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ADVERSE SELECTION AND COSTS: The Diminishing Case for Insurance Market Intervention

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ABSTRACT

Since the influential papers by Akerlof (1970) and Rothschild and Stiglitz (1976) most economists have been convinced that the provision of insurance carries innate market failure due to asymmetric information and adverse selection that provides an unambiguous case for government regulation. The odd nature of these abstract technical arguments and their background assumptions was recently clarified through a graphic presentation by Einav and Finkelstein. They also summarized the empirical evidence. Using their graphic model and reviewing the evidence, this paper shows that when more reasonable cost assumptions are made, the case for insurance market intervention is both logically and empirically weaker than is normally supposed.

Keywords: *Adverse selection, asymmetric Information, opportunity costs*

INTRODUCTION

The theory that insurance markets are subject to pervasive adverse selection by demanders and hence are widely afflicted by market failures requiring corrective government intervention has been one of the most influential economic arguments of the late 20th and early 21st centuries. The theory stemmed from seminal papers by Akerlof (1970) and Rothschild and Stiglitz (1976), who may have been influenced by Arrow (1959, 1963). For their efforts, Akerlof and Stiglitz shared the Nobel Prize for economics (with Michael Spence) in 2001. Insurance texts routinely cite basic adverse selection arguments in justification of government intervention. Cohen and Siegelman (2010, p. 42) note that as of August 2007 there were more than 130 state and federal court opinions that discussed adverse selection. Those decisions have heavily affected the structure and operation of many insurance markets. Legislative and regulatory intervention has become pervasive at both the state and federal levels, Obama Care, with its universal medical insurance mandate, being only the most recent example.

Such immense influence is to some degree surprising because this literature has been very abstract and esoteric. That is only partly true, however. As Tabbarok (2005) notes, the arguments stemming from Akerlof were simple. They had immense appeal to many political activists and policy makers of progressive orientation. The far deeper and more difficult strain of adverse selection analysis was undertaken by economists from the welfare economics tradition, following Rothschild and Stiglitz. The abtruse character of their analysis seems to have insulated them for some time against criticism by economists whose theoretical perspectives and reading of the evidence made them more skeptical of interventionism.

For various reasons, that insulation is wearing thin, and might soon disappear, if it has not already done so. In a remarkable recent paper, Einav and Finkelstein (2011), two prominent practitioners of this research, develop a simple graphic framework for explaining the selection models that predict frequent insurance market failure, with implied potential for social welfare improvement through corrective government intervention. Those authors also summarize and critique recent empirical work and provide suggestions for improving such research. Their simple visual method may bring more clarity than some may wish to this literature, however, since it also reveals certain weaknesses of the case for insurance market regulation.

In this paper I will begin by laying out Einav and Finklestein's graphic framework and using it to exposit, as they do, the basic adverse selection model of insurance markets, then show how the model is applied to qualifying cases that have appeared in the literature. In the process I will rather pointedly critique certain analytical assumptions that have generated the canonical textbook case for insurance market failure and corrective government intervention. In particular, I question a key assumption about the costs of insurance firms on which the conclusions of the canonical model depend. However, I also show that *even in its own terms* the model provides a far weaker case for market failure and government intervention than analysts in this tradition believe. At various points empirical studies and evidence developed thus far relating to the matters at issue will be reported and assessed.

THE TEXTBOOK MODEL OF ADVERSE SECTION

Scientific models involve abstraction and simplification to escape many of the obfuscating complications of the universe. This is necessary, but analysts must take care that the essential elements of the reality to be understood are left in the model and placed in their accurate relationships. The model of demand and supply in insurance markets that provides the canonical case for market failure and government regulation rests on several simplifying assumptions. First, it is assumed that people vary in their risk characteristics, about which they have private information unavailable to the insurance providers. Since the providers cannot distinguish between and among their customers by risk, they pool them together and charge them each the same price.

Second, people are risk averse, but do *not* vary in their *degree* of risk aversion, while to the contrary, firms are assumed to be completely risk-neutral. A third and crucial abstraction is that the *only* cost of doing business that insurance firms incur is the expected payout on claims (Rothschild and Stiglitz 1976). There are no administrative, selling, or claim-processing costs. There are no costs of managing investments, estimating risk factors, amortizing capital assets as they wear out, no business taxes, electrical bills for offices, no expenditures on office supplies, nor even, apparently, any opportunity cost of invested capital.[1]

