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New Technology - Old Law: Autonomous Vehicles and California's Insurance Framework

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NEW TECHNOLOGY—OLD LAW: AUTONOMOUS VEHICLES AND CALIFORNIA'S INSURANCE FRAMEWORK

Robert W. Peterson*

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INTRODUCTION

Insurance law and tort law are fraternal twins. Though not identical, they reflect one another. They may even finish one another's sentences.

Regardless of the bells and whistles on an automobile, there will be accidents. So long as automobiles have drivers responsible for controlling the wheel, the insurance scheme may look much as it does at present. When the bells and whistles do not sound as they should, however, an increasing amount of liability for injuries is likely to bypass drivers and alight on the sellers and manufacturers of the vehicle.[1]

Apart from other social benefits, there is every reason to assume that autonomous vehicles (AVs) will be safer than current automobiles. Among other features, they will enjoy a 360-degree field of vision, they will have a faster reaction time, and they will not fall asleep.[2] Assuming they are safer, in an efficient market the overall cost of insuring AVs should decrease. To the extent the insurance burden is ultimately shouldered by those other than the driver,[3] it will be added to the cost of the car. Although lower, the owner will still bear the cost of the premium.[4] The lower direct and indirect insurance cost should, therefore, benefit consumers. It also should be more efficient for the manufacturer to purchase one policy covering 10,000 automobiles than for drivers to purchase 10,000 policies, each covering only one automobile.

If we contemplate the futuristic world of the totally autonomous vehicle—one in which the driver is simply a passenger free to read, text,[5] or even sleep—the dynamics of

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1. *See* Barker v. Lull Eng'g Co., 20 Cal. 3d 413, 417 (1978); Soule v. Gen. Motors Corp., 8 Cal. 4th 548, 559 (1994).

2. *See* HANS-JOACHIM WUENSCHE ET AL., RESARCH FOR THE INSTITUTE FOR AUTONOMOUS SYSTEMS TECHNOLOGY, *available at* http://www.elrob.org/fileadmin/catalogue/9.pdf.

3. Although the car may "drive" itself, this Article will use "driver" as shorthand for driver/owner/operator/passenger in charge.

4. Since auto insurance is mandatory in California, the premium is a cost of owning a car. *See* CAL. VEH. CODE § 16020 (West 2007). Although products liability insurance is not mandatory, manufacturers and suppliers will also pass their insurance costs through to purchasers.

5. Nevada recently amended its vehicle code to permit texting while in a self-driving vehicle. Senate Bill 104 amended Nevada Revised Statutes section 484B.165 to read:

> For the purposes of this section [prohibiting texting and mobile phone use while operating a motor vehicle], a person shall be deemed not to be operating a motor vehicle if the motor vehicle is driven autonomously through the use of artificial-intelligence software and the autonomous operation of the motor vehicle is authorized by law.

NEV. REV. STAT. § 484B.165.

insuring a car may change considerably.[6] If a driver is merely a passenger, and if the driver's responsibility is to remain fault-based, then what purpose would a typical automobile liability policy serve?[7] What relevance remains for auto insurance? This Article will address this issue and propose ways in which auto insurance might change to accommodate the use of AVs. Part I briefly reviews the background of insurance regulation nationally and in California. Part II discusses general insurance and liability issues related to AVs. Part III discusses some challenges that insurers and regulators may face when setting rates for AVs, both generally and under California's more idiosyncratic regulatory structure. Part IV discusses challenges faced by California insurers who may want to reduce rates in a timely way when technological improvements rapidly reduce risk.

I. CURRENT INSURANCE REGULATION

In 1945 Congress enacted the McCarran-Ferguson Act.[8] This Act largely ceded regulation of insurance to the states.[9] With rare exception, regulation of insurance has remained in the states.[10] The year following the enactment of the McCarran-Ferguson Act, the National Association of Insurance Commissioners (NAIC) surveyed existing state laws and proposed its model rating bills.[11] These included the

6. Popular culture has imagined autonomous cars for years, from Woody Allen's 1973 movie "Sleeper," to Stephen King's 1986 movie "Maximum Overdrive," where cars come to life and reign terror over a small town, to the popular animated children's movies *Cars* and *Cars 2*. SLEEPER (Universal Artist 1973); MAXIMUM OVERDRIVE (De Laurentiis Entertainment Group 1986); CARS (Walt Disney Pictures 2006); CARS 2 (Walt Disney Pictures 2011).

7. Celent, a research group, published a study suggesting the possible demise of liability insurance. Donald Light, *A Scenario: The End of Auto Insurance*, CELENT (May 8, 2012), http://www.celent.com/reports/scenario-end-auto-insurance (includes an Abstract and projected time line).

Of course, there will still be a need for collision, comprehensive, medical pay, and perhaps underinsured motorist—although recovery under underinsured motorist coverage requires proof of liability on the part of the underinsured motorist. *See* CAL. INS. CODE § 11580.2 (West 2006).

8. *See* McCarran-Ferguson Act, 15 U.S.C. §§ 1011–1015 (2011).

9. *See* 15 U.S.C. § 1012.

10. ERISA and the Patient Protection and Affordable Care Act are exceptions. *See* Pilot Life Ins. Co. v. Dedeaux, 481 U.S. 41, 47–49 (1987).

11. Michael J. Miller, *Disparate Impact and Unfair Discriminatory Insurance Rates*, CASUALTY ACTUARIAL SOC'Y E-FORUM, Winter 2009, at 276, 279, http://www.casact.org/pubs/forum/09wforum/miller.pdf.

provisions, now virtually standard in all states, that rates not be excessive, inadequate, or unfairly discriminatory.[12] Rates could be modified for individual risks only if based on "variations in hazards or expense provision, or both."[13] California adopted the restriction on unfairly discriminatory rates in the 1947 McBride-Grunsky Act, and the restriction that rates may not be "excessive, inadequate, or unfairly discriminatory" was carried forward into Proposition 103.[14]

Virtually all insurance regulators include an assurance within their brief that insurance companies remain solvent and pay their claims. This is reflected by the word "inadequate" in the phrase "excessive, inadequate or unfairly discriminatory."[15] A second goal, consumer protection, will be reflected in statutes and regulations directed at, for example, claims and marketing practices. Depending on how market oriented the state may be, consumer protection is also reflected by the fact that states regulate rates with the purpose to keep them as low as practical. States differ greatly with respect to their approach to accomplishing this latter goal.[16]

Focusing on automobile insurance, most states divide into three broad categories of regulation: prior approval, file-and-use, and use-and-file. File-and-use or use-and-file states rely primarily on competition to determine insurance rates.[17] Insurers may simply file their rates with their Insurance Commissioner and use them (sometimes after a fairly short waiting period), or use them immediately as long as they file the rates within a specified period of time.[18] Although commissioners in these states have broad oversight and can disapprove a rate based on inadequacy, excessiveness, or unfair discrimination, they tend primarily to rely on the

12. *Id.* at 280.

13. *Id.*

14. *See* MacKay v. Superior Court, 188 Cal. App. 4th 1427, 1445 (Ct. App. 2010); CAL. INS. CODE § 1861.05(a) (West 2011).

15. *Id.* § 1861.05(a).

16. *See* Vanessa Wells, *Ships Passing in the Night: How California's Statutory Framework Directs Traffic Through the Maze of Jurisdictional Doctrines Concerning Insurance Rates*, 44 U.S.F. L. REV. 853 (2010).

17. J. ROBERT HUNTER, CONSUMER FEDERATION OF AMERICA, STATE AUTOMOBILE INSURANCE REGULATION: A NATIONAL QUALITY ASSESSMENT AND IN-DEPTH REVIEW OF CALIFORNIA'S UNIQUELY EFFECTIVE REGULATORY SYSTEM 2–3 (2008), *available at* http://www.consumerfed.org.

18. *Id.*

marketplace to regulate rates.[19]

There is a substantial amount of data about automobile loss experiences on which insurers and regulators base their rates. All automobile owners are familiar with the practice of adjusting auto rates up or down based on various factors relevant to risk. Common factors relevant to risk include driving record, miles driven, years licensed, education, marital status, gender, location, type of car, years of coverage by the company, academics, number of cars and drivers, etc.[20]

When working within the context of a file-and-use or use-and-file environment, AVs will present only modest challenges to an insurer that wants to write these policies. The main challenge will arise from the fact that the policy must be rated for a new technology that may have an inadequate base of experience for an actuary to estimate future losses.[21]

"Prior approval" states, like California, require that automobile rates be approved prior to their use in the marketplace.[22] These states rely more on regulation than on competition to modulate insurance rates.[23] In California, automobile insurance rates are approved in a two-step process. The first step is the creation of a "rate plan."[24] The rate plan considers the insurer's entire book of business in the relative line of insurance and asks the question: How much total premium must the insurer collect in order to cover the projected risks, overhead and permitted profit for that line?[25] The insurer then creates a "class plan." The class plan asks the question: How should different policyholders' premiums be adjusted up or down based on the risks presented by different groups or classes of policyholders?[26]

19. *See id.*

20. *See* Spanish Speaking Citizens' Found. v. Low, 85 Cal. App. 4th 1179, 1187 (Ct. App. 2000); HUNTER, *supra* note 17, at 36–39.

21. *See* Rodney Griffin, *New Technologies Rapidly Changing Auto Insurance Business*, PROPERTY CASUALTY 360° (Feb. 10, 2011), http://www.propertycasualty360.com/2011/02/10/new-technologies-rapidly-changing-auto-insurance-b.

22. Wells, *supra* note 16, at 853.

23. *See* HUNTER, *supra* note 17.

24. *See* MacKay v. Superior Court, 188 Cal. App. 4th 1427, 1431 (Ct. App. 2010).

25. *See id.* at 1436.

26. *See* Spanish Speaking Citizens' Found. v. Low, 85 Cal. App. 4th 1179, 1201 (Ct. App. 2000).

Among other factors, the Department of Insurance requires that the rating factors comply with California law and be justified by the loss experience for the group.[27]

Rating a new technology with an unproven track record may include a considerable amount of guesswork. Of course, those marketing AVs will have subjected the vehicles to rigorous testing in an environment, one may assume, congruent with those the auto is likely to encounter. These test results, if shared with insurance companies, would give some basis for rating the automobile. Nevertheless, insurers may over or underestimate the frequency and severity of future accidents. The rate may be excessive, or it may be inadequate. Since one might expect that there will be few AVs initially, an inadequate rate may not implicate serious solvency issues for an insurer that has a large book of traditional automobile insurance. A rate that turns out to be excessive may be "unfairly discriminatory," but the practicalities of making a more accurate estimate based on little or no experience would likely prove a defense to any discrimination claim.

A. Some Insurance Issues Unique to California

California is the largest insurance market in the United States, and it is the sixth largest among the countries of the world.[28] Cars are culture in this most populous state. There are far more insured automobiles in California than any other state.[29] The California Department of Insurance employs between 1200 and 1300 employees, including over eighty lawyers.[30] It works with a budget of approximately $150 million.[31]

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27. *See id.* at 1201–04.

28. *Analysis of 2006–07 Budget Bill*, LEGISLATIVE ANALYST'S OFFICE, http://www.lao.ca.gov/analysis_2006/general_govt/gen_05_0845_anl06.html (last visited Apr. 23, 2012).

29. *Auto Insurance*, INSURANCE INFORMATION INSTITUTE, http://www.iii.org/media/facts/statsbyissue/auto/ (last visited Apr. 23, 2012).

30. *Center for Insurance Law and Regulation*, SANTA CLARA LAW, http://law.scu.edu/insurancelaw/ (last visited Apr. 23, 2012).

31. Marc Lifsher, *California Insurance Commissioner to Gain More Power from Federal Healthcare Law*, L.A. TIMES (Oct. 14, 2010), http://articles.latimes.com/2010/oct/14/business/la-fi-insurance-commissioner-20101014.

Automobile insurance in California is governed by Proposition 103, adopted by the voters in 1988.[32] Proposition 103 has a history which may be instructive in understanding some of the challenges to implementing AV coverage in California.

1. *Political History of Proposition 103*

The historian Edward Gibbon often noted that the fate of nations frequently turned on the "chance of arms."[33] The phrase reflects that battles often have unpredictable outcomes. One may think of Proposition 103 as the last soldier still standing after the "Tort Wars" of the late 1980's.[34]

In a 1986 skirmish, insurance and defense interests were successful in persuading voters to adopt Proposition 51.[35] Proposition 51 limited defendants' responsibility for non-economic harm to each defendant's share of relative fault.[36] This victory emboldened the defense side and galvanized the opposition of those representing claimants' interests.[37] Each drew its battle lines with proposed legislation and further propositions.

