Risky Business: A Review Essay on The Law & Economics of Selection in Insurance Markets

Reviewed by Peter Siegelman[*]

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I.   INTRODUCTION

Students and practitioners of insurance and insurance law—the kind of people who might read this journal—have long known about the phenomenon of adverse selection. So a whole book devoted to how adverse selection works and why it matters might seem like it has little to offer this audience. To the contrary, a new book by Liran Einav, Amy Finkelstein, and Ray Fisman (hereinafter EFF), *Risky Business: Why Insurance Markets Fail and What To Do About It,* contains a wealth of novel insights, packaged in prose that is lively and accessible.[1] The authors have a knack for melding compelling (and often amusing) anecdotes with lucid and fair-minded explanations of the latest and most-sophisticated empirical research on insurance markets. That should come as no surprise, since Einav and Finkelstein are two of the world's leading contributors to the economics of insurance.[2] EFF's account of why and how selection shapes insurance markets has something to offer even the most insurance-savvy lawyers, law professors, and regulators on almost every page. In sum, there is no risk to reading *Risky Business*.

That doesn't make it an easy book to review, however. It requires no translation and makes the case for its own importance by the obvious breadth and power of its insights and the accessibility of its prose. It is its own best advocate, in other words.

My aims here are therefore two-fold. First, I hope to give the reader a sense of some of the book's novel and important insights. But I also want to highlight a major development in the economic study of insurance markets: the move from "adverse selection" to "selection markets." This may seem like an innocuous recharacterization or a mere change in nomenclature; it is anything but. Rather, it heralds a significant new approach to the study of insurance markets, one that opens space for synthesizing empirical work

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[1] Maybe the easiest way to characterize the tone is that *Risky Business* is the *Freakonomics* of insurance. There are no graphs, no tables, no regression output, and no technical language—not even basic economic vocabulary such as "marginal utility" or "risk aversion." The book even has a blurb from *Freakonomics* co-author Steven Levitt on the back cover.

[2] By my count, the two of them have twenty-eight jointly authored papers on insurance; each has written dozens more independently. Together, they also have a second recent book, LIRAN EINAV & AMY FINKELSTEIN, WE'VE GOT YOU COVERED: REBOOTING AMERICAN HEALTH CARE (2023) (arguing for a complete rebuild of the US healthcare system, and a proposal for what should replace it).

These observations are not meant to throw any shade on the third author, Ray Fisman, who—though he "doesn't actually study insurance at all"—has a distinguished career in development and behavioral economics (*Risky Business,* p. 1).

and theory to shed light on policy-relevant questions that were previously impossible to address.

They key insight of the "selection markets" approach—which was developed by Einav and Finkelstein,[3] and has been extensively deployed by them, their students, and many other researchers—is that in insurance markets, supply and demand are not actually independent, as is assumed in the standard Econ 101 analysis. Customers (policyholders) are simultaneously buying coverage and selling risk—and those risks then become *costs* to the insurer who will have to pay for them if they materialize. As discussed below (Sect. II.C.), the "selection markets" approach allows researchers to incorporate selection into the traditional supply and demand framework, which can then be used to derive estimates of the welfare costs of adverse selection, its distributional consequences, the tradeoffs between preventing selection and infringing on privacy, and many other significant issues.

II.   SELECTION BASICS

If you are reading this, you probably have some understanding of adverse selection. Insurers have been aware of it for centuries,[4] since it has always posed a potential threat to the viability of their business model. In a highly stylized version of that model, insurers quote premiums to a group of insureds based on the payout they expect to make (and, of course, allowing for recovery of administrative and other costs) to the group, which of course depends on the group's riskiness. But the composition of "the group of insureds" is not set in stone. Rather, it is responsive to the quoted premium,

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[3] *See* Liran Einav & Amy Finkelstein, *Selection in Insurance Markets: Theory and Empirics in Pictures*, 25 J. ECON. PERSPS. 115, 116–18 (2011) [hereinafter Einav & Finkelstein, *Theory and Empirics*] (using graphical framework to demonstrate new techniques for measuring and evaluating the effects of selection in insurance markets, focusing on the insight that in such markets supply and demand are not independent because an insurer's customers are also part of its cost structure).

[4] The exact origins of the term are hard to pin down, but Tom Baker provides some intellectual history.   Tom Baker, *Containing the Promise of Insurance: Adverse Selection and Risk Classification*, 9 CONN. INS. L.J. 371, 375–76 (2003). Baker quotes an early 20th century insurance treatise that explained how life insurers should choose only the healthiest customers and suggested that "if the medical examiner did not stand at the entrance gate, the weakest and least desirable lives would be surest and soonest to come in." *Id.* (quoting Henry C. Lippincott, *The Essentials of Life Insurance Administration*, 26 ANNALS AM. ACAD. POL. & SOC. SCI. 12, 20 (1905)). Insurers have long had a sense that their customers are not "the public at large," but those who find buying insurance attractive; that group turns out to be those who know or believe they are most likely to make a claim.

since *potential* insureds are free to opt out of purchasing and will make the decision about whether to do so based on their assessment of whether buying is attractive *to them*. If a potential purchaser knows they have a high risk of loss, insurance that is priced for the riskiness of the *average* customer looks like a good deal; if they believe they have a low risk of loss, they are less likely to buy coverage. From the insurer's perspective, the worst customers are "full of passionate intensity" (to buy insurance), while the "best lack all conviction" (reason to do so).[5]

This phenomenon—at least from the insurer's perspective—is succinctly summarized by the phrase "Adverse Selection." The "selection" occurs because potential customers can choose whether to purchase insurance or not. And the "adversity" arises because those who *do* purchase are especially likely to be worse-than-average risks, so their presence as customers is adverse to (against) the interests of the insurer, who would, of course, prefer to sell insurance to those who never make a claim. The brilliant web cartoonist Randall Patrick Munroe (xkcd), illustrates this intuition in the cartoon below: The relevant risk (probability of harm) for those people who self-select by venturing outside in thunderstorms is not the *average* risk for all Americans (most of whom know enough to stay inside), but a dramatically larger number.

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[5] William Butler Yeats, *The Second Coming*, in MICHAEL ROBARTES AND THE DANCER 1, 10–11 (Blackmask Online ed., 2001) (1921), http://www.public-library.uk/ebooks/109/37.pdf (quoted with apologies).
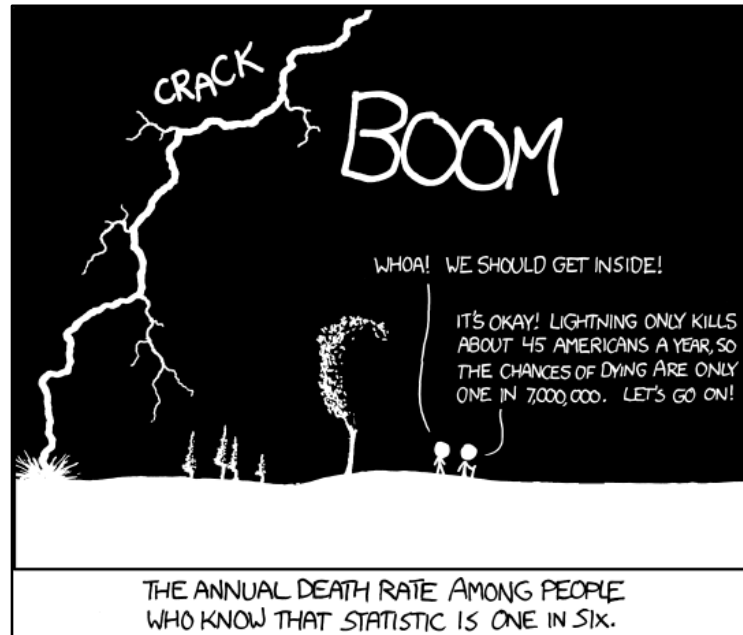
Randall P. Munroe, *Conditional Risk* (illustration), *in* XKCD,
https://xkcd.com/795/ (last visited Mar. 22, 2024).

III.   ON THE SHOULDERS OF GIANTS: INTELLECTUAL HISTORY

The basic story of adverse selection is relatively intuitive. But behind the simple insight there are many subtle and important issues to confront. Here, I will try to illuminate these issues through a brief intellectual history of the topic. Impatient readers should feel free to skip to section II.C., although they will miss some part of what makes *Risky Business* so novel and important.

Insurance practitioners had a basic practical understanding of adverse selection long before economists stumbled on the concept. But the roots of contemporary scholarship on the selection can be directly traced to two seminal articles by George Akerlof, and Michael Rothschild and Joseph Stiglitz that set off a tidal wave of research that has reached far beyond insurance.