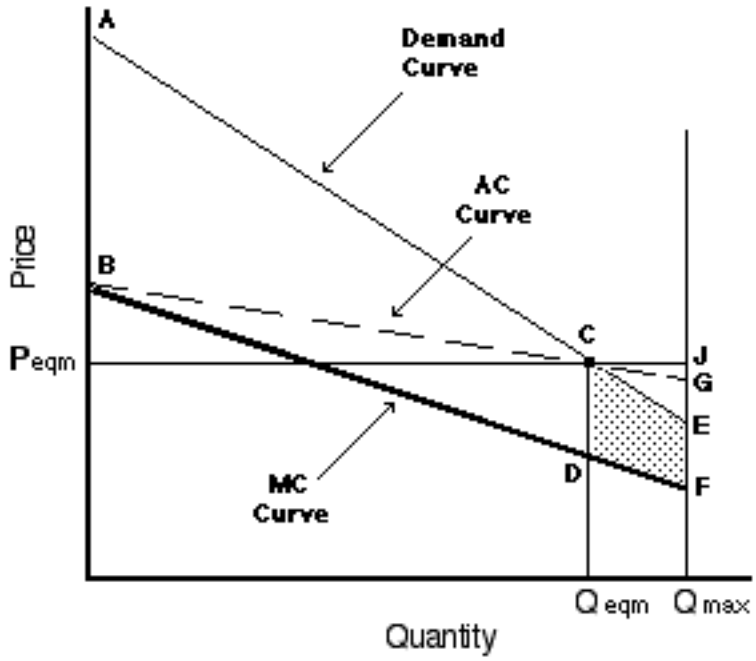
As have others before them, Einav and Finkelstein further simplify matters by assuming a perfectly competitive industry in which 'firms' offer a completely undifferentiated and homogenous policy (with no variation in coverage, so that the 'firms' compete only in price) to customers who therefore face a simplified binary choice between purchasing or not purchasing the policy. Thus, the number of policies sold, measured on the horizontal axis of Figure 1, which is a replication of Einav and Finkelstein's (2011, p. 117) Figure 1, maps directly into the number and fraction of the relevant insurable population that is covered, where that total relevant population pool is Qmax.

Since people vary in their expected costs, about which they have private knowledge, and because risk aversion is assumed homogenous among and between demanders, demand as an inverse function of price expresses the *assumed* fact that those with the highest risks are willing to pay the most and those with progressively lower expected costs are willing to pay progressively less. If only part of the potential customer pool ends up being covered, it will be the higher cost customers. This is *adverse selection* and the demand curve is, as Einav and Finkelstein say, the cumulative distribution of people's willingness to pay for the contract.

The real bite of the adverse selection argument comes in the shape of the cost curves, however. The costs of the firm are not independent of demand and determined by the technology of production, as is normally the case, but instead crucially depend on demand. A point on the demand curve shows the maximum willingness of the marginal insurance purchaser to pay for the homogenous policy, given by the vertical sum of their expected cost from the hazard and their risk premium. The assumptions of adverse selection, the lack of any costs besides claim payouts, and smaller dollar risk premiums for progressively lower cost customers implied by homogenous risk aversion, insure that *the marginal cost* (MC) *curve is not only everywhere below demand, but declines to the right continually,* though coming closer to demand as price falls and coverage of the population rises. Since the marginal cost of insuring additional persons declines continuously, so does the average cost curve the firms face, which in its nature must be above MC. Unlike MC, however, the AC curve can (though this is *not* inevitable) intersect demand short of Qmax, and be above demand over the remaining range of potential coverage (line segment CG in Figure 1).

[1]Since at a minimum a firm must have invested capital and at least one employer/employee (the 'sole proprietor') to exist, and few insurance firms are proprietorships, a skeptic might doubt that it is possible to have insurance providers without non-payout costs. I attempt to provide a more definitive answer below.

Figure 1
Adverse Selection in the Textbook Setting



Here is where the assumptions generating adverse selection yield market failure. Since MC declines as coverage increases, and AC > MC, marginal-cost pricing fails. The industry equilibrium will not be found where p = MC at Qmax, for example, since at that coverage firms would be making economic losses, resulting in exit of firms until a zero-profit equilibrium would be reached where peqm = AC at coverage level Qeqm. If the positions of the MC and AC functions are such that AC intersects demand at an equilibrium Qeqm < Qmax, the equilibrium is inefficient. The social benefit from insuring each marginal individual is coverage of his/her risk premium, the vertical difference between MC and demand. Anyone not insured suffers an uncovered risk aversion.

It is therefore efficient for all persons to be insured, and since Qmax - Qeqm persons are *not* being covered in this equilibrium there is a welfare loss equal to the sum of those person's risk premia, shown as the shaded trapezoid DCEF. Under this circumstance, according to Einav and Finkelstein, a government mandate forcing everyone to buy insurance (or, alternatively, a subsidy making it affordable to the otherwise uninsured) is *unambiguously* welfare enhancing, because the willingness of the uninsured to pay, shown by the demand curve, is above their expected cost embodied in the MC curve.

Einav and Finkelstein are quite fair in pointing out that this market failure necessitating compulsory government intervention need *not* be the outcome, even in the canonical case. If the position of the declining AC curve were such that it was either still below or just coming to intersect demand at Qmax, then in the competitive equilibrium where peqm = AC, everyone would be insured. However, in a point that Einav and Finkelstein apparently think so obvious that they do not even bother to express it, the existence of uninsured persons in such a market, which anyone can observe, is all that is necessary to justify intervention, *since such persons would only be uninsured because the market price exceeded their willingness to pay.* By this thinking, no other measurement or cost-benefit calculation is necessary to justify compulsory intervention.

