to Avoid ‘Bill Shock’”, Technical Report 2010, CG Docket No. 09-158, Public Notice May 11, 2010**). Other work includes **Shui, Haiyan, and Lawrence M. Ausubel “Time Inconsistency in the Credit Card Market”, 14th Annual Utah Winter Finance Conference, May 3, 2004 (available at http://ssrn.com/abstract=586622)** for credit cards, Armstrong and Vickers (2012) for bank accounts, **Hall, Robert E. “The Inkjet Aftermarket: An Economic Analysis”, unpublished manuscript, Stanford University, 1997** for printers, and **Bucks, Brian, and Karen Pence “Do Borrowers Know Their Mortgage Terms?” Journal of Urban Economics, 64 (2008), 218–233** and **Gerardi, Kris, Lorenz Goette, and Stephan Meier “Financial Literacy and Mortgage Outcomes”, Paper presented at the ASSA meetings, San Francisco, CA, 2009** for mortgages.”
* “The other central assumption is that firms acquire and use information about consumer naivete for designing offers. Although not conclusive, some direct evidence is consistent with this assumption. **Gurun, Umit G., Gregor Matvos, and Amit Seru “Advertising Expensive Mortgages”, Journal of Finance (forthcoming)** document that lenders targeted less sophisticated populations with ads for expensive mortgages. **Ru, Hong, and Antoinette Schoar “Do Credit Card Companies Screen for Behavioral Biases?” working paper, 2016** find that the offers credit card companies send to less educated borrowers feature more back-loaded payments, including low introductory interest rates but high late fees, penalty interest rates, and over-the-limit fees.”
* “In addition, researchers have documented several simple correlates of the tendency to make financial mistakes, [For instance, **Agarwal, Sumit “The Age of Reason: Financial Decisions over the Life Cycle and Implications for Regulation”, Brookings Papers on Economic Activity, 40 (2009), 51–117** find an age pattern in the number of financial mistakes individuals make, Calvet, Campbell, and Sodini (2007) report that consumers with lower levels of education or income make more investing mistakes, and **Stango, Victor, and Jonathan Zinman “Fuzzy Math, Disclosure Regulation, and Market Outcomes: Evidence from Truth-in-Lending Reform”, Review of Financial Studies, 24 (2011), 506–534** document that it is possible to predict, based on two simple hypothetical questions on the Survey of Consumer Finances, the consumers who buy the most overpriced loans.] making it likely that firms also have access to some—perhaps different and probably partial—information regarding naivete. As emphasized by **Bar-Gill, Oren, and Elizabeth Warren “Making Credit Safer”, University of Pennsylvania Law Review, 157 (2008), 1–101, 23–25**, this is especially so given recent technological advances in collecting and processing information about individual consumers.”
* “In classical settings, perfect discrimination always maximizes welfare given the number of firms in the market (**Stole, Lars A. “Price Discrimination and Competition”, in Handbook of Industrial Organization, Vol. 3, Mark Armstrong and Robert Porter eds. Amsterdam: Elsevier, (2007), 2221–2299**). The welfare effect of third-degree preference-based price discrimination, however, is in general ambiguous. Building on a large literature, **Aguirre, Inaki, Simon Cowan, and John Vickers “Monopoly Price Discrimination and Demand Curvature”, American Economic Review, 100 (2010), 1601–1615** analyze monopolistic third-degree price discrimination and establish how the overall welfare effect depends on the interplay between the misallocation effect first introduced by **Pigou, Arthur C. The Economics of Welfare (London: Macmillan, 1920)** and the output effect originally discussed by **Robinson, Joan The Economics of Imperfect Competition (London: Macmillian, 1933)**. Stole (2007) highlights that the same basic logic determines the welfare effects in a homogeneous-good Cournot model, while additional effects are relevant in a model of price competition with differentiated products. Bergemann, Brooks, and Morris (2015) show that third-degree price discrimination can generate any combination of producer profit and consumer surplus such that producer profit is at least as high as without information, consumer surplus is nonnegative, and total surplus is at most as high as with efficient trade.”
* “The literature on privacy often finds that it is socially beneficial for firms to know more about consumers or employees. **Stigler, George J. “An Introduction to Privacy in Economics and Politics”, Journal of Legal Studies, 9 (1980), 623–644** argues that the protection of personal information leads firms to substitute other, less efficient forms of information acquisition or screening, and **Posner, Richard A. “The Economics of Privacy”, American Economic Review, 71 (1981), 405–409** contends that privacy protection creates asymmetric information that impedes the functioning of markets. **Varian, Hal R. “Economic Aspects of Personal Privacy”, working paper, UC Berkeley, 1996** reasons that it is in both a consumer’s and a firm’s best interest to know which product the consumer would like—this lowers search costs for the consumer— although the consumer would not like the firm to know how much she likes the product. See also **Taylor, Curtis R. “Consumer Privacy and the Market for Customer Information”, RAND Journal of Economics, 35 (2004), 631–650**, **Acquisti, Alessandro, and Hal R. Varian “Conditioning Prices on Purchase History”, Marketing Science, 24 (2005), 367–381**, **Calzolari, Giacomo, and Alessandro Pavan “On the Optimality of Privacy in Sequential Contracting”, Journal of Economic Theory, 130 (2006), 168–204**, **Hermalin, Benjamin, and Michael Katz “Privacy, Property Rights and Efficiency: The Economics of Privacy as Secrecy”, Quantitative Marketing and Economics, 4 (2006), 209–239**, and **Hoffmann, Florian, Roman Inderst, and Marco Ottaviani “Hypertargeting, Limited Attention, and Privacy: Implications for Marketing and Campaigning”, working paper, 2013**.”
* “In considering how firms respond to the presence of naive consumers, our article belongs to the growing literature on behavioral industrial organization. See **Spiegler, Ran Bounded Rationality and Industrial Organization (Oxford: Oxford University Press, 2011)** for an introduction to and overview of this literature.”
* “Studying the effects of a different type of naivete-based discrimination, **Johnen, Johannes “Dynamic Competition in Markets for Deceptive Products”, working paper, ESMT, 2016** shows that private information about consumer naivete is valuable even in competitive markets in which private information about consumer preferences is worthless.”
* “In addition, complementing our analysis of the welfare effects of outside information about consumer naivete, several existing papers (e.g., Eliaz and Spiegler 2006, **Eliaz, Kfir, and Ran Spiegler “Consumer Optimism and Price Discrimination”, Theoretical Economics, 3 (2008), 459–497**; Heidhues and Koszegi 2010) study “second-degree naivete-based discrimination,” asking how firms may screen consumers according to naivete.”
* “As a case in point, all of our analysis ignores possible distortions arising from participation decisions—that consumers respond to the “wrong” prices when deciding whether to buy. Consider, for instance, the perfect-competition limit of our model (t → 0). Then, since the price consumers perceive is below marginal cost, there may be overparticipation in the market. In fact, in **Heidhues, Paul, and Botond Koszegi “On the Welfare Costs of Naivete in the US Credit-Card Market”, Review of Industrial Organization, 47 (2015), 341–354** we argue that the participation distortion can be massive.”