The importance of these two contributions is illustrated in Figure 1, which plots the volume of scholarly articles that use the phrase "adverse selection" in five-year intervals, starting in 1930, looking separately at legal

and business/economics/finance journals.[6] It strongly suggests the importance of Akerlof, Rothschild and Stiglitz's contributions: their publication marks a clear break in the previously stagnant trend of research on adverse selection (in law, economics and related disciplines), starting a surge that has continued through the present day.[7]

Figure 1: Annualized Number of JSTOR Articles Containing "Adverse Selection," by 5-Year Interval and Subject Area: 1930-2019
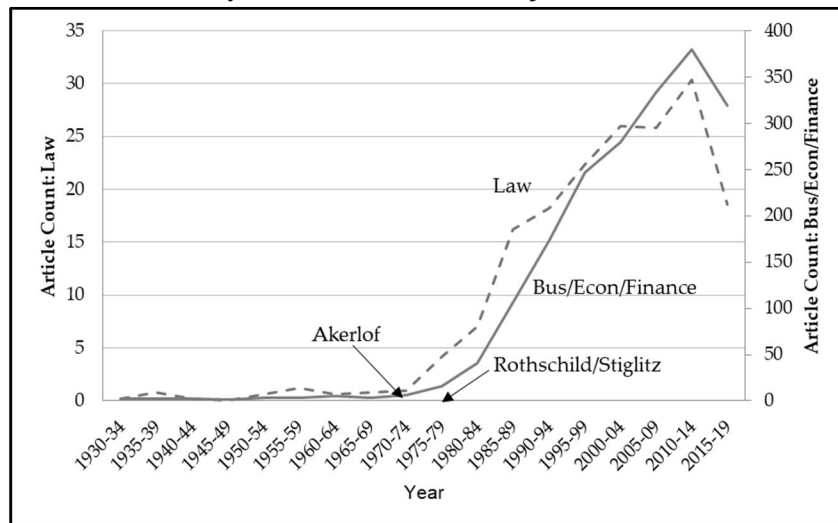
Source: Author's tabulations

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[6] Annualized Number of JSTOR Articles Containing "Adverse Selection," by 5-Year Interval and Subject Area: 1930-2019, JSTOR, https://www.jstor.org/ (follow "Advanced Search" hyperlink; then search Term(s) "Adverse Selection"; narrow results by selecting "Articles" under Item Type; input five-year interval range desired in Publication Date; then in Journal Filter selected "Business," "Economics," "Finance," or "Law").

[7] *Id.* The drop-off in the volume of adverse selection articles after 2015 is somewhat puzzling, but the most likely explanation is that it is an artifact of JSTOR's "blackout window" for many journals. Searches by year reveal that there is no decline in references to adverse selection until 2019, when there is a sudden 60% fall-off. There is no evidence of which I am aware that the volume (or quality) of theoretical or empirical work on adverse selection has tailed-off since 2015— quite the contrary.

A. AKERLOF AND LEMONS

The first breakthrough in the economics of adverse selection was George Akerlof's *Market for "Lemons",* published in 1971.[8] Using a very simple stylized model of the market for used cars, Akerlof opened a new vista for economists by identifying asymmetric information as the key structural feature of the selection problem.[9]

Akerlof's deep insight is that the standard Econ 101 market model breaks down when one party to a transaction knows something that the other side does not. In the presence of such asymmetric information (e.g., about product quality), Akerlof observes, prices play a dual role that dramatically changes their function from the textbook model of supply and demand. Instead of merely equilibrating the quantity supplied and quantity demanded, the price also influences average quality via the selection of *which* goods are offered for sale: higher prices give an incentive for sellers with higher quality goods to offer their wares. And when quality is unobservable to one party to a transaction, Akerlof shows that this may mean that no trades take place— the market might entirely collapse (or fail to come into existence) because no equilibrium is possible. As the price of used cars falls, the average quality of the used cars *that are for sale at that price* may fall even faster, leaving the marginal buyer with no reason to buy despite the lower price.[10]

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[8] George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q. J. ECON. 488 (1970).

[9] *Id.* at 489. Akerlof uses the phrase "asymmetry in available information" to describe the key difference between the market for new and used cars. *Id.* Some fraction of new cars are low-quality "lemons," but both the dealership and the buyer are equally uncertain about whether any given car is high or low quality. *Id.* Here, the (lack of) information is symmetric. Once the car has changed hands, however, the owner develops private knowledge of its quality, based on their experience with the vehicle. *Id.* So the market for used cars operates with *asymmetric* information— (re)selling owners know more than potential buyers do (and buyers know that this is so, and adjust their behavior accordingly). *Id.* The key insight involves only simple economic reasoning, with no mathematics at all.

[10] *Id.* at 490. In settings where there is asymmetric information about quality— as Akerlof saw—price serves two contradictory functions. *Id.* As in conventional supply/demand markets, a lower price has a direct (positive) effect on the quantity demanded. But in markets with asymmetric information about quality, price also influences demand via the *quality* of products sold as well—lower prices lead to a worsening of average quality. *Id.* If the effect of price on quality is sufficiently large, a price drop in response to excess supply can end up lowering the quality of goods for sale; thus *decreasing* demand by more than its direct (and positive) effect on the quantity demanded. Put simply, a price drop may mean that goods become cheaper (and hence more attractive, other things equal) but also worse in quality (and less

"Asymmetric information" is now such a standard assumption in economic modeling that it is hard to appreciate how revolutionary Akerlof's approach was in its day.[11] Since then, the dramatic possibility that there could be no market-clearing price (and thus, no trade at all) has emerged as the article's headline conclusion. But on re-reading the piece, I was struck by a different insight that is also a theme of *Risky Business*: the article is really as much about what Akerlof refers to as "Counteracting Institutions"[12] as it is about the possibility that trade breaks down. Information asymmetry shapes institutions, Akerlof suggests, because it gives parties an incentive to devise solutions that enable mutually beneficial trade that might otherwise be impossible. What emerges will typically fail to achieve the elegant best-of-all-possible-worlds (Pareto-efficient) outcome of textbook market models but will often suffice to allow significant welfare-enhancing trade to take place. The lemons model's prediction about the collapse of all exchange possibilities is an attention-grabbing result, but it is not in my view the article's deepest insight.

As I discuss at greater length below, the existence of "Counteracting Institutions" is also a major theme of *Risky Business*—insurance markets (and non-market actors, including regulators) have come up with a wide variety of techniques for managing or mitigating selection problems (p. 170).[13] They are invariably imperfect and messy, in the sense that they generate a variety of costs and misallocations that are not present in the textbook supply and demand model of market equilibrium; but they can sometimes work reasonably well, and students and regulators of insurance markets overlook them at their peril.

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attractive). There may be no endogenous way to correct an over- (or under-) supply, and no equilibrium.

[11] In accepting the Nobel prize he was awarded for that very paper, Akerlof pointed out that it was rejected—dismissively—by three top journals before finally finding a home. George A. Akerlof, *Writing the "The Market for 'Lemons'": A Personal Interpretive Essay*, THE NOBEL PRIZE (Nov. 14, 2003), https://www.nobelprize.org/prizes/economic-sciences/2001/akerlof/article/.

[12] Akerlof, *supra* note 8, at 499.

[13] As EFF also point out, both regulatory and market-devised institutions and rules can sometimes be counterproductive (*Risky Business,* pp. 149–226). The world they depict is messy and complicated, and there are few if any conclusions that are valid a priori. Rather, empirical assessments are almost always necessary.

B. ROTHSCHILD/STIGLITZ

The other cornerstone of modern adverse selection economics is Michael Rothschild and Joseph Stiglitz's *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information*.[14] Writing in a more rigorous and austere style than Akerlof, and focusing exclusively on insurance, Rothschild and Stiglitz both expanded and restricted the analysis of selection.

Their expansive insight is that insurers need not compete only on price, as is true in textbook markets of a homogeneous commodity (and as Akerlof also assumed).[15] Instead, the authors allow for the possibility that sellers can compete by providing a menu of different contract terms—insurance policies that vary in how much they cover via a higher or lower deductible. The insight that sellers might compete on something other than price opened up a huge terrain to be explored.

Their restrictive insight is in some sense the converse of the expansive one. There are obviously an infinite variety of possible insurance contracts out there, and if we make the form of contract endogenous (part of our model), there are lots of different ways things could turn out. Moreover, once insurers are allowed to compete on non-price terms, strategic behavior naturally emerges: seller A's optimal choice of contract depends on what it believes sellers B and C will choose (and vice-versa). So the models must confront a much more complicated world than Akerlof contemplates. And as is always true for strategic analysis, models require a very precise specification of actors' strategy sets (possible choices), their beliefs, and the equilibrium conditions that govern their behavior. To solve a model with strategic behavior, these details must be spelled out in great detail; even seemingly very small differences in assumptions can lead to hugely different outcomes. That meant the adoption of what the authors conceded was a "highly stylized model."[16]

Rothschild and Stiglitz rely heavily on a set of assumptions about the nature of competition and the definition of market equilibrium.[17] But the

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[14] Michael Rothschild & Joseph Stiglitz, *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information*, 90 Q. J. ECON. 629 (1976). Stiglitz would later win a Nobel prize for this and related work.

[15] *Id.* at 641.

[16] *Id*. at 629.

[17] Rothschild and Stiglitz's model equilibrium in a competitive insurance market as "a set of contracts such that, when customers choose contracts to maximize expected utility, (i) no contract in the equilibrium set makes negative expected profits; and (ii) there is no contract outside the equilibrium set that, if offered, will make a nonnegative profit. . . . [E]ach firm assumes that the contracts its competitors

payoff is that they generate some powerful conclusions. First, they show that, a la Akerlof, a market equilibrium need not exist.[18] Second, they demonstrate that if an equilibrium does exist, it cannot be one in which different risks are pooled (charged the same price).[19] But their key insight is that even when insurers can't distinguish between high and low risks, it may be possible to design a menu of insurance contracts that leads customers to sort *themselves* in a way that respects the no-cross-subsidy condition that must obtain in the equilibrium they posit.[20] In other words, if we allow (require?) insurers to compete not just on price but also on the attributes of the contracts they offer, we may be able to get an equilibrium after all, even when information is asymmetric.