Representatives of some of the warring parties agreed to *parle* at Frank Fat's restaurant in Sacramento. With then Speaker of the House, Willie Brown, shuttling among the belligerents' tables, the parties outlined a treaty on a Napkin.[38] This has become known as the "Napkin Deal," and

32. MacKay v. Superior Court, 188 Cal. App. 4th 1427, 1440 (Ct. App. 2010). The sections of Proposition 103 are found in CAL. INS. CODE §§ 1861.01–1861.14 (West 2011).

33. EDWARD GIBBON, THE HISTORY OF THE DECLINE AND FALL OF THE ROMAN EMPIRE 399 (1831).

34. *See* Wells, *supra* note 16; Stephen D. Sugarman, *California's Insurance Regulation Revolution: The First Two Years of Proposition 103*, 27 SAN DIEGO L. REV. 683, 683–86 (2010); *Regulation Modernization*, INS. INFO. INST., http://www.iii.org/issue_updates/Regulation-Modernization.html (last visited Apr. 23, 2012). Every decade seems to have its "Tort Wars." *See, e.g.*, Dan Walters, *Tort Wars Are Being Revived*, MOSCOW-PULLMAN DAILY NEWS, Dec. 13, 1996, at 8B, *available at* http://news.google.com/newspapers?nid=2026&dat=19961213&id=T1996121BAJ&sj8qAAAAIBAJ&sjid=i9AFAAAAIBAJ&pg=4443,1187484. The battles of the 1980's, however, are most relevant to the insurance issues presented by AVs.

35. *See* Evangelatos v. Superior Court, 44 Cal. 3d 1188, 1192 (1988).

36. *See id.*; CAL. CIV. CODE § 1431.2 (West 2011).

37. *See* Sugarman, *supra* note 34.

38. *See* Rodney R. Moy, *Tobacco Companies, Immune No More—California's Removal of the Legal Barriers Preventing Plaintiffs from Recovering for*

a copy occupies a place of honor in the lobby of Frank Fat's.[39] It was too much to hope for "piece in our time," but the belligerents did agree to some modest legislative reforms and a five-year armistice in which they would cease seeking tort reform in either the legislature or by initiative.[40] The agreement included a disarmament provision in which the parties entered into contracts with the main petition signature gathering businesses in California in order to make it difficult for them to work for either side during the armistice.[41]

The legislative portion of the Napkin Deal passed through the committees of both houses, was adopted by both houses, and was signed by the Governor within three days of the famous meal at Frank Fat's.[42] This seemed like unseemly haste to many stakeholders who believed they had been either left out of the negotiations or had been poorly represented in the process.[43] Consequently, an insurgency formed among those who did not accept that they were bound by the Napkin Deal.[44]

Thus, in 1988 the parties again cast their lot to the chance of arms. This year saw five ballot initiatives directed towards tort reform or insurance. Several were cunningly designed so that, if they passed and received more votes than a rival proposition that also passed, the one with the greater number of votes would supplant the rival. When the cannon thunder ceased and the smoke of battle cleared, Proposition 103 was the only proposition to pass.

Proposition 103 radically changed insurance law and regulation in California. Among other things, it changed California from a free-market state to a state in which most rates charged by insurers are set by regulation.[45] Even though Proposition 103 promised voters a 20% roll back in

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Tobacco-Related Illness, 29 MCGEORGE L. REV. 761, 770 (1998).

39. *Id.*

40. *Id.*; Richard L. Abel, *Questioning the Counter-Majoritarian Thesis: The Case of Torts*, 49 DEPAUL L. REV. 533, 543 (1999).

41. *See* JAMES RICHARDSON, WILLIE BROWN: A BIOGRAPHY 348–49 (1996).

42. *See id.*

43. *See id.* at 350–51.

44. *Id.* ("[T]he narrowness of the participation in the napkin deal brought a narrow result. Consumer groups vowed to get even.").

45. *See* 20th Century Ins. Co. v. Garamendi, 8 Cal. 4th 216, 299–300 (1994).

their rates, it nevertheless passed by a slim margin[46]—less than 51%.[47] The voters never received their anticipated 20% roll back—that portion of the Proposition was declared unconstitutional.[48] The California Supreme Court ruled that it was "confiscatory" and held that insurers are entitled to a "fair and reasonable" return on their investment.[49]

Invalidating the 20% roll back removed a major incentive for voters to support the Proposition. Despite the slim margin of victory, the Court nevertheless upheld the Proposition's severability clause and also upheld most of the Proposition's remaining provisions.[50] These changes included:

- Moving California from a state in which rates are regulated by the market place to a state in which most rates must receive prior approval (a "prior approval" state in insurance parlance).[51]
- Changing the office of Commissioner of Insurance from an appointed office to an elected office.[52]

Forbidding the charging of any rate unless the insurer files a complete rate application with the commissioner.[53]

- Mandating a "Good-Driver" discount of at least twenty percent (a discount, as explained later, that turns largely on traffic convictions and/or "principally at-fault accidents").[54]

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46. *See* CAL. INS. CODE § 1861.01 (West 2011).

47. *See Should State Regulate Health Insurance Premiums?*, CAL. HEALTHLINE (June 20, 2011), http://www.californiahealthline.org/think-tank/2011/should-state-regulate-health-insurance-premiums.aspx.

48. Calfarm Ins. Co. v. Deukmejian, 48 Cal. 3d 805, 832 (1989).

49. *Id.* at 819. Based on Article II, section 12 of the California Constitution: statutes may not identify "any private corporation to perform any function . . . ." *Id.* The court also struck down the portion of Proposition 103 that created a consumer-advocacy corporation.). CAL. INS. CODE § 1861.10(c) (West 2011).

50. *Calfarm Ins. Co.*, 48 Cal. 3d at 821–22, 839–41 ("[I]t seems eminently reasonable to suppose that those who favor the proposition would be happy to achieve at least some substantial portion of their purpose."). Given the allure and heavy promotion of the twenty percent role back, one may legitimately wonder whether the voters understood the cross-subsidies and other consequences of Proposition 103. Compare Nevada where their equivalent of Proposition 103 was struck down in its entirety. *See* Guaranty Nat'l Ins. Co. v. Gates, 916 F.2d 508, 512–15 (9th Cir. 1990).

51. CAL. INS. CODE § 1861.05(b).

52. *Id*. § 12900(a) (West 2006).

53. *Id*. § 1861.05(b) (West 2011).

54. *Id*. §§ 1861.02(b), 1861.025.

- Requiring that the top three rating factors for auto insurance must be, in descending order of importance: (1) insured's driving safety record, (2) miles driven annually, and (3) years of driving experience.[55]

Whether prior approval or one of the more open-competition based systems saves consumers money may be fairly debated. Proposition 103 did little to address the major costs that drive automobile insurance rates—the costs of adjusting, defending and paying claims. Some restrictions extend to executive compensation (at least to the extent that it can be counted as a legitimate cost in rate making),[56] efficiency standards for the costs of reasonably efficient insurers,[57] permitted rates of return,[58] and maximum and minimum permitted earned premium.[59]

One can argue that these are merely the icing on the cake. The "cake" is the cost of the product being sold—defending and paying claims. Major cost containment developments in this arena all occurred outside the purview of Proposition 103. For example, *Moradi-Shalal v. Fireman's Fund Insurance Co.*[60] eliminated third-party bad faith claims; *Thing v. La Chusa*[61] narrowed the circle of parties who may recover for negligently caused emotional damages; *State Farm Mutual Automobile Insurance Co. v. Campbell*[62] restricted the amount of punitive damages that may be awarded for torts; *Howell v. Hamilton Meats & Provisions, Inc.*[63] greatly reduced the amount recoverable under the

55. *Id*. § 1861.05(a).

56. CAL. CODE REGS. tit. 10, § 2644.10 (2008) (excluded expenses).

57. *Id*. tit. 10, § 2644.12 (efficiency standard).

58. *Id*. tit. 10, §§ 2644.15–2644.16.

59. *Id*. tit. 10, §§ 2644.2–2644.3.

60. Moradi-Shalal v. Fireman's Fund Ins. Co., 46 Cal. 3d 287, 304 (1988).

61. Thing v. La Chusa, 48 Cal. 3d 644, 647 (1989).

62. State Farm Mut. Auto. Ins. Co. v. Campbell, 538 U.S. 408, 416–17 (2003); *see* JEFFREY W. STEMPEL, LITIGATION ROAD: THE STORY OF CAMPBELL V. STATE FARM (2008). Bad faith judgments, one major source of punitive damages, may not be counted as an expense for ratemaking purposes. CAL. CODE REGS. tit. 10, § 2644.10(c). Punitive damages are sometimes not covered either because directly or indirectly excluded by the policy language, or because of public policy. *See* Tom Baker, *Reconsidering Insuance for Punitive Damages*, 1998 WIS. L. REV. 101 (1998); PPG Indus. Inc. v. Transamerica Ins. Co, 20 Cal. 4th 310, 318–19 (1999) (no coverage for punitive damages). Insurers may, nevertheless, be obliged to defend a claim which includes punitive damages. Ohio Cas. Ins. Co. v. Hubbard, 162 Cal. App. 3d 939, 946 (Ct. App. 1984).

63. Howell v. Hamilton Meats & Provisions, Inc., 52 Cal. 4th 541, 548

collateral source rule when medical bills are covered by health insurance; California Civil Code section 3333.4 eliminated pain and suffering claims for injured drunk or uninsured drivers; *Truman v. Vargas*[64] established that failure to wear a seat belt is contributory negligence; and California Civil Code section 1431.2 (Proposition 51) limited liability for noneconomic damages (i.e., pain and suffering) to each defendant's portion of fault.[65] In addition, automobiles are safer today than in the past, and the number of fatalities per miles driven is steadily dropping.[66] Insurers also have developed more sophisticated ways to streamline and reduce the costs of automobile repairs by, for example, adopting arrangements with automobile repair facilities.[67] All of these changes in tort law, automobile design, and automobile repair took palpable slices out of the cake and reduce the overall cost of insuring drivers.

Although adopted by the barest majority, Proposition 103 may be amended by the legislature only by a two-thirds vote, and then only if the legislation "further[s] [the] purposes" of Proposition 103.[68] Thus, Proposition 103 and the regulations adopted by the Department of Insurance are the matrix in which most (but not all) insurance is sold and regulated in California.[69]

(2011). There is currently a bill before the California legislature to modify the *Howell* decision. S.B. 1528, 2011–2012 Reg. Sess. (Cal. 2012).

64. Truman v. Vargas, 275 Cal. App. 2d 976, 983–84 (Ct. App. 1969).

65. CAL. CIV. CODE § 1431.2(a) (West 1988); *see also* CAL. CIV. CODE § 3333.2(a)–(b) (West 1988) (limiting pain and suffering in medical malpractice cases to $250,000). The $250,000 cap, which was adopted in 1975, was not indexed for inflation. In 2010 dollars the cap is worth only about $58,112. Today it would cost about $1,001,569 to purchase what could be purchased for $250,000 in 1975. S. Morgan Friedman, THE INFLATION CALCULATOR, http://www.westegg.com/inflation/ (last visited Apr. 23, 2012).

66. *See* Nat'l Highway Traffic Safety Admin., Traffic Safety Performance (Core Outcomes) Measures for California, http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/6_CA/2008/6_CA_2008.htm (last visited Apr. 23, 2012).

67. See CAL. INS. CODE § 758.5 (West 1988) (insurer may not require insured to use a particular auto repair facility, but insurer may truthfully explain the benefits of using the automobile repair facility with which the insurer has a relationship).

68. *See* Found. for Taxpayer and Consumer Rights v. Garamendi, 132 Cal. App. 4th 1354, 1365–66 (Ct. App. 2005) (invalidating legislation that did not, in the court's view, further the purposes of Proposition 103).

69. For example, health insurance rates are not regulated in California. There is currently a bill before the California Legislature, A.B. 52 2010–2011

II. INSURANCE ISSUES AND AVS

A. Liability Coverage in the Standard Automobile Insurance Contract

The standard automobile insurance contract contains a bundle of coverages. Some are "first-party" coverages. These coverages give a claim directly against the policyholder's insurer.[70] Among these are: comprehensive (covering such things a falling trees, collisions with animals, etc.), collision (covering the policyholder's automobile for damage to it from other accidents whether or not there is fault on the part of any party), medical payments coverage ("MedPay"—covering medical expenses up to a usually fairly modest limit), and uninsured/underinsured motorist ("UM") (covering, up to a limit, the insured person, family member, or person occupying the covered automobile for their damages, including bodily injury and pain and suffering, if they are legally entitled to recover them from the owner or operator of an uninsured/underinsured motor vehicle). There may also be some other modest coverages, such as reimbursement for towing and rental.

To the extent these coverages are triggered against one's own insurance company without the need of a finding of fault on the part of anyone, they may not present interesting or unique challenges in a world of AVs. Presumably, owners of AVs will continue to want comprehensive, collision, MedPay, and UM coverage for their vehicles, and presumably insurers will continue to see a business opportunity in writing the coverages.