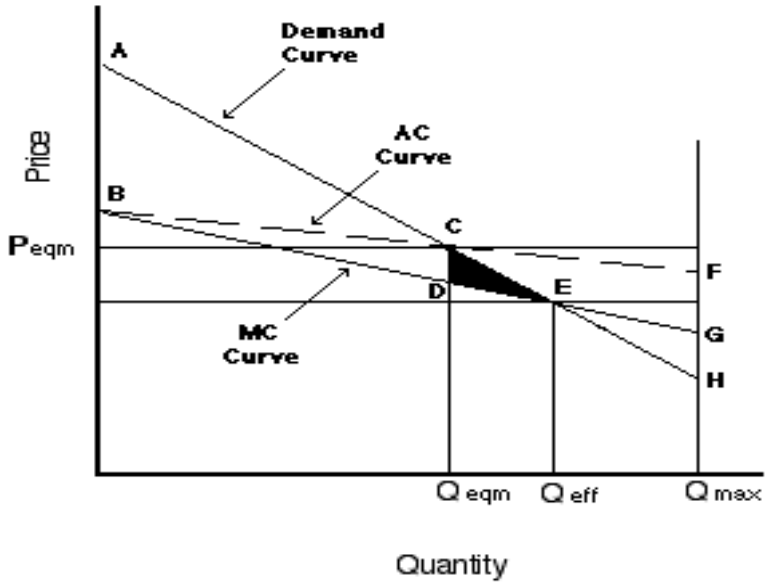
Later I will show that Einav and Finkelstein reason from an unstated assumption about government intervention that cannot be true, though it is highly consistent with other unrealistic assumptions of this textbook model. Consequently, even in this canonical case, with adverse selection and observable uninsured persons, a conclusion that coercive intervention is unambiguously welfare enhancing (Einav and Finkelstein 2011, p. 120, 123) is a non-sequitur. Careful cost-benefit estimates *would* be necessary, the outcome of which might well *not* justify intervention.

EFFECTS OF INSURANCE LOADS

Economists analyzing insurance markets have noted several factors modifying the results of the canonical "textbook" case, and Einav and Finkelstein are conscientious in applying their graphic model in analysis and

exposition of such alternate cases. They elaborate two of these cases in particular. The first concerns the possible existence of significant costs ('loads' as they are termed) *other* than payout costs, incurred by firms in insurance markets that are otherwise assumed to fit the textbook model of adverse selection. Einav and Finkelstein (2011, pp. 122-124) model the effect of such loads as in Figure 2, which replicates their Figure 3. As they show it, if a load is sufficiently large, it simply shifts the MC and AC curves vertically enough that MC itself may intersect demand at an interior point, Qeff, well short of Qmax. With MC < AC uniformly and with both curves still declining to the right, AC intersects demand and the competitive equilibrium price peqm is determined at coverage level Qeqm < Qeff (point C). The uninsured population is shown by the difference Qmax - Qeqm.

Figure 2
Adverse Selection With Loads



In this case, as Einav and Finkelstein point out, there is still a welfare loss shown in Figure 2 as the black triangular area CED, because for *those* uninsured persons their willingness to pay, shown by demand, exceeds their expected costs as expressed in the MC curve. It would be efficient if those persons were forced to purchase insurance, which is why that is the efficient quantity, Qeff. However, those persons cannot be picked out from other uninsured persons and targeted (private knowledge of their own risks insures this), and a blanket mandate requiring *everyone* to be insured would *not* obviously be welfare enhancing because other uninsured persons in the range Qmax - Qeff have expected costs in excess of their willingness to pay (demand is below MC). Requiring *them* to purchase insurance would impose a net loss of area EGH. To justify a blanket mandate would therefore require careful estimates of the values of the two triangles and demonstration that CDE > EGH.

It is important to understand why the model works this way, since Einav and Finkelstein do not explain their treatment of loads. Following the modeling strategy of de Meza and Web (2001, p. 252), they have assumed that the insurance load consists entirely of a fixed cost of processing each claim, or alternatively, a fixed processing cost per dollar of payout. *Hence the marginal cost of claim processing itself falls as coverage extends.* In this way, non-payout costs are slaved strictly to payout costs. This is why, with private information and adverse selection, both MC and AC still decline continuously to the right as price falls and additional persons with lower expected payout costs purchase policies. Adding an insurance load in this form simply shifts the MC and AC curves vertically upward.

Notice that if the non-payout costs of providing insurance were high enough, the vertical intercept of both the MC and AC curves in Figure 2 could literally be above that of demand. The maximum amount that would willingly be paid by the person who valued this form of insurance the most would not cover the cost of providing that first policy and there would be no market. This would be one of the "missing insurance markets" complained of by Arrow (1959, 1963). There is, however, no market failure. It is simply too costly to provide this service, just like many other goods and services that, at any given time, it is technically - but not economically - feasible to supply. All risk aversion would go uncovered, but since expected costs exceed willingness to pay for *everyone* in the pool, no government intervention would be efficient (there is no area CDE, only a huge EGH).

Now, to see if we can imagine an insurance market having firms with invested capital and employees but with only payout costs, as the pure adverse selection model presumes, go to the other extreme: assume that capital and labor are free goods, so that there are no costs of providing them in this insurance market (or in any other). For capital assets to be free goods, such that investors can satiate on the amounts they wish to employ at unit prices (capital values) of zero, would require that the labor and other inputs used to make capital goods must also be free goods. Capital goods being free goods would certainly eliminate any amortization cost of capital replacement as a non-payout cost, and would also eliminate any opportunity cost of capital investment in the first place.