Imagine that potential insureds are all risk-averse, but come in two discrete groups, high- and low-risks. The no-pooling requirement implies that each group must be charged a risk-appropriate premium, but the insurer can't distinguish between the groups on the basis of any observable information. So what prevents the high-risk consumers from sneaking into the low-risk pool, where premiums are lower? Rothschild and Stiglitz's deep insight is that insurers can degrade the quality of the low-risk/low price contract by imposing a deductible for that policy, limiting its coverage while keeping the premium at the required breakeven level when all the purchasers are low-risk. Under certain conditions, there will be a deductible that is just sufficient to deter the high-risk customers from purchasing the (cheaper) low-risk policy, while providing enough coverage—again, at the fair premium—to maintain that contract's attractiveness to the low-risk consumers.[21] Importantly, however, the Rothschild and Stiglitz equilibrium

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offer are independent of its own actions." *Id.* at 633. While this seems reasonable, many other plausible definitions of what constitutes equilibrium have been offered, and many of them change or even reverse some conclusions of the Rothschild and Stiglitz model. *See, e.g.*, Nathaniel Hendren, Modeling Insurance Markets (Apr. 2015), https://scholar.harvard.edu/files/hendren/files/addl_lecture_2_-_equilibriums_in_insurance_markets.pdf (providing a technical overview).

[18] Rothschild & Stiglitz, *supra* note 14, at 637.

[19] *Id.* at 634. Competition between insurers guarantees that they must all earn zero economic profits. In turn, that implies that if one group of insureds is charged less than the cost of covering them, some others must be charged more, in order to allow the insurer to recover those losses: there can be no cross-subsidy in equilibrium. This means that there cannot be a single price that covers both the high and low risk insureds, which would entail that the high risks would get a subsidy from the low risks. Such pooling is impossible in the Rothschild and Stiglitz model.

[20] *Id.* at 632.

[21] The intuition here is that a deductible is more costly to the high risks than the low risks because the high risks are more likely to make a claim and thus to pay for the fraction of the loss not covered by the deductible.

requires that good risks are rationed—they cannot buy all the coverage they would like at the actuarially fair price. If they could, that contract would attract the indistinguishable high-risk customers, violating the conditions for a competitive zero-profit equilibrium.

The Rothschild and Stiglitz paper led to an explosion of theoretical models of markets with asymmetric information and was one of the key progenitors of what has come to be known as Contract Theory.[22] But in some ways, it proved to be something of a dead-end as far as insurance was concerned, largely because it was so non-robust and so difficult to "take to the data."

C.   FROM "ADVERSE SELECTION" TO "SELECTION MARKETS"

Gradually, however, a richer and more empirically-grounded body of research, focusing less on stylized equilibrium conditions, began to emerge from these two pathbreaking articles. In part, the slow growth of empirical work is attributable to the difficulty of obtaining the data required for empirical analysis. Insurance has proven difficult to study because so much of the relevant data are proprietary and insurers see no benefit (and some serious costs) to making it publicly available.[23] But in part, the reason for the scarcity of empirical work on selection was intellectual—economists developed a minor fixation on the game-theoretic questions of how equilibrium should be defined, with relatively little focus on policy-relevant questions such as "how much of a problem does selection actually present?" or "what are the welfare consequences of using an insurance mandate to avoid selection problems?" The Rothschild and Stiglitz framework and its alternatives offered little or no purchase on these important issues.

By the late 1990's, an empirical literature that sought to assess the extent of adverse selection across a wide range of insurance markets began

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[22] *Oliver Hart, Bengt Holmstrom Won Nobel Prize in Economic Sciences for Research on Contract Theory - 2016*, NAT'L BUREAU ECON. RSCH. (Oct. 10, 2016), https://www.nber.org/news/oliver-hart-bengt-holmstrom-won-nobel-prize-economic-sciences-research-contract-theory-2016.

[23] This is in sharp contrast with, for example, empirical labor economics. In that context, U.S. BUREAU OF LABOR STATISTICS, NATIONAL LONGITUDINAL SURVEYS, https://www.bls.gov/nls/ (last visited Mar. 22, 2024), tracks background data and labor market activities of a group of people over long periods of time and makes the data readily available to researchers. The surveys have been used in thousands of scholarly papers. In the insurance world, the major exception to the absence of data comes from the field of health insurance, and it is not surprising that many of the conceptual innovations discussed below were developed using data from health insurance.

to take shape.[24] It is fair to say that these studies found mixed results: adverse selection was detected in many insurance markets, but it was by no means a universal phenomenon. (And perplexingly, some studies detected evidence of an opposite flavor of selection in which the *lowest*, rather than the highest, risks were most likely to purchase insurance.[25]) Importantly, moreover, the early empirical literature did not or could not do much more than test for the presence of selection. It offered no easy way to measure the welfare consequences of selection, nor did it try to estimate the effects of policy interventions designed to correct selection problems (or that inadvertently exacerbated them).

Then, beginning about fifteen years ago, there was a sea change in the scholarly discourse about adverse selection, a change initiated by Einav and Finkelstein.[26] A convenient way to label this phenomenon is a move from "adverse selection" to "selection markets." There were at least three (non-exclusive) explanations for the new approach.

First, the phrase "adverse selection" is not really a neutral term consistent with positivist social science, since it implies that there is something (morally?) questionable about consumers who select into more attractive insurance options.[27] To be sure, selection can be "adverse" to

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[24] *See, e.g.*, Alma Cohen & Peter Siegelman, *Testing for Adverse Selection in Insurance Markets*, 77 J. RISK & INS. 39 (2010) (surveying the empirical literature).

[25] *See infra* notes 28–30.

[26] *See* Einav & Finkelstein, *Theory and Empirics*, *supra* note 3; Neale Mahoney & E. Glen Weyl, *Imperfect Competition in Selection Markets*, 99 REV. OF ECON. & STAT. 637 (2017). Einav and Finkelstein themselves recently produced an excellent review of subsequent studies utilizing their framework. Liran Einav & Amy Finkelstein, *Empirical Analyses of Selection and Welfare in Insurance Markets: A Self-Indulgent Survey* (Nat'l Bureau of Econ. Rsch., Working Paper No. 31146, 2023) [hereinafter Einav & Finkelstein, *Self-Indulgent Survey*]. They used "self-indulgent" in the subtitle because they themselves were the creators of the "selection market" framework.

[27] A historic debate over the relevance of "morality" to the understanding of "moral hazard" is perhaps analogous. In commenting on Kenneth J. Arrow's pioneering work on moral hazard, Mark Pauly famously suggested that the phenomenon was nothing more than a downward sloping demand curve for health care, such that when it gets cheaper, people want more of it, and had nothing to do with morality. "[S]eeking more medical care with insurance than in its absence is a result not of moral perfidy but of rational economic behavior." Mark V. Pauly, *The Economics of Moral Hazard: Comment*, 58 AM. ECON. REV. 531, 535 (1968). Kenneth Arrow responded by noting that society might nevertheless attach moral opprobrium to such rational behavior as a way of disincentivizing it, bringing morality back into the analysis. Kenneth J. Arrow, *The Economics of Moral Hazard: Further Comment*, 58 AM. ECON. REV. 537, 537–39 (1968). On the moral

insurers (and may have negative consequences overall); but it also represents rational behavior on the part of potential purchasers of insurance, and there is no reason to label it pejoratively.

More substantively, there have been several careful empirical papers over the past thirty years that have found evidence of a puzzling phenomenon known variously as "advantageous" or "propitious" selection, in which it is the best—rather than the worst—risks who select into the purchase of insurance.[28] The explanations for such "advantageous" selection are still in dispute. It may be that those who purchase insurance are actually so risk averse that they are both extremely careful (low risk) *and* willing to pay heavily for coverage. Or there may be other variables that are both negatively correlated with riskiness and positively correlated with insurance demand, including (perhaps) "cognitive ability"[29] and even the "potential for moral hazard."[30] In any case, the phenomenon of selective take-up of insurance

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underpinnings of "moral hazard," see generally, Tom Baker, *On the Genealogy of Moral Hazard*, 75 Tex. L. Rev. 237 (1996).

[28] The term originated with David Hemenway, *Propitious Selection in Insurance*, 5 J. RISK & UNCERTAINTY at 247 (1992), and the phenomenon has emerged as "advantageous selection" in several other studies since then. *See, e.g.*, Hanming Fang, Michael P. Keane & Dan Silverman, *Sources of Advantageous Selection: Evidence from the Medigap Insurance Market*, 116 J. POL. ECON. 303 (2008) (finding that those with Medigap insurance spend substantially *less* on medical care than those who lack such coverage, rather than more).

[29] Fang et al., *supra* note 28, at 306 (concluding that "variation in cognitive ability [is] . . . a prominent source of advantageous selection[,] because those "with higher cognitive ability both are more likely to purchase Medigap [insurance] and are healthier . . ..[V]ariation in risk preferences . . . does not appear to be a primary source of advantageous selection . . . ").

[30] Liran Einav, Amy Finkelstein, Stephen P. Ryan, Paul Schrimpf, & Mark R. Cullen, *Selection on Moral Hazard in Health Insurance*, 103 AM. ECON. REV. 178, 178–79 (2013) (showing that "individuals' selection of [health] insurance coverage is affected by their anticipated behavioral response to coverage": those who purchase insurance are more likely to increase their utilization of covered services in response to the lower cost of services that insurance offers.). Modern economists have generally drawn a sharp distinction between selection (based on fixed-in-advance riskiness) and moral hazard (which turns on how the presence of insurance increases risky behavior). But according to Tom Baker, nineteenth century insurers saw moral hazard much as the authors did: as "an unwholesome mix of *bad character* and temptation which the insurers had a responsibility to ferret out from the insurance enterprise." Baker, *supra* note 27, at 240 (emphasis added). Put differently, insurers believed that there were bad people (who had a propensity to slack off on precautions and increase risk once they'd bought insurance), and good people, who did not succumb to that temptation.

requires a more general theoretical framework—and hence a more inclusive name—than "adverse selection."