The question becomes more perplexing, however, when "liability" is required to trigger coverage. Liability almost always turns on some level of fault. While it is common to speak of an automobile as "covered," in reality the liability coverage under the policy only extends to a constellation of *people* or *entities* who bear some relationship to the automobile or the insured (e.g., the owner, the insured, the

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Reg. Sess. (Cal. 2010), and possibly a ballot initiative for the November 2012 ballot aimed at requiring approval of health insurance rates.

70. *See* Garvey v. State Farm Fire & Cas. Co., 48 Cal. 3d 395, 399 n.2 (1989) ("[I]f the insured is seeking coverage against *loss or damage sustained by the insured*, the claim is first party in nature. If the insured is seeking coverage against *liability of the insured to another*, the claim is third party in nature.").

insured's family, or a permissive driver of the car). Typical language may provide words to the effect that the insurer will pay damages for bodily injury or property damage for which any covered person becomes *legally responsible* because of an auto accident.[71] The policy will also provide that the insurer will defend and, if it thinks appropriate, settle any such claim. Similarly, UM coverage is triggered only when the policyholder is "legally entitled" to recover from the other motorist. In both cases, the coverage attaches only when either the covered person or the owner or operator of the UM vehicle is at fault. Fault usually requires negligence, and in the context of automobiles, negligence usually flows from the violation of one of the many rules of the road.[72]

If the owner properly maintains an AV and the vehicle drives itself, there is a serious question whether the innocent "driver" (if that is even a proper description of the person's role) is "legally" responsible. The coverage may not be triggered because no one is either "legally responsible" or "legally entitled."

The State of Nevada recently adopted regulations for licensing the testing of AVs in the state. The regulations would require insurance in the minimum amounts required for other cars "for the payment of tort liabilities arising from the maintenance or use of the motor vehicle."[73] The

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71. *See, e.g.*, United Serv. Auto. Assn. v. Lilly, 217 Cal. App. 3d 1396, 1399 (Ct. App. 1990) (emphasis added).

72. CAL. EVID. CODE § 669(b) creates a rebuttable presumption that violation of a statute, ordinance or regulation is a failure to exercise due care. CAL. EVID. CODE § 669(b) (West 1988). There are exceptions. *See, e.g.*, CAL. VEH. CODE § 40831 (West 2007) ("In any *civil action* proof of speed in excess of any prima facie limit declared in Section 22352 at a particular time and place does not establish negligence as a matter of law but in all such actions it shall be necessary to establish as a fact that the operation of a *vehicle* at the excess speed constituted negligence.") (emphasis added).

73. NEV. ADMIN. CODE. § 482.2(2) (2011). Any licensee who wishes to operate for testing purposes an autonomous vehicle on any of the Nevada highways must continuously maintain and:

a. Provide proof of liability insurance that is equal to or greater than the minimum liability requirements for the State of Nevada:
   1. In the amount of $15,000 for bodily injury to or death of one person in any one accident;
   2. Subject to the limit for one person, in the amount of $30,000 for bodily injury to or death of two or more persons in any one accident; and
   3. In the amount of $10,000 for injury to or destruction of property of others in any one accident, for the payment of tort liabilities

regulation, however, does not suggest how the tort liability may arise. If there is no fault on the part of the operator or owner, then liability may arise, if at all, only for the manufacturer or supplier. Manufacturers and suppliers are not "insureds" under the standard automobile policy—at least so far. Thus, for the reasons stated above, owners, manufacturers and suppliers may fall outside the coverage of the policy.

Although the Nevada regulations do not clearly address the rules governing tort liability, the regulations will make it much easier to resolve issues surrounding the cause of accidents. AVs licensed under the proposed regulations must save the data for at least thirty seconds prior to any collision.[74] This feature should also reduce the costs of resolving factual disputes.

At this writing, Bills addressing AVs are pending in other states, including Arizona, California, Florida, Hawaii and Oklahoma.[75] Doubtless many more will follow.

> arising from the maintenance or use of the motor vehicle.
>
> 4. An operator's policy will not be accepted by the Department as proof of financial responsibility for an autonomous vehicle.

Id. A.B. 511, 76th Leg. Sess. (Nev. 2011) revised Nevada Revised Statutes, Ch. 483, to require the Nevada Department of Transportation to "[s]et forth requirements for the insurance that is required to test or operate an autonomous vehicle on a highway within this State." NEV. REV. STAT. § 482A.100(b) (2011). The statute, however, does not address policy content or related tort issues.

74. AVs must have:

> [A] separate mechanism, in addition to, and separate from, any other mechanism required by law, to capture and store the autonomous technology sensor data for at least thirty seconds before a collision occurs between the autonomous vehicle and another vehicle, object or natural person while the vehicle is operating in autonomous mode. The autonomous technology sensor data must be captured and stored in a read-only format by the mechanism so that the data is retained until extracted from the mechanism by an external device capable of downloading and storing the data. Such data must be preserved for 2 years after the date of the collision.

NEV. REV. STAT. § 482A.8(2)(b).

75. H.B. 2679, 47th Leg. Reg. Sess. (Ariz. 2005); S.B. 1298 2011–2012 Reg. Sess. (Cal. 2012); C.S./H.B. 1207, 2012 Leg. (Fla. 2012); H.B. 2238 26th Leg. (Haw. 2012); H.B. 3007 2nd Sess. 53d Leg. (Okla. 2012). A web site that tracks legislative developments with respect to autonomous vehicles is *Automated Driving: Legislative and Regulatory Action*, THE CTR. FOR INTERNET & SOC., http://cyberlaw.stanford.edu/wiki/index.php/Automated_Driving:_Legislative_and_Regulatory_Action (last visited Apr. 23, 2012).

B. Possible Insurance Frameworks for AVs

Looking into this crystal ball, there are several considerations that will weigh in favor of a continuing role for automobile insurance. However safer AVs may be, they will still be dangerous and will spin off injuries. The present public policy that requires auto insurance, or proof of sufficient assets to respond to damages at some level, will not change.[76] Because of the comprehensive adoption of rules of the road, it is rare for an accident to occur where one or more drivers, who all must carry insurance, is not at fault.[77] If there is no one at fault in a collision involving a fully autonomous vehicle, how are injured members of the public to be protected?

1. Products Liability

One possible approach would be to invoke the various doctrines of products liability law. This would attach the major liability to sellers and manufacturers of the vehicle. However, it is doubtful that this is an acceptable approach for several reasons. For example, while some accidents are catastrophic, fortunately most accidents cause only modest damages. By contrast, products liability lawsuits tend to be complex and expensive. Indeed, they may require the translation of hundreds or thousands of engineering documents—perhaps written in Japanese, Chinese or Korean.[78]

The standards for establishing a design defect are vague and unpredictable. In California, a design defect may be established by either (1) showing the product "failed to perform as safely as an ordinary consumer would expect when used in an intended or reasonably foreseeable manner,"[79] or (2) showing, "through hindsight" the product's

76. CAL. VEH. CODE § 16020 (West 2007).

77. *Id.* Collisions with pedestrians and other objects may or may not implicate fault on the part of a driver. *E.g.*, Leo v. Dunham, 41 Cal. 2d 712, 714 (1953) (holding that driver who struck pedestrian was not negligent as a matter of law).

78. *See In re* Puerto Rico Electric Power Authority, 687 F.2d 501, 505 (1st Cir. 1982) (stating each party to bear translation costs of documents requested by it but cost possibly taxable to prevailing party). Translation costs of Japanese documents in range of $250,000, and translation costs of additional Spanish documents may exceed that amount. *Id.*

79. Barker v. Lull Engineering Co., 20 Cal. 3d 413, 432 (1978).

design embodies "excessive preventable danger."[80] If an injured party can make a preliminary showing that the injury was proximately caused by the "design" of the product, then the burden of proof shifts to the supplier or manufacturer to show that the product was not defective.[81] When dealing with a sophisticated product, the consumer expectation test may be difficult to apply.[82] The standard for establishing a manufacturing defect may be equally vague and very expensive to prove.[83] Moreover, cars are designed to last, but innovative companies may or may not exist at the time of an accident—even General Motors narrowly avoided oblivion.[84]

2. *Insurance Coverage After Acquisitions*

Assuming much of the liability (and insurance) burden were to switch to manufacturers or suppliers, difficult insurance issues may arise when innovative companies enter the market, leave the market, or are acquired by others. Most policies insuring product risks are "occurrence" policies. Claims arising during the policy period, whether known or unknown, are covered. These policies typically contain a clause forbidding assignment without the consent of the insurer.[85] This clause protects the insurer from additional, un-bargained for risks the new enterprise may present.

An acquiring entity, either by operation of law or by contractual assumption of liability, may be responsible for injuries caused by the predecessor's product. While coverage of claims occurring after an acquisition would be governed by

80. *Id.* at 430.

81. "[W]e conclude that once the plaintiff makes a prima facie showing that the injury was proximately caused by the product's design, the burden should appropriately shift to the defendant to prove, in light of the relevant factors, that the product is not defective." *Id.* at 431.

82. Soule v. Gen. Motors Co., 8 Cal. 4th 548, 569–70 (1994) (consumer expectation test inapplicable to crashworthiness of design because ordinary consumer would have no idea how it should perform in crash). One could see courts accepting similar arguments with respect to sophisticated computer systems.

83. For example, was there a "bug" in the program? Were "bugs" expected in innovative technology?

84. *See* Nick Bunkley, *G.M. Drops Application for Federal Energy Loan*, N.Y. TIMES (Jan. 27, 2011), http://www.nytimes.com/2011/01/28/business/28auto.html?_r=1&ref=autoindustry.

85. A typical clause may read: "Assignment of interest under this policy shall not bind the [insurer] until its consent is endorsed hereon." Kenneth C. Newa, *Corporate Successor Liability: Insurer's Perspective*, 41 BRIEF 60 (2011).

the restriction on assignment, what coverage exists for pre-acquisition occurrences? One may argue that the bargained for risk, the "occurrence," has already attached, thus there is no enhanced risk to the insurer by permitting assignment of the coverage to the successor entity.

The leading Ninth Circuit case, *Northern Insurance Co. v. Allied Mutual Insurance Co.*[86] so held (at least as to liability imposed as a matter of law from the sale of the predecessor's assets). Regardless of the characteristics of the successor, "the insurer still covers only the risk it had evaluated when it wrote the policy."[87]

Unfortunately, the issue is no longer so straightforward. In a later asset acquisition case, in which the acquiring party assumed all liabilities by contract, the California Supreme Court rejected the argument that the benefits of the policy can be assigned with respect to a pre-acquisition occurrence that has not been "reduced to a sum of money due or to become due under the policy."[88] Such an inchoate claim does not rise to the level of an assignable "chose in action" under California law.[89] Additionally, the insurer's risk may be increased because the insurer's duty to defend may now extend to two entities (the transferor and the transferee), rather than to the one entity that was the insured under the original bargain.[90] The Court left open the question of whether coverage rights would have existed had the liability arisen as a matter of law. Other courts have adopted slightly more nuanced positions.[91]

86. N. Ins. Co. of New York v. Allied Mut. Ins. Co., 955 F.2d 1353, 1360 (9th Cir. 1992).

87. *Id.* at 1358.

88. Henkel Corp. v. Hartford Accident & Indem. Co., 29 Cal. 4th 934, 945 (2007).

89. *Id.* at 944.

90. *Id.* at 944–45.

91. In *Pilkington North America v. Travelers Casualty & Surety Co.*, the policy was assignable because "a chose in action arises under an occurrence-based policy at the time of the covered loss." Pilkington N. Am. v. Travelers Cas. & Sur. Co., 861 N.E.2d 121, 129 (Ohio 2006). The court left open the transferability of the right to a defense. *Id*. at 129. By contrast, the court in *Travelers Casualty & Surety Co. v. U.S. Filter Corp.*, held the rights assignable only if at the moment of assignment "the policyholder could have brought its own action against the insurer for coverage . . . . [A]t a minimum the losses must have been reported to give rise to the chose in action." Travelers Cas. & Sur. Co. v. U.S. Filter Corp., 895 N.E.2d 1172, 1180 (Ind. 2008). Other cases collected and suggestions on how to structure acquisitions are included in

If the product seller is extant and has sufficient assets, the vagaries of coverage are largely a headache for the company rather than the injured party. Since coverage follows the company, not the vehicle, when the company no longer exists or is undercapitalized these issues will add an additional layer of uncertainty for parties injured by AVs.

Placing the insurance burden solely on the manufacturer or supplier also presents issues of adverse selection and moral hazard discussed below. Public policy would, therefore, strongly suggest that there should be a party both financially responsible and reasonably accessible. Assuming public entities are not willing to assume the insurance burden, there are several possible approaches that bear strong analogies to current law.