For labor services in this market to be free goods, the resources necessary to sustain employee's lives, as with those necessary for the production of capital, must also be free goods. In the limit, to eliminate even opportunity costs to employee's time, life itself must be a free good, without even entropic bodily degradation or life hazards to give it bounds. Absent ageing and life hazards, however, there would be no demand for insurance. Thus, analytically abolishing non-payout costs by assuming labor and capital to be free goods, as necessary to maintain an assumption of a market with firms having invested capital and employees but without non-payout costs, logically also implies the nonexistence of payout costs. The pure adverse selection model is internally inconsistent. It does not describe a possible insurance market. Only in cases with non-payout costs (loads) between those two extremes (loads of zero and loads so high as to abolish the market), such as in figure 2, would a market exist where the issue could arise as to whether intervention would be cost effective.

Before ruling out the canonical case entirely as applicable for serious policy analysis of real world insurance markets, however, one must clearly understand its function. Assuming away non-payout costs, while allowing asymmetric information, adverse selection, etc., isolates the effect of demand on the shape of the MC and AC curves. If (significant) non-payout costs were included, and insurance firms were assumed to make short-run variable input adjustments like other firms, as they surely do, diminishing returns would generate normal U-shaped MC and AC curves. The resulting insurance market equilibria would appear to be efficient, making it difficult to see and illustrate the welfare losses adverse selection can generate. That is also why, when non-payout costs *are* modeled in, they are modeled as fixed costs. Obfuscating diminishing returns effects on the shapes of the MC and AC curves are excluded *by assumption*.

Still, as Figure 2 makes clear, it is harder to justify intervention when loads are modeled in, even when modeled as fixed costs, and there are good reasons (other than its inconsistency) for excluding the canonical case. The existence of insurance firms with scarce invested capital and employees is readily observable even by non-economists. Einav and Finkelstein (2011, p. 122, note 4) admit this, saying "[S]till, it seems a reasonable assumption that it is not costless to run an insurance company."

It is a mark of a good scientist to be willing to adjust one's theoretical priors when evidence to the contrary accumulates, and in part, Einav and Finkelstein may feel compelled to this admission by their reading of the empirical data. They list studies by several authors, including two in which Finkelstein herself was a coauthor, finding nontrivial loads in the markets for long-term care insurance (Brown and Finkelstein 2007), health insurance (Newhouse 2002), auto insurance (Chiappori, Jullian, Salanie, and Salanie 2006), and annuities (Friedman and Warshasky 1990; Mitchel, Poterba, Warshasky, and Brown, 1999; Finkelstein and Poterba 2002). It is worth noting that Einav and Finkelstein cite *no* study of *any* insurance market in which loads were found to be either absent or insignificant.

It seems highly unlikely that such an insurance market could be found. Insurance office managers to whom this author has talked, mostly in the auto and home insurance lines, say that payouts are indeed a large fraction of costs, at about 65%. Expenses, however, are around 30% of costs, and a target rate of return (opportunity cost of capital) of 5% accounts for the rest. In support of these casual estimates, consider the report by de Meza and Webb (2001, p. 250) that expenses as a percentage of premium income for U.K. companies averaged 25% for auto insurance and 37% for property damage insurance. Variable costs of such magnitudes are unambiguously *not* trivial.

ADVANTAGEOUS SELECTION

The second departure from the textbook case that Einav and Finkelstein (2011, pp. 124-126) consider is that of *advantageous* selection first proposed as a possibility by Hemenway (1990). The idea here is simply to relax the homogenous risk aversion assumption to allow human diversity in both expected costs from an insurable hazard and in personal risk aversion. With such preference variation, one major possibility is that risk aversion could be *inversely* correlated with expected costs across the population, so that persons with higher expected costs have lower risk aversion, and those with progressively lower expected costs have progressively higher risk

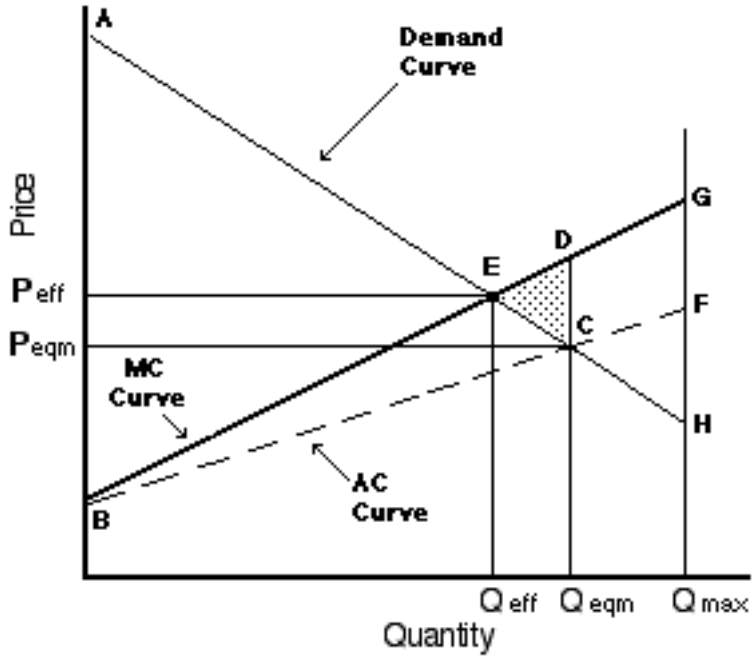
aversion. Indeed, the behavioral connection seems clear: many persons may engage in more risky behavior (driving fast, climbing cliffs, skydiving, etc.) precisely *because* they have low risk aversion, and many people with high risk aversion may therefore take actions to reduce life hazards (driving carefully, avoiding the use of of alcohol, tobacco and drugs, etc.).