Finally, as noted above, traditional adverse selection theory a la Rothschild-Stiglitz, was theoretically rich but empirically intractable. It could be adapted to detect the presence (or absence) of selection,[31] but it was very difficult to use it to get any purchase on the important policy questions that economists traditionally seek to address. Such issues as the welfare costs of selection or the consequences of policy interventions of various sorts were simply beyond its scope.

Einav and Finkelstein's "selection markets" framework synthesizes public finance,[32] industrial organization,[33] and insurance economics, to create a powerful new paradigm for empirically investigating insurance markets. Their framework builds on the key insight that the traditional mainstays of economic analysis, supply and demand, need to be modified in the context of insurance. The workhorse Econ 101 model rests crucially on the assumption that supply and demand are independent forces that together determine market price and the quantity traded.[34] "Supply" describes the behavior of profit-maximizing sellers, and depends on the costs of production, which in turn depends on the available technology and costs of factor inputs (labor, capital, raw materials). "Demand" describes the behavior of utility-maximizing consumers.

But in insurance and other selection markets, customers are not just purchasers, they are simultaneously <u>costs</u> to sellers.[35] That's because when an insurer sells insurance, it is of necessity buying risk—they are two sides

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[31] *See* Cohen & Siegelman, *supra* note 24, for a summary/description of the so-called "positive correlation test" for adverse selection.

[32] Public finance can loosely be characterized as the branch of economics that seeks to measure the effects of policy on economic outcomes ("welfare" or well-being) and provide a framework for evaluating government policies.

[33] Industrial organization studies the strategic behavior of firms, regulation and antitrust, and market competition. *See, e.g.*, *Industrial Organization*, NAT'L BUREAU OF ECON. RSCH., https://www.nber.org/programs-projects/programs-working-groups/industrial-organization?page=1&perPage=50 (last visited Mar. 23, 2024).

[34] "Catch a parrot and teach him to say 'supply and demand,' and you have an excellent economist," wrote the great early 20th century economist Irving Fisher. IRVING FISHER, THE RATE OF INTEREST 6 (1907).

[35] Akerlof had a version of this insight in the *Lemons* article, which focused on how uncertainty about the quality of one's purchases influenced market outcomes. In the context of insurance, Akerlof saw, "quality" meant not the quality of the insurance product itself, but the quality of the *purchasers* of insurance. "The . . . average medical condition of insurance applicants [and hence the costs of insuring them] deteriorates as the price level rises . . . ." Akerlof, *supra* note 8, at 492.

of the same coin.[36] The *amount* of risk it buys determines how much it will have to pay out to cover the risks/losses it has purchased. In turn, that depends on *which* customers it buys from—that is, those to whom it is selling its coverage. In this kind of market, supply and demand are (inextricably) intertwined. Einav and Finkelstein were the first to articulate this insight and to see how it could be put to use.[37]

Simply put, the selection market approach allows empiricists to exploit familiar econometric tools used to estimate supply and demand curves and to make normative (welfare) calculations. In this framework, the demand for insurance slopes downwards because as the price of insurance falls, the number of people who want to purchase it increases, just as in the Econ 101 model.

But on the "supply" side, things look rather different. The insurer's marginal cost (the cost of adding one more consumer—the accompanying expected future payout) is actually downward-sloping: the customers who are willing to purchase insurance at high premiums are the costliest (riskiest) to insure, while the cost of providing coverage (the riskiness of the insured) falls as the price of insurance drops. At very high prices, only the highest risk consumers find it worthwhile to buy; as the price falls, better and better risks opt in to buying insurance, and the insurer's cost of buying one more unit of risk thus decreases.[38]

By putting selection directly into a (suitably modified) supply and demand framework, the selection markets analysis makes it possible to use traditional theoretical concepts[39] and empirical tools could be deployed to

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[36] Unglamorously, one could analogize insurance to garbage removal. We pay to have our garbage carted off, and that's just what insurance does for risks. Moreover, just as disposing of my garbage is a cost for the refuse hauler, my riskiness is a cost for my insurer. And as with my garbage (where the refuse hauler will not know in advance how expensive it will be to dispose of whatever happens to be in my garbage can), so too with insurance: my insurer will not generally know how risky I am before it has to pay a claim.

[37] Einav & Finkelstein, *Theory and Empirics*, *supra* note 3. For a brief genealogy, *see* Einav & Finkelstein, *Self-Indulgent Survey*, *supra* note 26.

[38] This is an inherently graphical idea, as Einav and Finkelstein recognized in their *Theory and Empirics* article, but I will omit the pictures to avoid alienating the graphophobic. Interested readers with a basic familiarity with microeconomics can consult the Appendix, and are strongly encouraged to read the *Theory and Empirics* article for a much richer explanation.

[39] Consider, e.g., the traditional measure of welfare loss from monopoly, known as "deadweight loss," which occurs because profit maximizing monopolists reduce the quantity sold in order to obtain a higher price for the units they do sell. This implies that there are customers who are rationed out of the market, but whose valuation of the product being sold is greater than the cost of supplying it to them.

address a whole range of important questions that had previously been off-limits. The payoff to this approach is evidenced by the more than forty articles that Einav and Finkelstein, their students, and others, have published since 2010 (with new papers being added on a regular basis).[40] It allows for transparent and credible estimates of the variables that are of most importance to policymakers in a way that had previously been impossible. That includes direct estimates of the welfare costs of adverse selection and the benefits realized by a governmental subsidy for the purchase of insurance (such as under the Affordable Care Act).

Some powerful and surprising conclusions emerge. To give just one example, a study discussed by EFF shows that because young people tend to be both very healthy and very sensitive to the price of insurance, a subsidy directed (exclusively) towards the young would drive down costs by enough to lower premiums for all customers (p. 177).[41] This kind of policy-relevant analysis—and EFF offer a wealth of additional examples—is only possible because the selection markets framework allows researchers to use traditional empirical methods to get a handle on policy-relevant questions about the magnitude of selection effects.

III.   SOME NOVEL INSIGHTS FROM *RISKY BUSINESS*

What makes *Risky Business* so valuable is the skillful way it combines vivid anecdotes with nuanced but non-technical discussions of the highly sophisticated economic scholarship on insurance (much of which was written by the first two authors and their students). It is difficult to convey the scope and breadth of the book, and almost impossible to capture the stylish prose: it is unlikely to make you laugh out loud but will likely bring a smile to your face at many points. Rather than summarizing the book as a

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The surplus lost (by both the seller and buyers) from these potential transactions is the deadweight loss attributable to the monopoly. The concept has very broad application elsewhere in economics, such as in the analysis of the distortive effects of taxation. Crucially, deadweight loss can be calculated from empirical estimates of supply and demand functions.

[40] Einav & Finkelstein, *Self-Indulgent Survey*, *supra* note 26, at 19–23 (indicating the number of articles published since 2010).

[41] EFF cite Pietro Tebaldi, Estimating Equilibrium in Health Insurance Exchanges: Price Competition and Subsidy Design under the ACA, 28–29 (Apr. 18, 2016) (PhD. dissertation, Stanford University). For a non-empirical version of this insight, see Raphael Boleslavsky & Sergio J. Campos, *Does the Individual Mandate Coerce*? 68 U. MIAMI L. REV. 1, 7 (2013) (suggesting (although without evidence) that mandating the purchase of health insurance, by bringing in large numbers of healthy consumers, could drive down premiums by enough that the healthy would voluntarily purchase insurance).

whole, I will instead offer a sampling of four (of the many) insights that emerge from the examples and explanations it provides.[42]

A.   SELECTION AND INSURANCE PRODUCTS WE DO NOT SEE

One powerful insight of *Risky Business* is that selection problems can explain the kinds of insurance we do *not* see. Start from the observation that people are generally averse to financial risks, meaning that they would be willing to pay something close to an actuarially fair premium to shed such risks. We also know that there are many financial risks out there—from job losses to dental costs to the costs of divorce proceedings to the costs of medical care for one's pets. But as EFF note, there is little or no private insurance available for these and many other risks, and what is available is often expensive and offers only poor coverage. Why should that be so? Why don't we see insurance for risks people would presumably like to insure against?

Although it is difficult to be certain, EFF offer strong anecdotal evidence that selection problems have doomed attempts to provide insurance against these risks (pp. 34–43). They illustrate the problem by discussing several failed insurance startups that were plausibly undone by their inability to overcome selection effects. Consider, for example, the case of SafetyNet, an insurance product that was meant to provide up to $9000 to help cushion against the blow of losing one's job (pp. 35–36).[43] SafteyNet attempted to overcome selection problems by imposing a six-month waiting period, preventing customers from buying coverage just before they knew they were about to be fired. But that safeguard was apparently not sufficient, since many employees can predict that layoffs may be in the offing long before the six-month waiting period. The case of divorce cost insurance looks strikingly similar. There, too, the product—cutely named "WedLock"—had a waiting period designed to prevent customers from exploiting private information about the state of their marriage: the insurance only kicked-in four years after the policy was purchased. But WedLock met the same fate as SafetyNet, and probably for much the same reason.[44] Married couples probably have a better

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[42] As noted earlier, the book's uber-insight is the idea that in a selection market, customers are costs, breaking the independence of supply and demand that is assumed in standard market models.

[43] SafetyNet represents a kind of private (supplemental) unemployment insurance.