Even if products liability concepts were to dominate this area, there still may be some role for fault-based liability on the part of AV owners. Like automobile tires and brakes, owners have a responsibility for maintenance and have a responsibility to respond if the automobile shows signs that it is acting in an untoward way. Once an owner is or should be aware that the automobile is not acting as it should, the owner may be negligent in continuing to drive the car until the issue is adequately addressed.[92] Owners would likely want to insure against this possible liability.

3. *Strict Liability When an AV Is "At Fault"*

Present law in California makes the owner of a vehicle responsible, up to the minimum required coverage for liability insurance, for accidents caused by the fault of any permissive user of the automobile.[93] Thus, when the actual driver is at fault, the owner is liable without fault for the driver's actions.[94] Perhaps the next step might be to make the owner liable when the owner's automobile is "at fault" in the sense that it violates one of the many rules of the road that would

Newa, *supra* note 85; Joseph Thacker et al., *Do Rights Transfer Under Occurrence-Based General Liability Insurance Policies After the Sale of a Business?*, 41 BRIEF 52 (2011).

92. Fremont Comp. Ins. Co. v. Hartnett, 19 Cal. App. 4th 669, 675–77 (Ct. App. 1993) (holding that defendant's failure to maintain brakes raised a presumption of negligence).

93. CAL. VEH. CODE § 17150 (West 2007).

94. *See* Wildman v. Gov't Emp. Ins. Co., 48 Cal. 2d 31, 39–40 (1957).

have imposed liability on a human driver. If tort law were to take this step, owners would want this liability insured.

Owner liability for permissive drivers, at least as presently constructed, is capped at a very modest amount.[95] Under the current liability regime, drivers, however, must respond for all the damages for which they are responsible. Assuming drivers have or may have assets, they are motivated to insure well beyond these modest limits. Thus, under the present structure, injured parties often have available assets well beyond the minimum limits.[96] Policymakers, such as legislatures, will have to decide whether strict liability, perhaps with a cap in the absence of fault, is an acceptable response for parties injured by AVs.

Another small step, which may require legislation, might involve accepting an analogy to agency law. An autonomous automobile is very much like a driver hired by the owner. It is doing the owner's bidding, and if the car violates the rules of the road and causes an injury, perhaps the owner or the one instructing the automobile should be liable as they would be for a similar injury caused by the conduct of an agent.[97] Name the car "Jeeves," and the step may be easier to accept.[98]

Courts and legislatures have been somewhat ambivalent about this approach. While imposing limited owner liability by statute for the fault of a permissive user, at the same time the courts (at least in California) long ago abandoned the "Family Purpose Doctrine"—a doctrine which, when applicable, made any driver of the car for a family purpose the agent of the owner.[99] In another example of ambivalence,

95. *See* CAL. INS. CODE § 11580.1 (West 1988); CAL. VEH. CODE § 17151(a) (West 2007).

96. *See id.*

97. CAL. CIV. CODE § 2295 (West 2011) (defining "agent"). This would be similar to the doctrine of respondeat superior where an employer is liable for the acts of his employee so long as the acts are within the scope of employment. Perez v. Van Groningen & Sons, 41 Cal. 3d 962, 967 (1986); Tyson v. Romey, 88 Cal. App. 2d 752, 755 (Ct. App. 1948); *see* Gary T. Schwartz, *The Hidden and Fundamental Issue of Employer Vicarious Liability*, 69 S. CAL. L. REV. 1739 (1996).

98. See the many humorous stories by P.G. Wodehouse about Bertie Wooster and his clever butler, Jeeves. *E.g.*, *Carry on Jeeves*, WIKIPEDIA, http://en.wikipedia.org/wiki/Carry_on,_Jeeves. The adventures of the sagacious valet were presented in the 1990s British sitcom "Jeeves and Wooster." *Jeeves and Wooster* (ITV television broadcast 1990–93).

99. Johnson v. Peterson, 38 Cal. App. 3d 619, 624, 624 n.4 (Ct. App. 1974).

California rejected the liability of a driver for non-negligent brake failure, but held the driver could be liable for the negligence of the mechanic who had serviced the brakes.[100] Although liability of the driver required fault on the part of someone (the automobile mechanic), the duty to maintain the brakes in a non-negligent manner was a "nondelegable duty."[101] The Court was persuaded, in part, because the Vehicle Code at the time provided that every motor vehicle "shall be equipped with brakes adequate to control the movement of the vehicle and to stop and hold the vehicle."[102] The Vehicle Code also provided that all "[b]rakes and component parts thereof shall be maintained . . . in good working order."[103] There is little difference between a defect

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The doctrine is still applied in some states. *See* Nelson v. Johnson, 599 N.W.2d 246, 248 (N.D. 1999) ("The respondeat superior theoretical basis for the doctrine is a fiction created in furtherance of the public policy of giving an injured party a cause of action against a financially responsible defendant.").

100. Maloney v. Rath, 69 Cal. 2d 442, 448 (1968). In the context of workplace injuries to employees of independent contractors hired by the defendant, the nondelegable duty doctrine has had a tortured history in California. *See* SeaBright Ins. v. U.S. Airways, 52 Cal. 4th 590, 601–03 (2011).

101.

> Unlike strict liability, a nondelegable duty operates, not as a substitute for liability based on negligence, but to assure that when a negligently caused harm occurs, the injured party will be compensated by the person whose activity caused the harm and who may therefore properly be held liable for the negligence of his agent, whether his agent was an employee or an independent contractor. To the extent that recognition of nondelegable duties tends to insure that there will be a financially responsible defendant available to compensate for the negligent harms caused by that defendant's activity, it ameliorates the need for strict liability to secure compensation.

Maloney, 60 Cal. 2d at 446 n.32. The court noted that "[h]e is the party primarily to be benefited by its use; he selects the contractor and is free to insist upon one who is financially responsible and to demand indemnity from him; *the cost of his liability insurance that distributes the risk is properly attributable to his activities*." *Id.* at 448 (emphasis added).

102. *Maloney*, 60 Cal. 2d at 444.

103. *Id.* at 444. Proposed AV regulations in Nevada may possibly be read as endorsing strict liability when an AV violates a rule of the road. NEV. ADMIN. CODE § 484.1(a)(3) provides:

> A *vehicle with autonomous technology shall comply* with the statutes and regulations applicable to operation of a vehicle on a highway:
>
> a. Compliance with the statutes and regulations applicable to operation of a vehicle on a highway may be achieved with or without a driver depending on the capabilities of the vehicle's autonomous technology; and
>
> b. If a driver is necessary due to limitations of the autonomous technology, the limitations must be defined in the autonomous

that causes the vehicle to fail to brake and a defect that causes the brakes to fail. Again, if legislatures, courts, or regulators were to endorse either the agency or nondelegable duty approach in order to give injured parties protection similar to what they now enjoy (an accessible, legally and financially responsible party), automobile owners would need to insure against the risk.

Regardless of what liability scheme is adopted, if there is any chance of suits against owners, they will want insurance for the purpose of tendering their defense, indemnifying losses, or adjusting losses, whether or not suits are filed. Auto manufactures that do not have a network of insurance adjusters may be ill-suited to deal with the daily grist of auto accidents.

If a design or manufacturing defect in an AV substantially contributed to an accident, an insurer that insured and indemnified the car owner would be free to pursue a claim against the manufacturer.[104] Likewise, an injured party could similarly pursue a products liability claim should the insurance coverage prove inadequate.[105] Claims exceeding the coverage are more likely to be large enough to justify the expense.

> technology's owner's manual; and
>
> c. If a driver is not necessary, *the autonomous technology shall be granted all of the rights and shall be subject to all of the duties* applicable to the driver of a vehicle, except those provisions which by their nature can have no application.

ADMIN. § 484.1(a)(3) (2011) (emphasis added). A more recent proposed regulation (Dec. 27, 2011), section 482A.3 of the Nevada Administative Code provides: "[A] person shall be *deemed the operator* of an autonomous vehicle which is operated in autonomous mode when the person causes the autonomous vehicle to engage, regardless of whether the person is physically present in the vehicle while it is engaged." *Id*. (emphasis added). Section (4)(2) provides that:

> For the purpose of enforcing the traffic laws and other laws applicable to drivers and motor vehicles operated in this State, the operator of an autonomous vehicle that is operated in autonomous mode shall be deemed the driver of the autonomous vehicle regardless of whether the person is physically present in the autonomous vehicle while it is engaged.

ADMIN. § 482A.4(2). It is not clear whether this regulation would impose a nondelegable tort duty on the "vehicle" or on the "autonomous technology," or on the "operator" or "driver," nor is it clear how it would do so.

104. *See* 1 DAVID G. OWEN ET AL., MADDEN & OWEN ON PRODUCTS LIABILITY 57–62 (3d ed. 2011).

105. *See id.*

4. *First-Party Insurance*

To the extent that liability of the owner or driver diminishes or disappears altogether, injured parties may prefer to look towards first-party, rather than third party insurance, to make them as whole as possible. Health insurance covering treatment and rehabilitation is an example of first-party insurance.[106]

One obstacle is that first-party insurance, with rare exception, does not compensate for pain and suffering, disfigurement, and other items of general damages. A notable exception is the UM coverage mentioned above.[107] This coverage allows the insured to claim against the insured's own insurer the full constellation (up to the policy limits) of damages resulting from a collision with an uninsured or underinsured motorist who is liable for the damages.[108] In the new world of truly autonomous vehicles, one could imagine a market for expanding this coverage to include first-party coverage for injuries caused by AVs when there is no liability on the part of the owner of the other vehicle. Somewhat like no-fault insurance, injured parties would look first to their own insurers.[109]

III. INSURANCE RATES AND POLICIES FOR AVS

Assuming a continuing role for auto insurance in the world of AVs, it may be useful to look at automobile insurance in general, and at California in particular, to understand some of the issues that may arise.

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106. Garvey v. State Farm Fire & Cas. Co., 48 Cal. 3d 395, 399 n.2 (1989) ("[I]f the insured is seeking coverage against *loss or damage sustained by the insured*, the claim is first party in nature. If the insured is seeking coverage against *liability of the insured to another*, the claim is third party in nature.").

107. *See supra* Part II.A.

108. CAL. INS. CODE § 11580.2 (West 2006).

109. California offers some no-fault options for insurance. As noted above, some of the coverages in standard automobile policies are first-party, no-fault coverages. *See* Progressive W. Ins. Co. v. Yolo Cnty. Sup. Court, 135 Cal. App. 4th 263, 268 (Ct. App. 2005); Nager v. Allstate Ins. Co., 83 Cal. App. 4th 284, 289–90 (Ct. App. 2000) ("Automobile med-pay insurance provides first-party coverage on a no-fault basis for relatively low policy limits (generally ranging from $5,000 to $10,000) at relatively low premiums. The coverage is primarily designed to provide an additional source of funds for medical expenses for injured automobile occupants without all the burdens of a fault-based payment system.") (citations omitted).

Insurance rates discriminate. All insurers categorize levels of risk and charge premiums in accordance with their perception of the risk. Risk usually is a combination of frequency and severity of claims and other costs associated with a transfer of risk among different classes of policyholders.[110] Virtually all states, including California, prohibit insurance rates that are "unfairly discriminatory."[111] Discrimination, in this sense, is not a term intended to apply only to suspect classes—such as race or religion—but is a term intended to suggest that rates, so far as practical, reflect relative risks.[112]

While the words "unfairly discriminatory" may suggest an element of moral taint, the provenance of the phrase was very practical. The 1871 Chicago fire and the 1906 California earthquake and fire sent many insurers into insolvency.[113] One cause was aggressive rate competition in which those with influence and power could demand rates below their relative risk.[114] This either put the insurer's solvency at risk, or the inadequate rate charged to some required that an excessive rate be charged to others. Whether or not one considers this "unfair," it also has practical implications. Those who are charged too much will tend to buy less or not buy insurance at all. Those who are charged too little will tend to buy more insurance and, possibly, engage in the insured activity at an inefficient or careless level.[115]

This, in the industry, is called "adverse selection" or "moral hazard." When adverse selection or moral hazard work their mischief, an insurer or industry may go into a "death spiral": as more people buy insurance priced at less than the risk, more people decline to buy insurance priced at

110. MATTHEW J. HASSETT & DONALD STEWART, PROBABILITY FOR RISK MANAGEMENT 357 (2009).

111. CAL. INS. CODE § 1861.05(a) (West 2011).

112. *See* Miller, *supra* note 11, at 276.

113. HANDBOOK OF INTERNATIONAL INSURANCE BETWEEN GLOBAL DYNAMICS AND LOCAL CONTINGENCIES 31 (J. David Cummins & Bertrand Venard eds., 2007).