Three admittedly casual observations motivated Hemenway (1990) to consider advantageous selection as a phenomenon that might offset or even overpower tendencies toward adverse selection in various insurance markets. For one, he noted that motorcyclists, who face much more risk and are younger on average than automobile drivers, relatively seldom purchase medical insurance, and often resist wearing helmets. Adverse selection theory implies that they should be eager to insure. Second, the American Automobile Association accepts new members at a flat fee. By adverse selection theory this insurance against being stranded should be eagerly sought by younger people with lower incomes owning clunkers. Instead, most AAA members are richer, older, risk avoiders with high-quality, well-maintained vehicles. Last, Hemenway cited data indicating that less safe drivers were among the least likely to wear seat belts, also contrary to the prediction of adverse selection theory.

The graphics of advantageous selection are shown in Figure 3 replicating Einav and Finkelstein's (2011, p. 125) Figure 4. If variation of risk aversion is large enough - and in other work (Cohen and Einav 2007) it was found to be very large - then willingness to pay for a homogenous policy may vary *inversely* with the expected costs of individuals. As price falls and coverage is extended, progressively *higher* expected cost (and *less* risk-averse) persons would be priced in. Marginal and average cost would *rise* to the right, with MC uniformly rising above AC. In the absence of insurance loads, this would result in no market inefficiency. For the very last individual priced into the market at Qmax, positive risk aversion, however small, insures that willingness to pay, as shown in demand, exceeds the marginal expected cost. That keeps the intersection of demand with the vertical Qmax line above those of both MC and AC. Everyone will end up being willingly covered, and because it is socially efficient to cover everyone whose willingness to pay is greater than their expected cost, Qmax = Qeff = Qeqm.

Since this pure case of advantageous selection results in no market inefficiency, Einav and Finkelstein are quick to add an insurance load. This shifts the MC and AC curves up so that they both intersect demand at coverage levels below Qmax, with MC doing so at the efficient coverage level Qeff, and AC doing so at Qeqm. Industry output Qeff, where price peff equals marginal cost at coordinate **E**, is the efficient industry coverage level because up to that point willingness to pay for each marginal policy buyer exceeds the cost they expect to incur from the insured hazard. For coverage levels extending beyond Qeff, however, each additional insurance purchaser has an expected cost that exceeds their willingness to pay by a larger amount than the previous one. That is, MC is rising above demand.

Figure 3
Advantageous Selection



Since AC < peff at Qeff, however, economic profits exist at that coverage level that will attract entry of additional firms, causing price to fall until the long-run equilibrium is established at coverage level Qeqm and price peqm (at coordinate **C**). By this logic there would appear to be a market failure in the form of *excess* coverage equal to the difference Qeqm - Qeff, generating a social welfare loss given by the shaded triangle EDC.

Einav and Finkelstein (2011 p. 126) remark that a tax (apparently an excise) on insurance policies could be welfare enhancing, but also note that, though some insurance policies have been taxed, advantageous selection has not to their knowledge been invoked in public policy discourse as a rationale for intervention. They are satisfied, however, that modification of the original adverse selection argument by recognition of the possibility of advantageous selection still leads to market failure providing a rationale for compulsory government intervention.

EMPIRICS OF INSURANCE MARKET SELECTION

The theory of adverse selection in insurance markets was a 1970s outgrowth of an earlier literature on the economics of asymetric information. Einav and Finkelstein restrict their discussion of the empirical literature on insurance market selection to studies performed over the most recent decade (since the year 2000), perhaps for brevity. It is true that, after the initial theoretical work on adverse selection was done, there was a significant lag before serious empirical testing began. Such testing may have been motivated by the major influence the theory had already begun to have on legislators, regulators, and the courts. There was some important empirical work done before 2000, however, and two of these early studies are worth at least brief mention. A little background will help.

It was Akerlof (1970) who seems to have first coined the phrase "adverse selection" in developing his famous 'lemons' model, designed to explain problems he perceived in markets where demanders (say for credit or insurance), suppliers (say of labor services) or products supplied (such as used cars) varied in quality about which they or their owners had private knowledge not available to persons on the other side of the market. In his primary example, Akerlof assumed that only the sellers of used cars knew whether their vehicles were high quality or lemons. The buyers couldn't know, hence used cars of the same model and vintage offered for sale all sold at the same 'average' price reflecting their perceived average quality.