[44] Other failed insurance startups discussed in *Risky Business* include IncomeAssure, SafeGuard, and Petplan. And while there is no smoking-gun evidence that they were all undone by selection effects (their inability or

sense of the likelihood that they will divorce than their insurer does. And if that's the case, insurance will be very hard to sell: at a given premium, only the worst risks will want it, and it will likely not be profitable.

B. INSURANCE DENIALS AS PROOF OF SELECTION EFFECTS

Although precise data are hard to come by, it is well known that not everyone who applies for insurance is able to purchase it.[45] If you think about it for a moment, that is . . . odd. In a market economy, sellers are usually delighted to find willing buyers, and must often work hard to do so: that's why we have advertising, salespeople, and so on.[46]

EFF point out that the existence of reluctant sellers is a phenomenon best explained by selection effects (pp. 31–33). In the absence of asymmetric information, even high-risk customers should be able to purchase insurance—albeit at a premium commensurate with their high risk. Instead, however, we find outright denials.[47] The best explanation is that insurers are worried that those who want insurance are precisely the ones who (know they) are high-risk and are unprofitable customers at the quoted premium. And raising the premium won't help, because the potential customers who are *still* interested in purchasing at the new, higher premium are even riskier and higher cost than the group that wanted to purchase at the old premium.

We can call this phenomenon of reverse marketing—turning away those who actually want your product—the "Mikva Effect," after longtime Chicago reformist politician Abner Mikva. Mikva relates a story about how

> [o]n the way home from law school one night in 1948, I stopped by the ward headquarters in the ward where I lived. … I walked in and said, 'I'd like to volunteer to work for [Adlai] Stevenson and [Paul] Douglas.' The quintessential

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unwillingness to use the spacebar may also have been a contributing factor), the circumstantial evidence adduced by EFF is very compelling (pp. 36–41).

[45] EFF point out that the relevant number is actually not how many people were turned down for insurance, since there will be many who—knowing they will be rejected—never apply (p. 102). Before the Affordable Care Act, for example, people with pre-existing medical conditions were often unable to purchase insurance at any price, and many of them presumably knew that and didn't bother applying for coverage for which they were sure to be denied.

[46] *See* MARTIN L. WEITZMAN, THE SHARE ECONOMY 37 (Harvard Univ. Press, 1984) (contrasting Soviet economy, with constant excess demand for goods, with capitalist economies characterized by monopolistic competition and excess supply).

[47] Some denials may result from regulatory caps that prevent insurers from charging especially risky customers appropriately high premiums. But this cannot be the story everywhere.

> Chicago ward committeeman took the cigar out of his mouth and glared at me and said, 'Who sent you?' I said, 'Nobody sent me.' He put the cigar back in his mouth and he said, 'We don't want nobody that nobody sent.'[48]

Like Chicago ward bosses, insurers don't want nobody that nobody sent. EFF lucidly explain how economist Nathan Hendren was able to use the volume of insurance rejections to quantify the size of the informational asymmetry and to explore its cause (pp. 102–07). First, Hendren obtained insurers' underwriting guidance manuals for life, disability, and long-term care insurance. He then used the criteria they articulated to assess the eligibility of thousands of respondents to a major health survey for whom he had detailed medical data. That allowed him to assess whether a given individual would be likely to get insurance if they applied for it (whether or not they actually did so). It turns out that nearly 20 percent of his sample would not be eligible for life insurance if they applied, and the share ineligible for long term care insurance was 30 percent.

Hendren was able to go beyond that insight, however, zeroing in on what it was that customers likely knew about themselves that insurers did not. Consider the case of a pre-existing medical condition that is part of one's medical record. Such a condition is not private information, so you might think that insurers would be willing to offer coverage to such people, but at an appropriately high price. Yet insurers routinely turn down all people with certain pre-existing conditions. Hendren's insight is that people who have had experience with medical care acquire private information about *their own preferences* for the intensity of care they will want in the future. Will they opt for hospice care if their cancer recurs, or instead insist on going to the limit on expensive interventions to prolong their lives? They—and they alone—are in a position to know the answer to this question, and that information, Hendren shows, creates a crucial informational asymmetry that leads insurers to be unwilling to sell.[49]

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[48] Harry Kreisler, *Abner Mikva Interview: Conversations with History*, INST. INT'L STUD., UC BERKLEY (Apr. 12, 1999), https://web.archive.org/web/20080607010312/http://globetrotter.berkeley.edu/peop le/Mikva/mikva-con0.html; Akerlof, *supra* note 8, at 494 n. 5 ("'in such lines as accident and health insurance, companies are likely to give a second look to persons who voluntarily seek insurance without being approached by an agent.'" (quoting F. J. ANGELL, INSURANCE PRINCIPLES AND PRACTICES, at 8–9 (1957))).

[49] Consistent with Hendren's theory about the sources of information asymmetry, he found that "survey respondents with uninsurable pre-existing maladies (i.e., those who had medical conditions that would lead to rejection) could predict [the timing of] their subsequent demise very well," significantly out-predicting the actuarial models used by insurers (*Risky Business*, p. 107).

Selection effects do not only lead to rejection. They can also lead to the mirror image phenomenon: "forced" sales. Insurers have long recognized the maxim that "insurance is sold, not bought."[50] What this means is that insurers—like the old political machine in Chicago—do not want volunteers who step forward to purchase their product. The customers they want are precisely those who are uninterested in what they're selling. In turn, that pushes you towards having a phalanx of aggressive salespeople to selectively encourage purchases by the reluctant buyers who need their arms twisted.

C.   LAWYERS AND JUDGES DO NOT UNDERSTAND SELECTION

EFF devote several pages to an analysis of the famous "Broccoli Problem" that arose during the debates over the constitutionality of the Affordable Care Act's mandate to purchase health insurance (pp. 151–81).[51] Briefly, opponents of the ACA argued that if the Commerce Clause were interpreted to give Congress the power to mandate the purchase of health insurance, it would necessarily give it the power to mandate the purchase of broccoli, since both were health-promoting interventions.

To an economist, this is both depressing and silly.[52] The selection market approach instantly makes it clear that broccoli and insurance are sold

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[50] *See, e.g.*, Ken Toffolo, *Insurance: Sold, Not Bought, In the Digital World*, AITENOVARICA (Oct. 19, 2020) https://aite-novarica.com/blogs/ken-toffolo/insurance-sold-not-bought-digital-world.

[51] Nat'l Fed. Of Indep. Bus. v. Sebelius, 567 U.S. 519 (2012). For an extended legal analysis of the broccoli/mandate problem, *see* Mark D. Rosen & Christopher W. Schmidt, *Why Broccoli? Limiting Principles and Popular Constitutionalism in the Health Care Case*, 61 UCLA L. REV. 66 (2013) (explaining how broccoli provided a link between popular (populist?) liberty-based opposition to the ACA's mandate and the narrowly legal challenge). Rosen and Schmidt note that "[t]he three main written opinions included twelve references to broccoli and five separate discussions of the broccoli mandate's legal implications." *Id*. at 69–70.

[52] For further evidence of how uninformed judges can be about insurance, consider this Federal trial court opinion on the same question, the constitutionality of the Affordable Care Act's insurance mandate.

> Without the individual mandate and penalty in place, the argument goes, people would simply "game the system" by waiting until they get sick or injured and only then purchase health insurance (that insurers must by law now provide), which would result in increased costs for the insurance companies. This is known as "the moral hazard." The increased costs would ultimately be passed along to consumers in the form of raised premiums, thereby creating market pressures that would (arguably) inevitably drive the health insurance industry into extinction.

in categorically different kinds of markets. Supply and demand do not operate in the same way in the insurance market as they do in the market for broccoli: making everyone buy broccoli would not lower the price or enable the existence of a market for broccoli that would otherwise have a hard time sustaining itself. So there is a clear distinction to be drawn between broccoli and insurance, and presumably it would not be difficult to incorporate that distinction as a limiting principle on the power of the federal government to mandate purchases more generally.[53]

D.   IT DEPENDS

One of key themes of *Risky Business* is that selection effects pose a whole series of difficult tradeoffs for policymakers. Is it possible that banning the use of gender in pricing insurance could lead to adverse selection and attendant welfare losses?[54] Yes. Is it possible that a ban could lead to welfare *gains* and an increase in fairness? Also, yes.[55] Is it possible that a mandate to purchase insurance could prevent market unraveling and raise welfare? Again, yes. Is it possible that requiring people to buy something they don't want or believe they need could reduce welfare? Yes again.

What all these questions have in common is that they cannot be convincingly answered by theory alone. Empirical work is required, and to do that work requires just the kind of tools that the selection markets approach offers.

Fla. ex rel. McCollum v. U.S. Dep't of Health & Hum. Servs., 716 F. Supp. 2d 1120, 1129 (N.D. Fla. 2010) (holding the mandate unconstitutional while simultaneously confusing adverse selection and moral hazard).

[53] If a limiting principle is even required. For a skeptical view on that question, *see* Rosen & Schmidt, *supra* note 51, at 70 (concluding that the courts do not usually require a limiting principle at the start, and are prepared to allow one to develop over time as new cases arise).

[54] Case C-236/09, Ass'n Belge des Consommateurs Test-Achats ASBL and Others v. Conseil des ministres 2011 E.C.R. I-00773 (banning the use of gender in insurance pricing in the European Union). For the United States, *see* City of Los Angeles Dep't of Water & Power v. Manhart, 435 U.S. 702, 722 (1978) (banning the use of gender in setting premiums for employer-provided pensions as violative of Title VII of the 1964 Civil Rights Act).