114. *Id.*

115. *See, e.g.*, Mark Calabria, *Bad for Taxpayers and Whales*, N.Y. TIMES (Oct. 27 2011, 11:34 AM), http://www.nytimes.com/roomfordebate/2011/09/30/who-benefits-from-federal-flood-aid/federal-flood-aid-bad-for-taxpayers-and-whales (stating under-pricing of Federal flood insurance program encouraged building in otherwise unsuitable flood plains as well as inflicted harm on whales).

more than the risk,[116] and those with insurance behave more recklessly than they otherwise would. As this happens, it becomes difficult or impossible for the insurer to make its business a "zero-sum-game." Quite apart from considerations of fairness to policyholders, it becomes increasingly difficult for an insurer to make up for charging too little for a risk by charging others too much. To the extent public policy encourages insurance, the policy is undermined because those charged too much are likely to underinsure or drop out of the insurance pool altogether.[117] In the worst cases, the result may be insolvency of the insurer.

A. *Rating Factors*

Although there are many potential rating factors that insurers may use to evaluate risk, practicality and politics limit their scope. A rating factor that is impractical or expensive to administer is not workable. For example, it may be best to measure an insured's driving habits by placing an agent of the insurer as a passenger with the insured for a week or two. This is not practical, although Progressive Insurance's heavily promoted new "Snapshot" policy (an electronic monitor in the car records the driver's driving habits) is a high-tech surrogate for the ride-along agent.[118] Other insurers are now offering similar policies.

Territorial rating (usually by zip code) is highly predictive of risk of loss. Some argue, though, that territorial rating, although neutral on its face, *de facto* discriminates against minorities and the poor because they tend to live in disproportionate numbers in higher risk neighborhoods.[119]

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116. *See* MICHAEL G. FAURE & TON HARTLIEF, INSURANCE AND EXPANDING SYSTEMIC RISKS 109 (2003).

117. *See id.*; Carpenter v. Pacific Mut. Life Ins. Co., 10 Cal. 2d 307 (1937). "It is no longer open to question that the business of insurance is affected with a public interest. Neither the company nor a policyholder has the inviolate rights that characterize private contracts. The contract of the policyholder is subject to the reasonable exercise of the state's police power." *Id.* The California Insurance Code spans 1271 single-space, size ten-font pages and ends with section 16030. *See* DIMUGNO & GLAD, CALIFORNIA INSURANCE LAWS ANNOTATED 76–1347 (2011).

118. *Snapshot*, PROGRESSIVE INSURANCE, http://www.progressive.com/auto/snapshot-discount.aspx (last visted Apr. 23, 2012).

119. Gary Williams, "*The Wrong Side of the Tracks": Territorial Rating and the Setting of Automobile Liability Insurance Rates in California*, 19 HASTINGS CONST. L.Q. 845, 846–47 (1992). Others disagree. *See* Miller, *supra* note 11, at

The California Commissioner, perhaps acceding to this concern, permits territorial rating to be used, but at a level of significance below its true weight.[120]

Credit scoring presents a similar political tug-o'-war. Although lively debates surround why one's credit score actuarially relates to risk of loss (is there a causation, a mere correlation, or something else?), insurers claim an actuarially relevant correlation.[121] In a time of economic stress, such as now, there is strong political support for disallowing credit scoring as a rating factor. Even during more flush times, the argument that credit scoring disadvantages protected groups (e.g., racial minorities) enjoys resonance. Consequently, the availability of credit scoring as a rating factor is highly contentious. California's Commissioner does not allow credit scoring as a rating factor.[122] Texas does allow it.[123] In a referendum, Oregon voters defeated a ballot measure that would have prohibited credit scoring.[124]

Gender politics also plays a role. It is common knowledge that young drivers—especially young male drivers—are less safe than more experienced and mature drivers. Long before automobiles and tourist busses crowded the streets of Stratford-upon-Avon, Shakespeare recognized this trait. Referring to young men, Shakespeare wrote: "I would there were no age between sixteen and three-and-twenty; or that youth would sleep out the rest; for there is nothing in the

276.

120. *See* Spanish Speaking Citizens' Found. v. Low, 85 Cal. App. 4th 1179, 1187 (Ct. App. 2000); CAL. CODE REGS. tit. 10, §§ 2632.5, 2632.7, 2632.8 (2008). Prior to 1995 regulations permitted California auto insurers to average the sixteen optional rating factors. If the average weight was less than the weight given to the number of years of driving experience (the third-ranked mandatory rating factor), the insurer was in compliance with Proposition 103 and the pertinent regulations. Commissioner John Garamendi, as one of his last acts before leaving office, revised the regulation so that *each* optional factor must be weighted lower than years of driving experience. Written Testimony of the California Farm Bureau Federation, *In re* proposed Amendment of title 10 California Code of Regulations, Section 2632.8—Optional Automobile Insurance Rating Factors (Mar. 6, 2006) (on file at Santa Clara University School of Law).

121. James E Monaghan, *The Impact of Personal Credit History on Loss Performance in Personal Lines*, CAS. ACT. SOC. E-FORUM, Winter 2000, at 79, 102–03, http://www.casact.org/pubs/forum/00wforum/00wf079.pdf.

122. *See* tit. 10, § 2632.5.

123. *See* Ojo v. Farmers Grp. Inc., 356 S.W.3d 421, 441–43 (Tex. 2011).

124. *Oregon Voters Defeat Credit Scoring Ballot Measure*, INS. J. (Nov. 8, 2006), http://www.insurancejournal.com/news/west/2006/11/08/74099.htm.

between, but getting wenches with child, wronging the ancientry, stealing, fighting—Hark you now!"[125]

Over their lives, men, women and transgendered individuals also present different constellations of health care costs. Should insurers be permitted to use these gender differences as rating factors in setting health or auto insurance premiums? Ambivalence, or perhaps schizophrenia, characterizes California's current approaches to the issue. California recently passed legislation prohibiting the use of gender when setting premiums for health policies.[126] Gender neutrality vanishes, however, when rating auto insurance. Shakespeare's common sense observation still enjoys currency—gender is an approved rating factor for auto insurance.[127] Moreover, the California legislature has the legislative prerogative (subject to federal standards) to set rating factors for health insurance. They do not enjoy the same legislative prerogative with respect to automobile insurance rating factors.[128]

While one may applaud gender neutrality in insurance rating as an enlightened step, this may ignore the gravitational pull of market forces. Unless the insurance is either *de jure* or *de facto* required (qualities enjoyed by automobile insurance and, perhaps, health insurance), those paying too much are likely to forgo coverage, minimize

125. WILLIAM SHAKESPEARE, A WINTER'S TALE act III, sc. iii (Henry N. Hudson, ed., Boston, Ginn & Co. 1898). Some editions widen the age of foolishness to "ten and three-and-twenty." *See, e.g.*, WILLIAM SHAKESPEARE, A WINTER'S TALE, act III, sc. iii (Cross and T. Brooke, ed., Yale Univ. 1993). Shakespeare should know. He got Anne Hathaway with child when he was eighteen years old and married her in some haste. STEPHEN GREENBLATT, WILL IN THE WORLD 120–21 (W.W. Norton & Co. 2004).

126. CAL. INS. CODE § 10140.2(a) (West 2006) ("Notwithstanding Section 10140, a health insurance policy issued, amended, or renewed on or after January 1, 2011, shall not be subject to premium, price, or charge differentials because of the sex of any contracting party, potential contracting party, or person reasonably expected to benefit from the policy as a policyholder, insured, or otherwise."). Subsection (b) included gender identity within the definition of "sex." INS. § 10140.2(b). Regulations to implement gender neutrality for sexual identity are presently pending before the California Department of Insurance. 40-2 Cal. Regulatory Notice Reg. 1647, Oct. 14, 2011.

127. Tit. 10, § 2632.5(d)(9) (stating optional rating factor Number 9 includes "Gender of the rated driver.").

128. Found. for Taxpayer and Consumer Rights v. Garamendi, 132 Cal. App. 4th 1354, 1372 (Ct. App. 2005) (stating Commissioner of Insurance, rather than legislature, is empowered to adopt optional rating factors).

coverage, or seek alternatives. The favored group is also likely to purchase too much because it is a "good deal." If the difference in cost or value is palpable, in the fullness of time those paying too much may fade from the market, and those paying too little, absent the subsidy flowing to them from those paying too much, will find themselves in a pool of only those formally favored by the rating cross-subsidy. This pool, then, will pay the appropriate rates for their risk, and any benefit from the cross-subsidy, from those who might have paid too much, should disappear.

Of course, AVs do not have gender or credit ratings. The vehicles are, however, garaged in disparate zip codes and are driven in localities and at times (e.g., busy commute hours compared with off-peak hours) presenting disparate risks. It is even possible that different operating systems or hardware, like different drivers, may present different risk profiles. Aging hardware is likely analogous to aging drivers. How all this will play out, and who will call the plays (legislatures, insurers, commissioners) will be interesting.

If those injured by driverless vehicles were left with only a claim against the manufacturer (a "products liability" claim), similar dislocations may occur. Apart from expense and complexity, opting for products liability suits as the main avenue for compensating injuries invites some other adverse consequences. The products liability insurer is in a poor position to rate the policy based on the relevant traits of the vehicle driver or owner. Thus, many rating factors, such as annual miles driven, territory, use, and multiple vehicle discounts, would be irrelevant or nearly so.[129]

Since the manufacturer cannot rate the individual purchaser, the rates passed through to the purchaser will be based on average driver/owner traits over the pool of driver/owners. This may result in cross-subsidies and adverse selection. A simple example: the frequency of accidents is closely related to the number of miles driven. When setting rates[130] an insurance company accounts for the number of miles driven by the insured and the particular use

129. A fully autonomous vehicle should eliminate the possibility of human error.

130. *See* Spanish Speaking Citizens' Found. v. Low, 85 Cal. App. 4th 1179, 1184 (Ct. App. 2000).

(e.g., commuting or pleasure) to which the vehicle is put. A manufacturer would not. There is a fairly linear relationship between the number of miles driven and the risk. Assume that $100 per year represents the mileage risk when a car is driven 1000 miles per year. Let's assume that $2000 would be the appropriate premium for a car driven 20,000 miles per year. If the average annual mileage for the manufacturer's fleet of AVs is 10,000 miles annually, one would expect the product liability insurance load for the manufacturer to be approximately $1000 per year per car multiplied by the average life of the cars. This cost would be passed on to the purchasers in the up-front price of the car**,** perhaps spread over time if financed.

Thus, drivers who drive only 2000 miles would be charged too much, and drivers who drive 20,000 miles would be charged too little. Consequently, drivers of AVs, like diners at an all-you-can-eat restaurant, would be inclined to drive too much ("Moral Hazard").[131] Low mileage drivers, who are charged too much, would also more likely select ordinary cars over AVs because ordinary cars are more accurately rated and, therefore, less expensive to operate. Those driving more than average would more likely select AVs because they are charged too little ("Adverse Selection"). This also undermines whatever benefits flow from the new Pay-As-You-Drive policies. Likewise, a driver who instructs the car to drive conservatively (assuming the future holds such possibilities) would pay the same insurance as one who instructs the car to drive more aggressively (e.g., entering a command to change into a faster lane whenever possible). Both examples would encourage overuse or possibly misuse of the product.

As current rating factors for self-driving vehicles lose relevance,[132] the manufacturer's inability to reflect these rating factors in the price is also irrelevant. Moreover, the statutes and regulations applying to automobile policies under Proposition 103 simply do not apply to the commercial general liability, products liability, or multi-risk policies that

131. One might argue that the high mileage driver may replace the car more frequently, thus paying an additional "premium" with the more frequent purchases.

132. For example, driving safety record, years of driving experience, academic standing, non-smoker, to name a few.

suppliers and manufacturers purchase to cover risks from their products. These are not automobile policies within the definition of Proposition 103 and California Insurance Code section 660(a). Indeed, suppliers and manufacturers, unlike automobile owners, are free to forgo insurance altogether.

B. Examples of Difficulty in Setting Rates for New Technologies

1. Airbags

One may cite two examples where the move from testing to real life experience diverged. When airbags were first introduced, they were estimated to save 9000 lives per year.[133] However, between 1987 and 2001 airbags saved 8369 lives and caused approximately 291 deaths between 1990 and July 2008.[134] Thus, an insurer basing its rates on the estimated efficacy of air bags would have missed the mark. Even with the benefit of hindsight, however, past is not necessarily prologue. During this same period airbags consistently improved. On/Off switches were added, the deployment force was reduced, sensors were added to adjust to an occupant's weight and seat position, and air bags were no longer marketed as a substitute for seatbelts.[135] One can anticipate that the technology enabling AVs, much like today's computers, will rapidly advance in such a way that predictions from prior experience may be very poor predictors of future loss trends.

2. ABS Brakes

The second example is ABS brakes.[136] When first introduced, many assumed that they would reduce accident

133. NIDHI KALRA ET AL., LIABILITY AND REGULATION OF AUTONOMOUS VEHICLE TECHNOLOGIES 38 (2009), http://www.dot.ca.gov/research/researchreports/reports/2009/prr-2009-28_liability_reg_&_auto_vehicle_final_report_2009.pdf; Paul Eisenstein, *Airbags Arrive, Muffling an Almost 20 Year Debate*, CHI. TRIB. (Sept. 3, 1989), http://articles.chicagotribune.com/1989-09-03/travel/8901100288_1_air-bags-equipped-new-cars.