The market failure here, in Akerlof's view, was that prospective sellers of high quality used cars could not obtain a premium for their vehicles, and trying to sell one, by raising the average quality, thus conferred an external benefit on the sellers of lemons. Consequently, high quality used cars would not be offered, but instead would be retained until they became lemons, and only lemons would sell. High quality cars were selected out of the used car market and low quality cars selected in. The application of this logic to insurance and other markets where the same conditions - quality variation and asymmetric information - arguably existed was obvious. Thus with adverse selection only the worse risks get insured, premiums are high because of the high costs those persons inflict on providers, and people who are good risks have difficulty buying insurance.[2]

In retrospect, perhaps, some weaknesses of Akerlof's argument, or its applications, seem obvious. Some characteristics of 'lemon' used cars are observable to prospective buyers. Broken rings cause blue exhaust smoke, old spark plugs or timing problems cause engines to run rough, bad brakes have difficulty stopping the car, etc. Even many less observable problems can be discovered, often at relatively low cost. This author was old enough to be intermittently buying used cars in the 1970s, and I never found either a professional dealer or a private seller who was unwilling to allow their vehicle to be taken to an independent automotive shop where basic checks on major systems could be purchased cheaply.

Akerlof greatly exaggerated the asymmetry of information between buyers and sellers of used cars, and in other markets he discussed. Thus, it is not surprising that when Bond (1992) compared the maintenance costs of pickup trucks that had been purchased new with similar trucks purchased used, controlling for age and mileage, he found no statistical difference. Likewise when Genesove (1993) studied the wholesale used car market, he found little evidence of adverse selection, and then only for older vehicles. Very recently, such evidence was reinforced in a study by Lewis (2011) of on-line auto sales through eBay motors, finding that disclosures and

[2] Demsetz (1969, 2008) has persuasively argued that by merely limiting transactions, and thus the size of the market, such conditions as here described do not constitute market failures if the costs of acquiring the needed information or internalizing the externalities exceed the benefits of doing so. Indeed, under such conditions, as he argues, an efficient allocation of resources *requires* that the informational asymmetry and/or externalities *not* be eliminated. Brown and Finkelstein (2006), making exactly such claims of failure in the market for long-term convalescent care, repeatedly fail to grasp this point.

enforceable contracts mitigate adverse selection. More generally, the theoretical claim that bad products drive good products from the market contrasts starkly with the huge and steady improvement in product quality (displacing *lower* quality products in the process) at lower real unit cost that has always characterized market economies.

Einav and Finkelstein (2011) briefly report and critique the empirical studies into insurance market selection over the most recent decade, with a particular focus on methods employed. This literature began with efforts to figure out how adverse selection would show up in the data and then see whether the data looked as predicted. Testing for adverse selection would essentially involve finding whether or not marginal costs are downward sloping in various insurance markets. Since marginal costs are difficult to measure directly, empirical analysts made comparisons between the average expected costs of insured versus uninsured individuals, or between insured persons with varying degrees of coverage. The idea was that finding insured individuals to have higher costs than the uninsured, or that costs were higher for individuals with more insurance, would indicate adverse selection. This became known as the positive correlation test.

As Einav and Finkelstein (2011 p. 128-129) report, two problems emerged as studies were undertaken. First, the results were mixed rather than uniform. Certain researchers found evidence of positive correlation supporting adverse selection in the markets for annuities (Finkelstein and Poterba 2006), crop insurance (Just, Calvin, and Quiggin 1999; Makki and Somwaru 2001), and health insurance (Cutler and Reber 1998). However other researchers found evidence of *negative* correlation indicating *advantageous* selection in the markets for life insurance (Cawley and Philipson 1999), Medigap coverage (Fang, Kean, and Silverman 2008), and long-term convalescent care (Finkelstein and McGarry 2006). In many other markets researchers were unable to reject the null hypothesis of no correlation, and in some the results were mixed, with different studies reaching different conclusions (Health, reverse mortgages, auto insurance).

Akerlof (1970) seems not to be the only analyst in this literature who has overstated the extent of asymetric information. If anything, *strong evidence for asymetric information and adverse selection exists for only a minority of insurance markets and contracts* (Siegelman 2004). When Cawley and Philipson (1999) studied the life insurance market, which is by far the largest insurance market of all, with premia constituting 3.6% of GDP, they found that lower (rather than higher) risk individuals had more coverage, firms gave bulk discounts, and prices declined (rather than rising) with coverage. All of these outcomes were the opposite of the predictions of adverse selection theory by Rothschild and Stiglitz (1976).

The second problem with the modern empirical literature emerged when it was realized that positive correlation between coverage and expected cost, or between expected costs of insured versus uninsured persons, was not necessarily proof of adverse selection anyway, because of changes in behavior generated by insurance itself. That is, the propensity of people for engaging in more of a risky behavior because being insured against it lowers the cost of doing so, known as 'moral hazard,' would also generate such a positive correlation. Nothing in the positive correlation test itself separates out the two phenomena (Cohen and Siegelman 2010, p. 71). Both of these empirical findings seem to have rather severely confused and weakened the adverse selection case for insurance market failure and government intervention.