[55] The welfare effects of banning gendered-pricing can be shown to depend on "the shape and position of the gender-specific demand and cost curves relative to the gender-pooled ones." Einav & Finkelstein, *Theory and Empirics*, *supra* note 3, at 121.

Consider, for example, a world in which there are three levels of insurance coverage one can buy: none, low, and high.[56] A mandate that everyone purchase coverage will eliminate the first option, and "solve" the selection problem that the best risks tend to opt out altogether, which makes coverage more expensive. But since those who formerly went without coverage were presumptively the lowest risks, when they're required to buy insurance under the mandate, they are likely to choose the low-coverage (and cheaper) plan. That makes the plan even cheaper *relative to the high-cost plan*—it has picked up some new lower-risk customers, so its average cost and premium will fall. In turn, the now even-cheaper low-cost plan will attract some former customers of the high-cost plan. The welfare effects of the mandate are theoretically ambiguous, because reducing selection overall can lead to more selection against the top-quality plan. But such complexities can finally be addressed using the tools of the selection markets approach.[57]

Take another tradeoff, this time between privacy and the welfare-impairing effects of selection. *Risky Business* devotes an insightful chapter to analyzing the way selection effects may conflict with a variety of other important social goals—for instance, privacy and non-discrimination/equality (pp. 182–203). These tensions are certainly well-known to anyone familiar with insurance law and regulation. But until now, they have largely been discussed entirely on theoretical or philosophical grounds because it was almost impossible to empirically assess the welfare consequences of allowing insurers to use more or less information in underwriting and pricing.[58]

Thanks to the selection markets framework, that empirical roadblock is beginning to be surmounted. Recent work by Jin and Vasserman on telematics (usage- or risk-based coverage that relies on in-car monitoring) in auto insurance provides an illustration of what is possible.[59] The authors

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[56] This example is drawn from Michael Geruso, Timothy J. Layton, Grace McCormack, & Mark Shepard, *The Two-Margin Problem in Insurance Markets*, 105 REV. ECON. & STAT. 237, 239 (2023).

[57] The effect of a mandate is not small: "[A] mandate sufficient to move all consumers into insurance—increasing enrollment by around 25 percentage points—can reduce the market share of generous plans by more than 15 percentage points, or 35 percent of baseline market share." *Id.* at 238.

[58] *See generally* Regina Austin, *The Insurance Classification Controversy*, 131 U. PA. L. REV. 517 (1983); *see also* Leah Wortham, *The Economics of Insurance Classification: The Sound of One Invisible Hand Clapping*, 47 OHIO ST. L. J. 835 (1986).

[59] Yijhou Jin & Shoshanna Vasserman, *Buying Data from Consumers: The Impact of Monitoring Programs in U.S. Auto Insurance* (Nat'l Bur. Econ. Rsch., Working Paper No. 29096, 2021). For a brief, non-technical summary, *see* Lucy E. Page, *Voluntary Self-Monitoring in the Auto Insurance Market*, NAT'L BUREAU

were able to obtain proprietary data from an insurer that offered a voluntary telematics program to its customers, similar to Progressive Insurance's "Snapshot" product. They also compiled data on the pricing of competing firms. Using these data (and some fancy econometric modeling), they were able to show that monitoring attracts safer drivers (and then makes them even safer after signing up). They back-out an estimate of how much consumers dislike being monitored, concluding that on average, customers would implicitly pay $93 to avoid monitoring.[60] And they show the net value of the program—including welfare gains to consumers, increased profits for the monitoring firm, and lower profits for rival insurers—amounts to about $13 per driver per year.[61] Banning monitoring would be welfare-reducing, even after valuing consumers' disutility from being monitored. And that figure ignores the social costs of the accidents prevented by monitored drivers, which are substantial.[62] The bottom line is that we now have a way to get past the unproductive stalemate between people who assert that "allowing insurers to collect more information is bad for privacy" (which it may be) and those who claim that "more information is necessary to prevent adverse selection." (which might also be true). We can now quantify "*how* bad" the privacy loss would be, and "*how much selection*" it would prevent. Surely, those are or should be the key questions policymakers will want to confront.

Finally, think about the distribution of gains and losses from insurance. The premium quoted to a pool of insureds depends on the average riskiness of the group. But if pool is heterogeneous, the high-risks will receive a subsidy from those with lower risk.[63] The more lower-risk/lower-cost policyholders the pool contains, the lower the premium that everyone in the group pays. In practice, one study found, this means that an employer subsidy for high-cost/generous health insurance plan is regressive: "employees earning over $120,000 receive $710 in surplus from the subsidy compared to $330 in surplus for employees earning less than $35,000 . . .. [A]dverse selection . . . creates an equity-efficiency trade-off: reducing the efficiency losses from adverse selection involves a subsidy that

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ECON. RSCH., Oct. 1, 2021, https://www.nber.org/digest/202110/voluntary-self-monitoring-auto-insurance-market.

[60] Jin & Vasserman, *supra* note 59, at 3.

[61] *Id.*

[62] Omri Ben-Shahar, *Privacy Protection, At What Cost? Exploring the Regulatory Resistance to Data Technology in Auto Insurance*, 15 J. LEGAL ANALYSIS 129 (2023).

[63] As noted above, some simple models of adverse selection predict that this kind of cross-subsidy is impossible in equilibrium. Other models, however, do allow for it.

disproportionately benefits higher-income consumers."[64] Again, this was not the kind of question it would have been possible to investigate empirically without the "selection markets" framework.

In large part thanks to the selection market paradigm invented by Einav and Finkelstein, these kinds of policy questions (and many, many more) about how best to govern insurance markets are now amenable to empirical evaluation. Put differently, the issues are messy and not subject to fruitful a priori speculation. The answers depend on quantitative assessments: how much of an informational advantage does one party possess; how much do people select into (or out of) the purchase of insurance? What institutions constrain or encourage selection? These are inherently empirical questions, and while answers will always be difficult to obtain, economists now have a tool we can use to begin that task.

Although it modestly refrains from drawing express attention to the selection market framework that Einav & Finkelstein developed, *Risky Business* contains a myriad of examples of how it has been used. Many more such examples are sure to follow. The key point is that, as EFF put it, "There are no right and wrong answers, only trade-offs" (p. 181), and the selection markets approach allows for an empirical assessment of those tradeoffs.

V.   WHAT'S NEXT? UNANSWERED QUESTIONS ABOUT HOW SELECTION OPERATES AND ITS CONSEQUENCES

In this section, I speculate about some of the issues about selection in insurance markets that remain open topics for future research.

A.   WHEN *DOESN'T* IT OCCUR?

If I have one small quarrel with EFF, it is that they may at times overstate the universality of selection in insurance markets. It is clearly a crucial factor that shapes the way insurance markets operate, in all kinds of important, subtle and interesting ways, which they do a brilliant job of explaining. Even in cases where it seems unlikely that buyers could know more about their riskiness than their insurers do, EFF point to evidence that such an asymmetry—and attendant selection pressure—nevertheless exists.[65]

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[64] Michael Geruso, Timothy Layton & Adam Leive, *The Incidence of Adverse Selection: Theory and Evidence From Health Insurance Choices* 3 (Nat'l Bur. Econ. Rsch., Working Paper 31435, 2023).

[65] For example, *Risky Business* discusses the work of Diafeng He, who shows that people who purchased life insurance lived longer than those who did not (pp. 55–57), suggesting the presence of private information. And although "[a]uto

But EFF do not do much with the evidence—and there *is* such evidence—which finds very little selection in some insurance markets. This is not the place to go into that body of research,[66] but my read of that scholarship does not support the idea that insurance is *everywhere and always* subject to negative selection effects.[67] Information asymmetries are widespread, to be sure, but they do not seem to be omnipresent; or if they are, they do not always loom large enough to shape insurance market equilibria.[68]

Consider the story of Gerald McAfee, a life insurance salesman who learned that his wife had terminal cancer.[69] Knowing this, McAfee had his wife make seventeen large purchases (totaling $188,000), all of which she paid for on credit.[70] Her loans were all secured by purchasing credit life insurance, which provided that the insurer would repay the loan in the event that the borrower (Mrs. McAfee) died.[71] Of course, she did die long before the loans were repaid, leaving the insurers on the hook for the unpaid balances.[72] The insurers naturally sued to rescind the contracts on the basis

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insurers can now estimate a driver's risk with great precision, thanks to the information they require applicants to provide" (p. 96), that doesn't seem to be enough to overcome the informational advantage that customers have in some settings (p. 99, n. 15, citing to studies finding evidence of selection in several automobile insurance markets).

[66] Cohen & Siegelman, *supra* note 24 (surveying literature on empirical studies of selection, as of 2010).

[67] *See, e.g.*, Pierre-Andre Chiappori & Bernard Salanie, *Testing for Asymmetric Information in Insurance Markets*, 108 J. POL. ECON. 56, 57 (2000) (developing a test for the presence of adverse selection and finding "no evidence for the presence of asymmetric information" in the French market for automobile insurance."); Cohen & Siegelman, *supra* note 24 (listing other examples).

[68] *See, e.g.*, John Cawley & Tomas J. Phillipson, *An Empirical Examination of Information Barriers to Trade in Insurance*, 89 AM. ECON. REV. 827, 829 (1999) (finding among other things that the mortality of insured males is lower than that of all males (both insured and uninsured), implying a fortiori that the uninsured must have a higher death rate, which is inconsistent with selection).

EFF recognize that insurers can collect a wealth of information about their customers, and that, in the case of automobile insurance (which they discuss in detail and with great care), "insurers can squeeze 90 percent of accident risk out of the data" (*Risky Business*, p. 102), but that this still leaves some room for selection to operate.