134. KALRA ET AL., *supra* note 134, at 39.

135. *Id.*

136. The system prevents wheels from locking during braking, thus maximising traction and helping the vehicle avoid going into a skid. *Questions and Answers Regarding Antilock Brake Sytem (ABS)*, NAT'L HIGHWAY TRAFFIC SAFETY ASSOC., http://www.nhtsa.gov/cars/problems/equipment/absbrakes.html (last visited Apr. 24, 2012).

costs. For a brief period after their introduction, however, accidents actually increased.[137] The increase was due to the unfamiliarity with the operation and feel of ABS brakes.[138] Many drivers, when they sensed the judder of the brakes as they adjusted to the insipient skid of a wheel, assumed the brakes were not working properly and pumped the brakes or otherwise reacted in a way that reduced their effectiveness.[139] Other drivers may have been encouraged to drive more aggressively in reliance on the new ABS systems.[140]

C. Proposition 103 and AVs

Proposition 103 applies to rates and premiums for automobile policies "as described in subdivision (a) of Section 660" of the California Insurance Code.[141] Section 660(a) defines "policy" as any:

> [A]utomobile liability, automobile physical damage, or automobile collisions policy, or any combination thereof . . . insuring a single individual or individuals residing in the same household [if the automobile is] a motor vehicle of the private passenger or station wagon type that is not used as a public or livery conveyance for passengers, nor rented to others.[142]

Thus, as presently drafted, the provisions of Proposition 103 will govern the insuring of AVs owned by individuals.

137. *Anti-Lock Brakes*, HIGHWAY SAFETY RES. AND COMM., http://www.iihs.org/research/qanda/antilock.html (last visited Apr. 24, 2012).

138. *Id.*

139. *Id.*

140. *Self-Driving Cars: Safer at Any Speed?*, THE ECONOMIST (Mar. 3, 2012), http://www.economist.com/node/21548992.

141. CAL. INS. CODE § 1861.02(a) (West 2011). To the extent insurers were to offer and policyholders were to purchase first-party coverage to insure themselves against, for example, pain and suffering, California Insurance Code section 660 may or may not include that kind of policy within its ambit. The question would turn on whether the policy would be one for "automobile liability coverage." Section 660(b) provides "'automobile liability coverage' includes *only* coverage of bodily injury and property damage *liability*, medical payments, and uninsured motorists coverage." CAL. INS. CODE § 660(b) (West 2011) (emphasis added). One could argue that a first-party policy covering the policyholder's general damages, such as pain and suffering, was not a "liability" policy. On the other hand, the policy creates a "liability" on the part of the insurer, therefore it may be a policy with "coverage of bodily injury . . . liability." *Id.* Since the definition of "automobile liability coverage" includes "medical payments," and the MedPay provisions of a policy do not require liability on the part of anyone other than the insurer, this definition is at least plausible. *Id.*

142. CAL. INS. CODE §§ 660(a)–(a)(1).

The Commissioner of Insurance must approve all rating factors.[143] While the Commissioner has discretion to approve and rank some rating factors, so long as they "have a substantial relationship to the risk of loss"[144] (referred to as the "optional rating factors"), Proposition 103 requires that the three most important rating factors determining rates and premiums (referred to as the "mandatory rating factors") must be, in the following order: (1) the insured's driving safety record, (2) the number of miles he or she drives annually, and (3) the number of years of driving experience the insured has had.[145]

This order of ranking, however, does not necessarily reflect the relative weight of each factor. Thus, to comply with Proposition 103's mandated ranking, insurers must artificially increase or decrease the actual predictive value placed on these (and other) rating factors to preserve this hierarchy.[146] This is called "pumping" when the value of a rating factor is increased to move it up in the hierarchy and "tempering" when the value of a stronger rating factor is artificially decreased in order to move it down in the rating order.[147] For example, annual miles driven may better predict risk of loss than driving safety record. Driving safety record, however, must be the most important rating factor.[148] In order to comply with Proposition 103 an insurer must "temper" the importance of the annual mileage and/or "pump" the importance of the driving safety record in order to comply with the order mandated by Proposition 103.[149] Pumping, tempering, or combining the two, is an example of how the auto rating factor regulations allow or even compel arbitrary rate setting. Two insurers with identical sets of costs and facts can arrive at different rates depending on how each approaches the pumping/tempering "fix."

143. CAL. INS. CODE § 1861.02(a)(4).

144. *Id.*

145. *Id.*; *see* CAL. CODE REGS. tit. 10, § 2632.5(c)(2)(C) (2008) (listing approved auto rating factors).

146. Tit. 10, § 2632.8(d); *see* Spanish Speaking Citizens' Found. v. Low, 85 Cal. App. 4th 1179, 1190–91 (Ct. App. 2000).

147. The process of pumping and tempering is discussed in *Spanish Speaking Citizens' Found.*, 85 Cal. App. 4th at 1229–37.

148. CAL. INS. CODE § 1861.02(a).

149. *Id.*

Pumping and tempering applies both to the three mandatory rating factors and to some optional rating factors. For example, territory (where a car is garaged or driven) may be more predictive than any, or indeed all, of the three mandatory rating factors. Nevertheless, it must be tempered, or the three mandatory rating factors must be pumped, in order to keep territory ranked below the three mandatory rating factors.[150] Indeed, current regulations require insurers to weigh territory below both the mandatory rating factors and any optional rating factors the insurer uses.[151]

Tempering the territorial rating factor below its true value may well cause a wealth transfer from insureds who garage their cars in low risk territories to insureds who garage their cars in higher risk areas. This means, for example, that rural drivers may pay more for insurance than their risk justifies. Urban drivers, subsidized by the overpayments of rural drivers, pay less. If one looks at mandatory auto insurance as somewhat akin to a tax, this presents the prospect of a regressive tax—rural insureds, while paying more than their risk suggests, are generally less affluent than urban insureds.[152] Likewise, pumping years of driving experience above more predictive optional rating factors means, quite simply, that the age of drivers counts too much. Put another way, risks presented by differences in years of driving experience must be exaggerated. Since risk increases with younger drivers and also increases with older drivers, these two groups must pay higher premiums than is justified by the risk they present. Thus, in both of these examples it may be argued that, rather than protecting consumers in general, some consumer groups "win," and others "lose." Whether this cross-subsidy is good policy is a political judgment made by Proposition 103 and by the Commissioner of Insurance when implementing both Proposition 103 and the optional rating factors that fall

150. *See* tit. 10, § 2632.7.

151. Tit. 10, § 2632.7(b)(4) ("[T]he order of analysis of the optional factors shall be determined by the insurer, with the exception that frequency band and severity band [these are referred to as the territorial rating factors] shall be analyzed last.").

152. Written Testimony of the California Farm Bureau Federation, *In re* proposed Amendment of title 10 California Code of Regulations, Section 2632.8—Optional Automobile Insurance Rating Factors, Mar. 6, 2006 (on file at Santa Clara University School of Law).

within the Commissioner's aegis.

When these cross-subsidies become palpable, it can result in adverse selection. An insured who is charged too little for annual mileage because the mileage rating factor has been tempered below its predictive value is likely to drive more miles than he or she would have, if charged the higher rate. The result is similar when annual miles driven cannot, as a practical matter, be used by the products liability insurers of suppliers and manufacturers. Additionally, insureds who are charged more than their risk warrants are also more likely to underinsure or drop out of the pool altogether. The recently approved Pay-as-You-Drive policies are an attempt to address this issue with respect to the annual miles driven factor.

D. Some Mandatory Rating Factors Do Not Work with AVs

Proposition 103's mandatory rating factors simply do not fit the brave new world of AVs. The most important factor, "driving safety record," is singularly inapt when the car is driverless.[153] Indeed, one might expect or encourage a driver with a poor record to opt for a driverless car. Nevertheless, Proposition 103 requires the insured's driving safety record to rank as the top-rating factor. Since driving record was singled out in the "Declarations" portion of the Proposition, even a two-thirds vote of the legislature to amend it may not "further" the Proposition's purposes.[154]

The second rating factor, the "number of miles he or she drives annually," does appear to directly bear on the risk of AVs.[155] There is a possible statutory interpretation issue with the reference to "he or she drives." It may be argued that it is the car that is driving, not "he or she." The proposed Nevada regulations referenced above provide that the "operator" (the one who engaged the AV) is "deemed the driver."[156]

153. *See id.*; John Markoff, *Google Cars Drive Themselves, in Traffic*, N.Y. TIMES (Oct. 9, 2010), http://www.nytimes.com/2010/10/10/science/10google.html?scp=1&sq=autonomous%20vehicles&st=cse ("The technology is ahead of the law in many areas.").

154. Section 1 of Proposition 103 declares, among its purposes, "Second, automobile insurance rates shall be determined primarily by a driver's safety record and mileage driven." *Text of Proposition 103*, CONSUMER WATCHDOG (Jan. 1, 2008), http://www.consumerwatchdog.org/feature/text-proposition-103.

155. Spanish Speaking Citizens' Found. v. Low, 85 Cal. App. 4th 1179, 1184 (Ct. App. 2000).

156. NEV. DEP'T OF MOTOR VEHICLES, LCB File No. R084-11, PROPOSED

The third ranking mandatory factor, the "number of years of driving experience the insured has had," again seems almost completely inapposite.[157] When the driver is merely a passenger, the person's driving experience has little or no relevance to risk. Indeed, one may imagine youngsters who could not get a driver's license, and older people who should long ago have surrendered their keys, being ferried about in fully autonomous vehicles.

Proposition 103 also forbids rates that are "unfairly discriminatory."[158] Perhaps the most commonly accepted definition of unfairly discriminatory in the context of insurance is: "An insurance rate structure will be considered to be unfairly discriminatory . . . if allowing for *practical limitations*, there are premium differences that do not correspond to expected losses and average expenses or if there are expected average cost differences that are not reflected in premium differences."[159] Applying this definition, one could easily argue that pumping and tempering rates is unfairly discriminatory. If the process is mandated by Proposition 103, the same Proposition that forbids unfairly discriminatory rates, it would seem that unfair discrimination may be both legal and mandated in California.

The most sensible approach to this dilemma, at least with respect to AVs, would be to abolish or substantially re-order the three mandatory rating factors. However, this is more easily said than done. As noted above, amending Proposition 103 requires a two-thirds vote of the legislature.[160] Moreover, section 8(b) of the Proposition provides: "The provisions of this act shall not be amended by

REGULATION OF THE DEPARTMENT OF MOTOR VEHICLES, *available at* http://www.dmvnv.com/public_meetings/R084-11.pdf.

157. *Spanish Speaking Citizens' Found.*, 85 Cal. App. 4th at 1184.

158. *See id.* at 1224.

159. C. Arthur Williams, *Price Discrimination in Property and Liability Insurance*, *in* INSURANCE, GOVERNMENT, AND SOCIAL POLICY 209–42 (1969) (emphasis added). Principle four of the CAS Actuarial Statement of Principles for Ratemaking states: "A rate is reasonable and not excessive, inadequate, or unfairly discriminatory if it is an actuarially sound estimate of the expected value of all future costs associated with an individual risk transfer." CAS. ACTUARIAL SOC., STATEMENT OF PRINCIPALS REGARDING PROPERTY AND CAUSALTY INSURANCE RULEMAKING 6 (1988), http://www.casact.org/standards/princip/sppcrate.pdf.

160. *See* Found. for Taxpayer & Consumer Rights v. Garamendi, 132 Cal. App. 4th 1354, 1359 n.1 (Ct. App. 2005).

the Legislature except to further its purposes."[161] Both of these requirements can be formidable hurdles.

Persistency discounts serve as an example. Most are aware that their insurer discounts their rates if they have been with the insurer for a period of time.[162] This is called the "persistency discount." The discount is usually justified on the basis that persistency saves the insurer the producing expenses associated with finding a new insured. If one wants to change insurers, Proposition 103 does not permit the subsequent insurer to match the persistency discount offered by the insured's current insurer.[163] Thus, the second insurer could not compete by offering the same discount. Changing insurers, then, was somewhat like a taxable event. The "tax" is the loss of the persistency discount when purchasing the new policy.

The California legislature concluded that this both undermined competition and drove up the cost of insurance by discouraging the ability to shop for lower rates. The legislature made the following findings:

> The Legislature hereby finds and declares that it furthers the purpose of Proposition 103 to encourage competition among carriers so that coverage overall will be priced competitively. The Legislature further finds and declares that competition is furthered when insureds are able to claim a discount for regular purchases of insurance from any carrier offering this discount irrespective of whether or not the insured has previously purchased from a given carrier offering the discount.[164]

Despite these legislative findings, the Court of Appeal held the amendment invalid because, in the Court's view, it did not further the purposes of Proposition 103.[165] The Court

161. *Id.* at 1364.