After summarizing this literature, Einav and Finkelstein engage in an involved theoretical discussion of the sets of covariates researchers should control for in applying positive correlation tests, the size of the set of covariates to control for, and the problems of measuring the expected costs (or proxies for such costs) to be used for comparison, etc. Perhaps symptomatically, their entire technical discussion of empirical methods of identifying selection and measuring expected costs it is only the payout costs that are under discussion. It is as if, once again, those were the only costs relevant to the decision making of the firms, the existence of market failure, and the justification of compulsory government intervention.

As argued above, such pure adverse selection cases almost certainly cannot exist, and markets even approximating those conditions would certainly be few among real world insurance markets if they could be found at all. Yet even if such markets could be found, the issue of market failure and justification of regulation turns out to be much more problematic than adherents of that model have assumed, as I will now show.

THE COSTS OF GOVERNMENT ACTION

Graphs are wonderful visual tools, but they show some things and not others. Worse, some of the things they are made to show may be wrong. The canonical textbook model, in which falling MC and AC due to adverse selection, private information on costs, claim payouts as the only costs, etc. generate an inefficient equilibrium and welfare loss, makes the strongest case for insurance market intervention. Let us accept all this, ignoring my

argument above attributing internal inconsistency to that model. Even under these conditions, the assertion of its advocates that the welfare loss resulting from incomplete coverage provides unambiguous justification for compulsory government intervention is unjustified because it ignores the costs of government action itself.

No significant policy action is costless. Acemoglue and Verdier (2000, p. 195) have perceptively noted that the opportunity cost of government intervention is the withdrawal of agents from the productive sector. More precisely than they put it, an increment of population and other scarce resources must be drawn from the private economy by offer of prices and wages that are at least competitive, to be financed by taxation of the remaining private sector parties. Those resources are then employed by the government in implementation and enforcement of the policy. *The private sector output those people and resources would otherwise have generated is lost*. It is *not* justifiably to be presumed *a priori* as Einav, Finkelstein, and virtually all other insurance market failure theorists do, that these costs are nonexistent, trivial, or even *small*.[3] Indeed, such resource and other costs of policy action could very well exceed any gains in terms of risk premia recovered by intervention.

Consider an effort to eliminate the deadweight loss trapezoid DCEF in Figure 1 by a government subsidy somehow targeted just to those persons that would otherwise go uninsured due to unwillingness to pay. Even if that could be accomplished, *ceteris paribus*, the subsidy must be financed, and as we all know, taxation imposes its own deadweight losses. That these losses would exceed the gains from the subsidy seems highly likely given that *the tax revenue required would have to exceed the value of the subsidy by the amount necessary to cover the resource costs of the bureaucracy administering the transfer*. Moreover, there are additional costs to citizens of *paying* taxes (such as time costs of calculating and filing, use of private business resources for tax withholding, citizen and government costs of tax litigation, imprisonment of tax avoiders, et al.) that are *not* small, which must also be counted (Payne, 1993). Doing so would make such a policy an even larger negative-sum game.[4]

Now consider a policy employing a government mandate that everyone buy insurance of a particular type sold in a market in which both adverse selection and the existence of uninsured persons have been observed (Figure 1). One can imagine the mandate consisting of a simple public pronouncement with which all members of a compliant citizenry immediately conform. Strangely, something like this impossibly utopian event seems to be what Einav, Finkelstein, and other insurance market failure analysts imagine when they assert that such a policy would be unambiguously welfare enhancing. Just as with the subsidy policy option, however, people and other real resources would have to be employed by the government to enforce such a mandate, and their actions would have to be financed by taxes levied on private sector parties. It is not obvious that those costs would be smaller than the potential welfare gains for whatever fraction of the uninsured that actually chose to comply.[5]

There simply is no unambiguous case for an insurance mandate, even in those hypothetical markets where all the assumptions of the pure adverse selection model seemed to hold. Worse, in the few cases that really might hold in real world insurance markets, with adverse selection and significant non-payout costs (Figure 2), any justification for intervention is much harder and less likely than that claimed for the pure adverse selection case. Estimates of the value of the deadweight loss to be recovered (area CED) would have to exceed the estimated value of the inefficiency generated by such a policy (area EGH) *plus* the estimated bureaucratic resource costs of formulating, implementing and enforcing the proposed policy *plus* the costs to citizens of paying the taxes necessary to finance those operations.

[3] A recent study (Congressional Budget Office 2012) reports that the federal government actually offers more than competitive compensation. Total compensation of federal workers with high-school degrees or less exceeds their private sector equivalents by 36 percent. Those with bachelor's degrees earn a 15 percent premium, while workers with graduate degrees actually earn 18 percent higher total compensation in the private sector. Overall, however the federal pay premium averages 16 percent according to the CB0 report. This government pay premium raises the cost of intervention.

[4] de Meza and Web (2001), analyzing the advantageous selection case (Figure 3) devise an ingenious Paratean scheme for imposing a tax of a certain magnitude on every policy sold, the proceeds from which are redistributed as a lump-sum subsidy to the whole population. The result is that the excess coverage is not only eliminated, but *everyone* is better off. For all this ingenuity, never once does it cross their minds to ask whether someone must collect the tax revenue, or who administers the subsidy, or what other scarce resources, with alternate uses in production, must be employed in those processes, much less whether there might be *additional* costs imposed on those paying the tax.