[69] USLife Credit Life Ins. Co. v. McAfee, 630 P.2d 450, 452 (Wash. Ct. App. 1981).

[70] *Id.*

[71] *Id.*

[72] *Id.*

that the insurance was obtained fraudulently.[73] Although they prevailed at trial, the Washington Court of Appeals concluded that since the insurers hadn't asked for any information about Mrs. McAfee's health, neither she nor her husband had any duty to disclose it, and reversed the lower court's holding.[74]

It seems hard to imagine a clearer example of an informational asymmetry than this—the McAfees clearly took advantage of their private knowledge of Mrs. McAfee's health and used it to obtain insurance at rates that reflected the *overall* average risk of death, rather than the much higher probability that applied to Mrs McAfee.

But none of the applications for the policies the McAfees purchased required them to state that Mrs. McAfee was in good health or to disclose any medical problems. If selection on the basis of private health information were really an important factor in credit life insurance markets, it seems inconceivable that profit-maximizing insurers wouldn't simply add a single line to the application form to ask about health status.[75] Yet credit life insurance apparently continues to be sold without even minimal medical underwriting, which suggests that selection problems cannot play an important role in credit life insurance markets.[76]

Risky Business does contain an illuminating discussion of why and when it is the case that insurers might not want to use everything they know about customers, even when there are no rules forbidding them from doing so. "Sometimes, pricing on everything can seem intrusive or simply unfair," the authors note, explaining that "[i]f customers 'don't like' business practices, these practices may not be good for business . . .. And if something isn't good for business, companies won't do it, even if it is good for fixing selection problems"(pp. 111–18).[77] That is an astute observation, and it could

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[73] *Id.*

[74] *Id.* at 455. The one exception, the court found, was the company for which McAfee himself worked. As an employee, he was held to a higher duty of disclosure than would govern an ordinary customer. *Id.* at 455–56.

[75] Indeed, that was the main justification for the Washington Court of Appeals' conclusion that there was no fraud sufficient to nullify the insurance contract in *McAfee*. *Id.* at 455.

[76] *See, e.g.*, *Credit insurance – do you really need it?*, OFF. OF THE INS. COMM'R OF WASH. STATE, https://www.insurance.wa.gov/credit-insurance-do-you-really-need-it (last visited Mar. 24, 2024) (cautioning against being pressured into buying credit life insurance). Credit life insurance is a classic example of an insurance product very few people purchase voluntarily.

[77] As evidence, they point to the market for annuities in the UK, where insurers consciously chose to ignore information they already had (in this case, the annuitants' address) in setting prices. That was true even though the annuitant's address demonstrably predicted risk, over and beyond the rest of the information the

certainly explain why, for example, life insurers do not price on race, even though "[t]here is … no federal law specifically forbidding insurance companies from taking [race] into account … at least outside the context of homeowners insurance."[78] But it is hard to believe that credit life insurers would face public opposition for asking a question about health status on their application, and yet they never seem to do so.

The anecdote about credit life insurance and the much more substantive evidence cited in notes 67 and 68 raise an obvious question—if selection is not always present, what determines how much informational asymmetry there is and the extent to which consumers use any advantage they may have in deciding whether to buy insurance? Why does selection occur in some contexts but not others? At the moment, there is no compelling answer to that question, but the leading candidate for an explanation starts with the idea that many consumers are simply not rational or sophisticated or attentive enough to their informational advantage to select against their insurer. Studies do suggest this kind of behavioral "inertia" in some insurance markets,[79] but it remains an open question why it would only occur in some circumstances and not others.

A related set of issues concerns the frequency of so-called "death spirals," in which selection pressures lead to a cycle in which the best risks exit, premiums increase, more good risks drop out, and the spiral continues until the market evaporates altogether. Drawing on the work of David Cutler

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insurer already collected. The reason for ignoring this useful information, they suggest, is the widely-held view that there was something unfair about basing prices on the annuitant's neighborhood, citing the 2003 example of an insurer who tried to incorporate neighborhood information into its pricing and faced a firestorm of opposition.

[78] Ronen Avraham, Kyle D. Logue & Daniel Schwarcz, *Understanding Insurance Antidiscrimination Laws*, 87 S. CA. L. REV. 195, 199 (2014). The authors go on to point out that "more than half the jurisdictions do not ban the use of race in life, health, and disability insurance, twenty-three states do not ban its use in auto insurance, and seventeen do not ban its use for property/casualty insurance, which includes homeowners insurance." *Id.* at 201.

[79] *See generally* Benjamin R. Handel, *Adverse Selection and Inertia in Health Insurance Markets: When Nudging Hurts*, 103 AM. ECON. REV. 2643 (2013) (showing that policyholders tend to stick with their initial choice of insurance coverage, even when a better alternative arises); Chenyuan Liu & Justin Sydnor, *Dominated Options in Health Insurance Plans*, 1–5 (Nat'l Bureau of Econ. Rsch., Working Paper No. 24392, 2018) (finding that frequently, high-deductible plans dominate low deductible plans; they are both cheaper and offer lower maximum spending risk for the employee).

and Sarah Reber,[80] EFF adroitly explain how selection led to the collapse of Harvard University's health insurance plan (pp. 46–50). Harvard's decision to reduce its subsidy for its high-cost, high-quality plan led the best (healthiest) enrollees to switch to cheaper offerings; in turn, that meant that the average riskiness (and cost) of those who remained in the high-cost plan went up, causing further price increases and further exit of the healthiest insureds, precipitating the collapse of the plan in a vivid instance of the so-called "Adverse Selection Death Spiral."

This is a compelling and vivid example, and it is very well documented. But what is less clear is how often this kind of thing actually happens. Indeed, my search for "death spiral" and "adverse selection" in the full text of articles indexed on JSTOR uncovered only one other documented example of the phenomenon.[81] Several other studies investigated possible examples of death spirals and concluded that they did not actually materialize.[82]

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[80] David M. Cutler & Sarah Reber, *Paying for Health Insurance: The Trade-off between Competition and Adverse Selection*, 113 Q. J. ECON. 433 (1998).

[81] H. E. Frech III & Michael P. Smith, *Anatomy of a Slow-Motion Health Insurance Death Spiral*, 19 N. AM. ACTUARIAL J. 60 (2015) (arguing that the closure of a "block" (submarket) to new insureds in 1981 led to a gradual but steady increase in premiums over the next 28 years, such that by 2009, the market had almost dried up and premiums were dramatically higher than elsewhere). The authors point out that "[d]ocumented adverse selection death spirals are rare." *Id.* at 69. And it is worth noting that this study did not have access to individualized data and its test for adverse selection—while plausible—was not econometrically rigorous.

[82] *See, e.g.*, Thomas Buchmueller & John Dinardo, *Did Community Rating Induce an Adverse Selection Death Spiral? Evidence from New York, Pennsylvania, and Connecticut*, 92 AM. ECON. REV. 280 (2006) (finding no evidence of a death spiral after introduction of community rating in small group health insurance markets in New York and Connecticut in the 1990s); Mark V. Pauly, Kate H. Withers, Krupa Subramanian-Viswanathan, Jean Lemaire, John C. Hershey, Katrina Armstrong & David A. Asch, *Price Elasticity of Demand for Term Life Insurance and Adverse Selection* 30 (Nat'l. Bureau Econ. Rsch., Working Paper 9925, 2003) (concluding that the demand for life insurance is not sufficiently price-sensitive that a death spiral would be likely); *see generally* Melissa A. Thomasson, *Early Evidence of an Adverse Selection Death Spiral? The Case of Blue Cross and Blue Shield*, 41 EXPLORATIONS ECON. HIST. 313 (2004) (concluding that the entry of for-profit competitors did not lead to a death spiral in health insurance markets served by Blue Cross/Blue Shield in the 1950s); Kuniyoshi Saito, *Does Asymmetric Information Matter in the Early Insurance Market? Evidence from the Auto Insurance Market*, 41 APPLIED ECON. 2653 (2009) (finding little evidence for adverse selection as an explanation for observed market deterioration); Mark V. Pauly, Olivia S. Mitchell & Yuhui Zeng, *Death Spiral or Euthanasia? The Demise of Generous Group Health Insurance Coverage*, 44 INQUIRY 412, 412 (2007) (concluding that a health

EFF wisely explain how selection effects may doom insurance markets at their inception (pp. 34–43),[83] which we might think of as a kind of "birth spiral." But it may be that consumer inertia[84] is sufficient to prevent insurance markets from evaporating in most cases. We don't really know when or if exogenous changes (e.g., in regulations governing pricing) will lead an insurance market to collapse, and there are not many total collapses out there to study.

B. POLITICAL ECONOMY AND ANTITRUST

Most kinds of insurance are very heavily regulated, typically at the state level but often with substantial federal overlay.[85] State regulators are often elected, and therefore face incentives to cater to the wishes of the voters in their jurisdiction, as well as (instead of?) to maximize welfare. They may even compete with each other across jurisdictions.[86] Of course voters are often not well informed about insurance issues, and are surely even more ignorant than judges and lawyers about the complexities of selection effects.