162. *See California Court Strikes Down Persistence Discount Law*, INS. J. (Sept. 30, 2005), http://www.insurancejournal.com/news/west/2005/09/30/60326.htm.

163. *See id.* (2003 California law that permitted insureds to switch insurance companies and maintain their persistency discount was struck down as not furthering the purposes of Proposition 103).

164. *See Found. for Taxpayer & Consumer Rights*, 132 Cal. App. 4th at 1362 n.6.

165. *Id.* at 1362. The court also noted that "[t]wo prior attempts by the Legislature to amend Proposition 103 have been invalidated by the courts because they did not 'further [the] purposes' of the initiative, as section 8, subdivision (b) requires." *Id.* at 1366 (citing Amwest Sur. Ins. Co. v. Wilson, 11

also held that Proposition 103 vests only the Insurance Commissioner with the power to set optional rating factors.[166] Thus, the legislature, even by a super majority, may not be authorized to adopt rating factors for auto insurance. Following this defeat in the courts, promoters of "portable persistency" qualified a ballot initiative to amend this aspect of Proposition 103. With a vote of 51.9% to 48.1%, the initiative failed in the June 8, 2010 election.[167]

Some statutory interpretation might avoid much of this discrimination. The NAIC, every state, and Proposition 103 all require that rates may not be "unfairly discriminatory." Proposition 103 also requires that the three mandatory rating factors—driving record, annual mileage, and years of driving experience—be applied "in decreasing order of importance." The Proposition expressly forbids unfairly discriminatory rates, but it does not define "order of importance" or expressly require or authorize the pumping and tempering of mandatory and optional rating factors. Another reading more closely allied with the universal policy forbidding unfairly discriminatory rates might be to interpret the Proposition to require only that the mandatory factors be given the maximum weight that the underlying data supports. No court has yet adopted this approach, but AVs may be the *reductio ad absurdum* that prompts rethinking the issue. To

Cal. 4th 1243, 1265 (1995) (stating purposes of Prop. 103 not furthered by exempting surety insurance)); Proposition 103 Enforcement Project v. Quackenbush, 64 Cal. App. 4th 1473, 1494 (Ct. App. 1998) (stating purposes of Prop. 103 not furthered by reducing insurers' obligation to refund excess premiums).

166. *Id.* at 1372 ("Under Proposition 103, therefore, it is the Insurance Commissioner rather than the Legislature that is vested with ratemaking authority subject to the appropriate ratemaking process."); CAL. INS. CODE § 1861.02(a)(4) (West 2011) ("Rates and premium for an automobile insurance policy . . . shall be determined by application of the following factors [listing the 3 mandatory factors] [and] [t]hose other factors that *the commissioner may adopt by regulation* . . . .") (emphasis added).

167. *Prop 17 Auto Insurance*, U.C. BERKELEY, http://igs.berkeley.edu/library/research/quickhelp/elections/2010primary/prop17.php (last visited Apr. 22, 2012). Proposition 17 appeared on the June 8, 2010 ballot. A similar proposition has been filed with the California Attorney General's office (Initiative 11-0013) and may appear on the November, 2012 ballot. *See* CHANGES LAW TO ALLOW AUTO INSURANCE COMPANIES TO SET PRICES BASED ON A DRIVER'S HISTORY OF INSURANCE COVERAGE. INITIATIVE STATUTE (INITIATIVE 11-0013, AMENDMENT #1-S (Aug. 11, 2011), http://ag.ca.gov/cms_attachments/initiatives/pdfs/i944_title_and_summary_11-0013_final.pdf (last visited May 15, 2012).

count the insured's driving record and the years of driving experience as two of the three most important rating factors when, in fact, they are irrelevant when rating a self-driven automobile would be, one may modestly suggest, absurd.

Under Proposition 103 as currently interpreted, there may be one or two other rather poor options. The Commissioner can adopt a fourth optional rating factor for AVs.[168] The type of car being insured is presently among the current optional rating factors.[169] Even if AVs are substantially safer than other vehicles, this rating factor must still rank behind driving safety record, miles driven annually, and number of years of driving experience.[170] Under such a rating scenario, there would be little motive for a driver with a poor driving record to opt for the safer AV. The insured's rates would still be based on the rates that would apply were the insured to drive an ordinary vehicle.

Time is a great leveler. As bad drivers operate AVs, their driving records will improve. There should be no citations and no principally at fault accidents. In three years' time one would expect the driving record to approach perfection—along with all other AV drivers. This simply illustrates again why the insured's driving record is irrelevant as a rating factor. No driver is any better or any worse than any other driver. Yet, this irrelevant rating factor must be weighted more than other far more relevant factors, such as miles driven, the type of vehicle, and territory. This also illustrates that the rating factors related to the type and capacity of the vehicle, rating factors that now dwell in the tempered company of other optional rating factors, should be allowed to rise to the position they deserve.

Adding AVs to the pool of insured cars may also increase the weight of the territorial rating factor. Although current regulations require that territory must rank last among all rating factors, as some of those factors fall away, the weight of the territorial factor may well rise. Rather than ranking

168. INS. § 1861.02(a)(4) ("Those other factors that the commissioner may adopt by regulation and that have a substantial relationship to the risk of loss.").

169. CAL. CODE REGS. tit. 10, § 2632.5(d)(1) (2008).

170. Tit. 10, § 2632.5(d)(1) (stating the type of vehicle); tit. 10, § 2632.5(d)(8) (stating the vehicle characteristics, including engine size, safety and protective devices, damageability, reparability, and theft deterrent devices).

fifteenth and sixteenth among optional rating factors, territory may rise to fifth or sixth place.

There is a second possible compromise that may help, and it requires neither legislation nor a new proposition. Prior to the 2006 amendments to the regulations governing the rating factors, all of the optional rating factors could be averaged together.[171] If their average weight, when compared to the third mandatory rating factor—years of driving experience—was less than the weight of years of driving experience, then the insurer's class plan was in compliance with the Proposition. This method was challenged. Recognizing broad discretion in the Commissioner to adopt rating factors in compliance with Proposition 103, the Court of Appeal upheld this approach.[172] As his last regulatory act before leaving office, then Commissioner John Garamendi scrapped this system and introduced the current system in which each optional factor must weigh less than the third mandatory factor. Subsequent Commissioners have not sought to revisit this issue. AVs may catalyze some rethinking along this line.

E. The Good Driver Discount

Assuming that application of the mandatory rating factors is a problem not so intractable that it cannot be solved, a California insurer would also face dealing with the Good Driver Discount (GDD). Proposition 103 mandates that all insurers offer a GDD "to every person who meets the criteria."[173] The regulations adopted pursuant to Proposition 103 speak in terms of "driver."[174] Those who qualify are entitled to a rate "at least 20% below the rate the insured would otherwise have been charged."[175] Except for some serious offences, such as drunk driving, the basic outline is this:

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171. Spanish Speaking Citizens' Found. v. Low, 85 Cal. App. 4th 1179, 1190 (Ct. App. 2000); Wells, *supra* note 16.

172. *Spanish Speaking Citizens' Found.*, 85 Cal. App. 4th at 1185–86.

173. INS. §§ 1861.02(b)(1), 1861.025.

174. Tit. 10, §§ 2632.13; 2632.13.1.

175. INS. § 1861.02(b)(2); The California Code of Regulations section 2632.12(a) interprets this mandate, changing it to "20 percent less than the lowest rate available to a comparable driver *who is not a good driver*." Tit. 10, § 2632.12(a) (emphasis added).

- A moving violation, which has not been masked by going to driving school, receives one point.
- An accident for which the driver is "principally at fault" that resulted in only damage to property exceeding $1,000 receives one point.[176]
- If principally at fault and the accident resulted in bodily injury, the driver receives two points.[177]
- If a driver receives two points within a three-year period, the insurer may withdraw the GDD. The driver then loses the GDD for at least three years.[178]

Class plans also include, as they must, a separate rating factor for driving safety record (the first mandatory rating factor), and a driving record that counts against the GDD also counts against the driving safety record rating factor.[179] Thus, a driver may lose both the GDD and the discount based on driving record. Since driving safety record must be the most important rating factor, the loss of both will often cause a fifty percent or more rise in premiums.

The Commissioner of Insurance is instructed by the Proposition to adopt regulations setting guidelines to be used to determine fault for the purposes of the GDD.[180] The Commissioner has adopted extensive regulatory guidelines.[181]

Very early in the life of Proposition 103 the Commissioner adopted a definition of "principally at fault" that presents some anomalies. Proposition 103 does not define "principally," but the Commissioner adopted a definition which, at least in theory, allows only one driver in a

176. INS. § 1861.025(b)(1)(A).

177. Results under these two provisions can seem quite arbitrary. One who breaks a headlight on a premium car may well do more than $1000 in damage, while the same driver who totals an older and less expensive car may do less than $1000 in damage (the salvage value of the car). In addition, the statute and regulations offer no definition of "bodily injury." *See* INS. § 1861.025(b)(1)(A); tit. 10, § 2632.12(a). A pregnant woman in a minor accident may reasonably incur several thousand dollars in medical bills simply to find that she is quite well. Another person may expend ten dollars on anti-inflammatory drugs because the person's back was uncomfortable for a week. Is either, or neither, "bodily injury?"

178. Tit. 10, § 2632.13.1.

179. Note that, by regulation, only principally-at-fault accidents may be counted against the driving safety record rating factor. *See* tit. 10, § 2632.13.

180. INS. § 1861.025(b)(3).

181. Tit. 10, §§ 2632.12, 2632.13, 2632.13.1.

multi-vehicle accident to be principally at fault.[182] The regulation provides that: "An insurer shall not make a determination that a driver is principally at-fault for an accident unless the driver's actions or omissions were at least 51 percent of the legal cause of the accident . . . ."[183]

Put another way, one may remain a good driver for the purposes of the GDD discount if one is "lucky" enough to have another driver equally or more at fault. Four drivers, all of whom run a four-way stop, are all good drivers for this purpose (each is only twenty-five percent the legal cause of the accident). Two drivers going thirty miles per hour over the limit are both good drivers if they contribute equally to the damages. Drivers insured by different insurers, however, could both be found to be principally at fault because the insurers need not coordinate their findings. By contrast, only one could be found principally at fault if both happen to be insured by the same company.

The regulations also provide a number of rebuttable presumptions that, in certain accident scenarios, the driver is not principally at fault. For example, the driver is rebuttably presumed not to be principally at fault if "the vehicle was struck in the rear by another vehicle, and the *driver* has not been convicted of a moving traffic violation in connection with the accident,"[184] or "the *driver* was not convicted of a moving traffic violation and the *operator* of another vehicle involved in the accident was convicted of a moving traffic violation."[185]

Applying the GDD to AVs will present some difficulties and some anomalies. The current definition of principally at fault speaks only in terms of causation.[186] Perhaps fault is implied, but the regulation, at least for accidents in California, does not explicitly require fault, nor, if fault is implied, does the regulation suggest how culpability is to be weighed along with causation.

If the regulation requires fault on the part of the driver, then it is difficult to see how it is to be applied to cars that are not driven by a driver. Even if the principally at fault

182. *See* tit. 10, § 2632.13.1.
183. Tit. 10, §§ 2632.13(b), 2632.13.1.
184. Tit. 10, § 2632.139(c)(2) (emphasis added).
185. Tit. 10, § 2632.13(c)(3) (emphasis added).
186. Tit. 10, § 2632.13(b) (emphasis added) ("At least 51 percent of the legal cause of the accident.").

determination is to be based only on causation, it is difficult to see how "the driver's actions or omissions" satisfied the "at least 51 percent" standard.[187] Moreover, some of the rebuttable presumptions arise only if the "driver" or "the operator of another vehicle" has not been convicted of a moving traffic violation related to the accident.[188] If the car has no driver or operator, however substantial the contribution to the accident, the AV or its owner will not be principally at fault. Also, if one is to consider fault, then in a collision with an AV any ordinary driver who shares any level of fault may be principally at fault because the ordinary driver is the only driver who shares <u>any</u> fault. Thus, the GDD must be extended to the AV regardless of the automobile's actual risk. Put another way, all operators of AVs would be entitled to an insurance rate twenty percent less than the insurer would otherwise charge.

Since insurance is a zero-sum-game, and an insurer would not stay in business long if it charged all of its policyholders twenty percent less than it should charge, the difference must be made up elsewhere. At present, it is made up from those who do not qualify as good drivers. If all vehicles were autonomous, and all AV "drivers" were good drivers, then the system would crash. There would simply be no one to make up the twenty percent in lost premium. As the number of AVs increases and the pool of "not good" drivers shrinks, the financial burden on not good drivers could be ruinous. Imagine the premium for the driver who has two points in the previous three years and owns the last ordinary car in California. The premium would be tens of millions of dollars. Moreover, the insurer does not have the option to make up the difference from other rating groups, such as vehicle type, gender, or territory, because to do so would likely raise the weight of those groups above the mandatory rating factors.