[5] In Montana, where this author lives, noncompliance with the mandate that all drivers carry auto insurance is about 18 percent by current estimates, and in some counties as many as a quarter of drivers are uninsured. In my adult lifetime I have personally had two of my vehicles hit by uninsured drivers. If, as I suspect, upon close inspection those drivers cause accidents with inordinate frequency, that fact would constitute strong evidence against the adverse selection model.

It is also worth noting that much of the pattern of actual government intervention into insurance markets that has developed in the US should not be encouraging to the practitioners in the welfare economics adverse selection literature. Cohen and Siegelman (2010, p. 42) note, for example, that based on adverse selection claims, insurance firms have often been granted the right to engage in practices that would otherwise be illegal under the antitrust laws. The anticompetitive effect of state laws – of which there are many - forbidding state citizens from purchasing insurance from out-of-state firms is well known. Worse, concentration and restricted competition in insurance markets is then itself often cited as justification for further government intervention.

Likewise, state community rating laws forcing firms to accept all applicants for health insurance and to charge them all the same price, are widely understood as actually *stimulating* adverse selection, *raising* price and *reducing* the number of people covered. Herring and Pauly (2006) say these effects are relatively small, but only because pooling is naturally large in health insurance markets even in the absence of such laws. In another example, Brown and Finkelstein (2006) note that Medicade, by offering an imperfect but free substitute, crowds many people out of the private long-term convalescent care market, helping account for its small size.

Examples of such pathological government interventions could be multiplied (Siegelman 2004 discusses many), but perhaps one more will suffice here. Franklin Roosevelt instituted national unemployment insurance (UI) in 1935 as part of the Social Security Act. A prior lack of private UI has been cited repeatedly as constituting a huge market failure that had to be rectified governmentally. Yet Rappaport (1992) has shown that many such insurance plans, run by unions and employers, actually existed before 1935, and they were covering more people over time in a pattern of growth typical of new insurance products. However unions and employers lacked the expertise of insurance companies, and specialized corporate UI provision did not exist, though for a good reason.

Haley Fiske, the President of Metropolitan Life, tried to introduce private UI in the state of New York nearly twenty years prior to the Social Security Act, but could not. Selling UI was forbidden by state law. Indeed, many other states also had laws forbidding or severely limiting provision of private UI (Rappaport 1992, pp. 69-70). When Fiske finally managed to persuade the New York legislature to change the law in 1931 the state governor vetoed the bill. And who was that New York governor who squashed the private UI market, allowing a case to be made for federal UI on the claim that the private market had failed to provide it? It was Franklin Roosevelt.

CONCLUSIONS

The theory of asymmetric information and adverse selection in its pure form makes the strongest available case for insurance market failure requiring coercive government intervention. Few economic arguments in modern times have had more influence on policy makers than this one. That model, however, is internally inconsistent: it literally does not describe a market that could exist. Assuming that 'firms' exist but have no costs other than payouts implicitly denies the very conditions under which demand for insurance would exist. Worse, even if we try to imagine firms without invested capital (hence without opportunity costs of capital) and without employees (hence without opportunity costs of their work time), it is also necessary to assume that government intervention itself involves no use of scarce resources. Only then can one reach the standard conclusion among such analysts, when they observe uninsured persons in a market subject to adverse selection, that corrective government intervention would be unambiguously welfare enhancing without any further need of weighing the costs against the benefits of such action.

Since insurance firms do exist, employing scarce labor and capital, and many people are in fact privately insured, the only case of insurance market failure due to adverse selection that might actually apply in the real world is that in which significant insurance loads exist. As Einav and Finkelstein themselves show with their simple graphics, that case is one in which coercive intervention is more difficult to justify. Recognizing the resource and other costs of government intervention makes its justification in such cases much, much harder yet. It also increases the hurdle for intervention under conditions of *advantageous* selection (see note 4). Add in the results of modern empirical investigation, which are *not* widely supportive of the existence of pervasive adverse selection, along with the observably harmful effects of many - if not most - existing interventions, and the case for welfare gains through coercive government intervention in insurance markets on grounds of asymmetric information and selection appears to be rapidly diminishing.

Research going forward should focus on serious specification and measurement of *all* of the costs incurred by actual firms in various lines of insurance, and on careful estimations of both the costs and benefits of insurance market interventions including *all* of the costs of government action. The *pseudo* cost-benefit comparisons engaged in by the welfare analysts of adverse selection in insurance markets must be transcended and displaced

by serious cost-benefit comparisons. Indeed, such tests should be a requirement of *any* contemplated government intervention.

It is a matter of some significance that attempts by several U. S. presidents to require cost-benefit testing by regulatory agencies before they can impose their policies have failed due to resistance from both members of congress and from the regulators themselves (Edwards 1998, pp. 180-182). Whether it is congress, a state legislature, or a regulatory agency considering a policy intervention, this reluctance to engage in serious cost-benefit estimates must cease if we wish to avoid the frequent policy mistakes of the past. Economists will have to bring much of the pressure for this to happen, but first they must themselves come to a clearer and more comprehensive grasp of the costs incurred and imposed by compulsory government policy actions.

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