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insurance plan that implemented a "significant" risk adjustment had "no discernible effect" on selection against the most generous policy and suggesting that studies that "appeared to detect plans in the throes of a death spiral, may instead have been reflecting an inexorable movement away from a non-preferred product"). George Priest, a leading scholar of insurance and tort law, has suggested that a kind of death spiral was at work in the liability insurance "crisis" of the early-mid 1980s, although Priest's argument relied largely on anecdotal evidence. George L. Priest, *The Current Insurance Crisis and Modern Tort Law*, 96 YALE L. J. 1521, 1524 (1987) (asserting that "the judicial compulsion of greater and greater levels of provider third-party insurance for victims" drove up liability insurance premiums and led to unraveling as the best risks exited the market). *Risky Business* does present an amusing story of a death spiral in a non-insurance context: American Airlines "AAirpass" program, which allowed unlimited travel for a flat fee (initially set at $250,000 in 1981), but which proved to be consistently unprofitable because as American repeatedly raised the price of the AAirpass, it succeeded in driving-off only the customers who used the pass the least (pp. 9–10).

[83] *See* discussion *supra* § III.A.

[84] *See* Jin & Vasserman, *supra* note 59; Page, *supra* note 59.

[85] And of course, the National Association of Insurance Commissioners (NAIC) provides some degree of coordination across state lines. *See, e.g.*, *State Insurance Regulation,* NAIC, 2011, at 2.

[86] *See* Johnny Tang, *Regulatory Competition in the US Life Insurance Industry* (Aug. 25, 2023) (Harvard University, Working Paper), https://scholar.harvard.edu/files/johnnytang/files/tang_jmp.pdf (developing an econometric model showing that states vie to attract insurers by setting lower capital requirements for incorporation, while the costs of such lower requirements are borne by consumers in other states.)

This fact naturally gives rise to an important set of questions about how insurance regulation works. EFF are of course well aware of these questions,[87] but the literature is largely silent on the forces that shape regulation.[88] The selection markets framework also seems well-suited to take on the questions of antitrust issues in insurance. Under what conditions will a monopoly (or a limited group of competitors) perform better than a more competitive industry when that industry operates in the presence of selection? Preliminary answers are starting to emerge,[89] but we are a long way from the kinds of careful empirical work that is required to accurately calibrate policy.

C. GENERAL EQUILIBRIUM CONSIDERATIONS

Insurance can have spillovers to economic activity outside of the insurance market. For example, insurance against kidnapping may increase the profitability of kidnapping and raise the volume of kidnaps.[90] But it is also possible that some kinds of insurance could generate positive spillover effects.

Startups and new firms entering an industry face a variety of risks that may increase their costs of raising capital or make trading partners less willing to deal with them.[91] If products such as business interruption insurance or commercial liability insurance can reduce such risks, these products may facilitate the entry of new firms and thus enhance

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[87] "Pity the policy maker who aspires to pick a set of rules [insurance regulations] that are not just economically sound but also politically feasible." (*Risky Business*, p. 180).

[88] *But see* Dwight Jaffee & Thomas Russell, *The Causes and Consequences of Rate Regulation in the Auto Insurance Industry*, (Nat'l Bureau of Econ. Rsch., Working Paper No. 5245, 1995) (concluding that California's Proposition 103, which implemented major changes in the way auto insurance was regulated, was best seen as "a response [by voters] to the perceived lack of fairness of the sharp increase in premiums" and the variation in that increase across counties.)

[89] Mahoney & Weyl, *supra* note 26, at 638, offer a series of insights about how selection can intersect with antitrust concerns. For example, they characterize the market for subprime automobile loans as subject to advantageous selection: the marginal borrowers are *more*- rather than less-risky than the inframarginal buyers. They then use a calibrated model to show how the presence of advantageous selection leads to excessively low prices that actually reduce consumer welfare.

[90] The evidence in favor of this proposition is largely anecdotal. *But see* Gideon Parchomovsky & Peter Siegelman, *Third Party Moral Hazard and the Problem of Insurance Externalities*, 51 J. LEGAL STUD. 93 (2022) (collecting similar examples).

[91] Victor P. Goldberg, *The Devil Made Me Do It: The Corporate Purchase of Insurance*, 5 REV. L. & ECON. 541, 545 (2009).

competition.[92] The selection markets framework is ideally suited to addressing whether such a pro-competitive effect of insurance is theoretically plausible and, if so, whether it is empirically meaningful.

VI.   CONCLUSION

This review has aspired to give the reader an overview of the state of play in economic scholarship on selection problems in insurance. The advent of the "selection markets" framework means that there will be a long pipeline of research in insurance economics that sheds direct light on the important questions of public policy that have hitherto not been amenable to empirical analysis. *Risky Business* expounds on and summarizes this body of work, combining illustrative examples with the latest and most sophisticated research on the complex and important policy questions that confront policymakers.

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[92] Robert S. Pindyck, *Sunk-Costs and Risk-based Barriers to Entry* (Nat'l Bureau Econ. Rsch., Working Paper No. 14755, 2009).

VII.   APPENDIX: THE SELECTION MARKET MODEL,
ILLUSTRATED
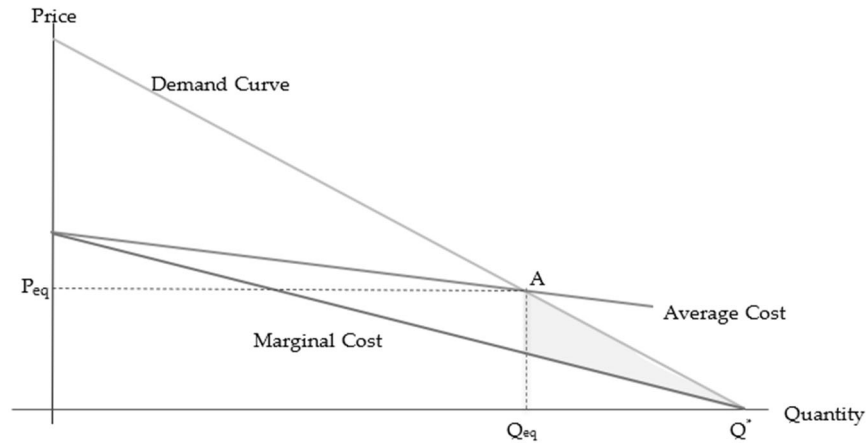
Source: Einav & Finkelstein (2011)

Figure A.1: The Operation of Insurance as a Selection Market

Figure A.1 illustrates the workings of a stylized insurance market subject to (adverse) selection, as depicted by Einav & Finkelstein. The model assumes that insurers operate without any costs other than the claims they must pay out, so there is no load factor.[93] Firms offer a single contract, with no alternative coverage available. Individuals thus choose only whether they wish to purchase insurance or not, at the price quoted.[94] This means that the quantity depicted on the horizontal axis is the number of people who choose to buy insurance at a given price.   The model makes the reasonable assumption that a person's maximum willingness to pay for insurance is determined by the probability that they experience a loss. Crucially, this probability is private information, which the individual knows but the insurer does not. Thus, those with the highest willingness to pay for insurance (at the left) are outwardly indistinguishable from those with lowest willingness to pay (at the right).

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[93] This is an entirely standard assumption in the economics of insurance.

[94] An individual decides whether to purchase by comparing the quoted price with their maximum willingness to pay. If and only if the latter is larger than the former is purchasing worthwhile.

The demand curve (in blue) shows the number of people who purchase insurance at any given price. As is typical, it slopes downward, because as the price falls, more people (those with lower risk of loss) find it worthwhile to purchase. As is standard, the *height* of the demand curve represents each person's maximum willingness to pay for insurance—at any price above that amount, the individual will not be a willing purchaser.

Where this figure diverges from the standard Econ. 101 analysis is on the supply side. The key insight is that in a selection market, customers are simultaneously purchasers *and* costs to the seller. That is because the riskier the customer, the greater the likelihood that the insurer will need to make a payout to cover that customer's losses. Thus, the figure is drawn with a downward-sloping marginal cost curve: At the highest prices, only the riskiest consumers find it worthwhile to purchase. But as we move down the demand curve to the right and the price falls, less- and less-risky customers are willing to enter the market; and each of them adds less to the insurer's expected payout than their predecessors did. Algebraically, a decreasing marginal cost implies that average cost also must be falling, as shown.[95]

Finally, the assumption that the insurance market is competitive means that sellers must earn zero economic profit. That occurs when Price = Average cost, which is shown in the Figure as P_{eq}. This also pins down the equilibrium quantity, Q_{eq}.

Where does all this leave us? The model can be used to develop many insights, but I want to focus on how it illustrates the welfare losses caused by adverse selection. Readers familiar with the famous deadweight loss triangle from introductory microeconomics may recognize the shaded area in Figure 1 as the selection market equivalent. It illustrates the economic welfare forestalled by the presence of selection. Customers between Q_{eq} and Q^* all have a cost to the insurer given by the marginal cost curve, and maximum willingness to pay (their valuation of insurance) given by the demand curve. Since the demand curve lies *above* the marginal cost curve, these are potential customers who would experience a gain in welfare from purchasing insurance if they could buy at the price appropriate for someone with their riskiness. But the single-price assumption (remember that even though customers are heterogenous, the insurer finds them indistinguishable because their riskiness is private information) means that there is no way to provide them with coverage. The shaded triangle $AQ_{eq}Q^*$ thus represents the surplus foregone by not serving these consumers.

What the figure does not reveal is that economists have developed an array of empirical techniques to estimate demand and cost curves from

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[95] If a student has a 3.5 GPA before taking Principles of Insurance (the marginal class) and they get an A, their GPA will necessarily rise. If they get a B, their GPA will necessarily fall.

available data on consumer purchases, and to use these estimates to provide an empirical estimate for the size of the deadweight loss triangle. The selection markets paradigm not only provides a graphical illustration of the welfare losses caused by selection; it can also be used, in combination with econometric techniques, to provide an empirical measure of those losses.