In order to keep insurance viable and to avoid some of the enormous spikes in premiums for "not good drivers,"[189] insurers and the Department adopted regulatory language

187. *Id.*

188. Tit. 10, § 2632.13(c)(3).

189. This awkward phrase is apt because it is the language of the regulation and because those who are "not good" drivers are not necessarily "bad" drivers.

which may be at odds with the Proposition's language. California's regulatory language bases the GDD rate on the rate for "a comparable driver who is not a good driver"[190] rather than the rate "the insured would otherwise have been charged."

This gloss on the statute causes dramatic changes. Its virtue is that the changes are less dramatic than applying the Proposition's language. Some simple illustrations follow. [191]

Example #1

Assume a group of 100 good drivers and 10 not good drivers. Assume in all other respects they are equal.[192] Assume, also, that the premium to cover the good drivers would be $100 each, and assume the premium to cover the not good drivers would be $110 each. This pool of insureds would generate the need for a total premium of (100 x $100) + (10 x $110) = $11,100. Applying the <u>Proposition's</u> language, the good drivers should be offered a rate of $80 rather than $100. This would generate $8000 in total premium. Since the pool must generate $11,100 in premium, the difference ($3100) must be made up by the not good drivers. Since there are only ten of them, each not good driver's premium would go from $110 to $310 (i.e., the $3,100 shortfall divided by the ten remaining drivers who must share it.)

Example #2

The phrase "would otherwise have been charged" is not self-defining, so one may approach the calculation differently. Apply the same assumptions about the pool and premium as above. If we do not know anything about individual drivers, then the premium each driver would otherwise be charged is $11,100 divided by 110, or $100.90 each. One could argue

190. *Compare* CAL. INS. CODE § 1861.02(b) (West 2011) ("[A]t least 20% below the rate the insured would otherwise have been charged") *with* tit. 10, § 2632.12(a) ("20 percent less than the lowest rate available to a comparable driver *who is not a good driver*.") (emphasis added).

191. For similar examples of computing rates in the context of the persistency rating factor, see *Found. for Taxpayer & Consumer Rights v. Garamendi*, 132 Cal. App. 4th 1354, 1367 (Ct. App. 2005).

192. Of course, all things would not be equal. Some self-driving cars may be safer than others. Some will be more expensive to repair than others. Some will be garaged in neighborhoods less safe than others. None of these factors, however, alters the point of the hypothetical.

that $100.90 is what the policyholder "would otherwise have been charged." Discounting this by 20% yields a good driver rate of $80.72 per policy. This will bring in a total premium from the 100 good drivers of $8072. The balance ($11,100 – $8072 = $3028) must be collected from the remaining ten not good drivers. This puts the not good driver's premium at $302.80 each (divide $3028 by 10 for the ten not good drivers). The total collected equals the $11,100 necessary to support this book of business.

Example #3

One can see in this last example that under the Proposition's language the greater the number of not good drivers in the relevant pool, the higher the rates for the good drivers and the lower the rates for the not good drivers. Assume, for example, that the pool consisted of 100 not good drivers and only 10 good drivers. The insurer must collect a total of $12,000 to cover this book of business. Doing the same calculations as in Example #2 the good drivers would pay $87.27 per policy and the not good drivers would pay $111.29 (try your hand at the arithmetic). This is a small increase for the 10 good drivers (an increase from $80.72 to $87.27), but a large benefit for the 100 not good drivers (a decrease from $302.80 to $111.29).

Example #4

Applying the <u>regulation</u>, the insurer must offer the good drivers a premium that is "at least 20 percent less than the lowest rate available to a comparable driver who is not a good driver." To accomplish this, the insurer must first solve for the not good driver rate, and then offer the good drivers .80 of that rate. Assume the same numbers as in Example #1. Again, the total premium must equal $11,100. Where x is the not good driver rate, the formula is: $10x + 100(.80x) =$ $11,100. X (the not good driver rate) is $123.33. The good driver rate must, then, be equal to or less than .80 x $123.33 = $98.66. This is a very large difference between what the Proposition suggests and what the regulation effects. The good driver's rate rises from $80 to $98.66 (only $3.34 below what they, arguably, "would otherwise have been charged"), while the not good driver's rate falls from over $300 to the more palatable $123.33. Indeed, since the GDD is a twenty percent discount from the rate for not good drivers, the GDD becomes illusory if the rate for a not good driver exceeds the base rate by twenty percent or more.

Example #5

If the proportion of not good drivers in the relevant pool increases, the rates for both good drivers and not good drivers begin to fall. Reverse the relative number of good and not good drivers to 10 good drivers and 100 not good drivers. The rate for not good drivers falls to $111.11 and the rate for good drivers drops to $88.88. Again, try your hand at the arithmetic.[193]

The results in Examples #4 and #5 show that the method of calculating the good driver discount is unfairly discriminatory. The rates bear little relationship to "the expected value of all future costs associated with an individual risk transfer."[194] Even if one could articulate a principled basis for reducing good drivers' rates to twenty percent less than they otherwise would be charged, there is no principled basis for allowing the rates for good and not good drivers, which we know should be $100 and $110 respectively, substantially to vary merely because of the mix of good and not good drivers in the insurance company's pool. The proportion of good and not good drivers is a matter entirely beyond the insured's control and has no bearing on the insured's individual risk.

However one calculates the GDD, inserting into the pool large numbers of AVs entitled to the twenty percent discount will have important, and possibly unanticipated, consequences. Since AVs should generate fewer liabilities for automobile insurers (both because they are safer and because possibly a significant number of the remaining losses may leapfrog over the automobile insurer directly to the supplier or manufacturer), adding them to the pool will lower overall automobile rates.

193. $100x + 10(.80x) = \$12,000$. X, the not good driver's rate, equals $111.11. Eighty percent of the not good driver's rate equals $88.88.

194. CAS. ACTUARIAL SOC., *supra* note 160.

Example #6

Assume the same 110 car pool from above, but change the mix to:

Good drivers –95	Per unit cost—100	Total cost 9,500
Good drivers in AVs-5	Per unit cost—50	Total cost 250
Not Good drivers-9	Per unit cost—110	Total cost 990
Not Good drivers in AVs-1	Per unit cost—50	Total cost 50

Total premium needed to service this group—$10,790

Since this is less than the $11,100 in Example #1, it stands to reason that individual premiums will be lower. The average cost, or base rate, is $98.09 ($10,790/110). Now calculate the GDD using the same formula as above: $10x + 100(.80x) = \$10,790$. The not good driver premium is $119.80 and the good driver premium (.80 x $119.89) is $95.91. Both are lower than the premium calculated above using the regulation.

The five good drivers driving AVs and the one not good driver driving an AV, however, are paying far too much. Based on their risk, each should pay $50. The not good AV driver's premium is $119.89 and the good AV driver's premium is $95.91.

To make this fairer, one must create a rating class for AV drivers. If they could be hived off from the other drivers, this would be easy. Each would pay $50. Since these are "automobile liability" policies within the meaning of California Insurance Code section 660(a), and since section 660(a) is incorporated by Proposition 103,[195] they must be rated with all other policies. Consequently, the GDD must be extended to them, and the mandatory rating factors must also be applied to them. As a consequence, AV drivers in general will pay too much, and AV drivers with poor driving records will pay much too much.

195. INS. § 1861.02(a) ("Rates and premiums for an automobile insurance policy, as described in subdivision (a) of Section 660, shall be determined by application of the following factors in decreasing order of importance . . . .").

F. Putting It All Together

To calculate the premium for the AVs, the insurer must first calculate the GDD. Again, assuming the group above and applying the regulations, the result is $95.91 for the "good" AV driver and $119.89 for the "not good" AV driver.

The next step might be to create a rating plan for the class of AV drivers. This, however, is not permitted by Proposition 103. The insurer must first apply, in descending order of importance, the three mandatory rating factors imposed by Proposition 103. Let us focus only on the first one—Driving Safety Record. Since the AV is self-driven, the driving safety record should be irrelevant, as illustrated by the assumed $50 unit cost for both good and not good drivers of AVs in our hypothetical. Nevertheless, driving safety record must be the most important of all the rating factors.

The calculations are shown in Appendix A.[196] In order to comply with Proposition 103 and the accompanying regulations, the "weight" attributed to driving safety record must be greater than the "weight" attributed to the fact that the car is an AV. The weight attributed to driving safety record (remember, there are some bad drivers in ordinary cars among the group) is 3.96. The weight attributable to AVs is 5.35. This rate plan would be out of compliance; therefore, the insurer must either "pump" the driving safety record-rating factor by artificially expanding its relativities or "temper" the AV rating factor by artificially compressing its relativities, or both. When one rating factor is pumped, then another must be tempered in order that the total premium collected equals the $10,790 original total premium covering all losses and related costs.

Appendix A shows the calculations assuming tempering (col. 9) or pumping (col. 10). The tempered weight for AVs in col. (18) is a fraction below (at the 14th decimal place!) the

196. The author is extremely grateful to Shawna Ackerman for her invaluable assistance in developing this example. Ms. Ackerman is an actuary who has worked for the California Department of Insurance, for Pinnacle Actuarial Resources, Inc., and now works for the California Earthquake Authority. An electronic copy of this paper can be found at http://digitalcommons.law.scu.edu/facpubs/337/. The formulae for the calculations are imbedded in the Excel spread sheet noted in the Appendix to this Article and can be manipulated by the user after the Appendix is downloaded.

3.96 weight for driving record in col. (8), so it is now in compliance. In neither case does the AV insured pay the appropriate amount. In one case the good AV driver pays $60.44 and the not good AV driver pays $75.55—both well over the $50 represented by their risk. The excess premium returns to the pool and subsidizes non-AV drivers. In the pumping example, the five good AV drivers pay $47.63 (only a discount of $2.37 below the $50 risk) and the one not good AV driver pays $63.17 ($13.17 too much). A small subsidy of $1.32 [$13.17 – 5($2.37)] flows back to the premium pool to subsidize other drivers. Note, too, that the good AV driver's premium is, as it must be, equal to or less than eighty percent of the not good AV driver's premium, even though both present the same unit cost ($50 per car) and in one example, the good AV driver, even with the GDD, pays $10.44 more than the $50 unit cost of the risk.

Keep in mind that this calculation relates only to the driving record rating factor. At its highest permissible weight, the rating of AVs must weigh less than the third rating factor (years of driving experience—likely of little relevance for self-driving cars), thus pushing it even further from its true weight. Therefore, the best position AVs can enjoy in this ratings race is fourth place.

One may argue that raising the premium for a not good driver of a self-driving car makes as much sense as raising the price of bus or train tickets for not good drivers. Awarding a GDD that results in a premium of $10.44 more than the risk makes little sense. It is difficult to imagine any social policy supporting this discrimination.

Perhaps there is a way out of this dilemma. One might argue that an owner of an AV is not a "person who qualifies" under the Proposition because the GDD is a discount earned by good driving. Perhaps it is arguable that a person who does not drive is not a "driver," therefore cannot be a "good driver." This interpretation, though sensible, would require some stretching of the Proposition's language and would probably invite a court challenge.

Commercial insurers of manufacturers and suppliers are not encumbered with Proposition 103's unique automobile provisions,[197] therefore they need not offer a GDD, nor need

197. The automobile provisions of Proposition 103 only apply to automobile

they conform to the ranking of the mandatory rating factors. To the extent that the risks of AVs are transferred to them, the insurance burden passed to consumers in the price of the car can reflect the actual, and presumably lower, risk presented by AVs. As noted above, however, for practical reasons some rating factors, such as annual miles driven and territory, cannot properly be reflected in the automobile price. Moving from the awkward and arbitrary results mandated by Proposition 103's rating factors to a commercial insurance setting that cannot properly reflect some other rating factors is also an awkward trade-off. At best, it may be a choice of the least worst.[198]

Another viable solution might to be to amend the California Insurance Code section 660(a) to exclude from the definition of "policy" those policies covering liability for AVs (at least when operated in autonomous mode). Since Proposition 103 incorporates section 660(a), this would likely require a two-thirds vote of the legislature and the amendment would have to "further the purposes" of Proposition 103. Assuming a two-thirds vote could be mustered, the issue would then be whether the amendment furthers the purposes of the Proposition. To the extent that liability moves from fault-based driving to defect-based products liability, the purposes underlying the mandatory rating factors and the GDD simply cannot be accomplished. Manufacturers will pass these costs through to automobile buyers free of the Proposition's restraints. Since the purposes of the Proposition, at least with respect to liability coverage,[199] simply cannot be accomplished when dealing with self-driving cars, amending section 660(a) would not frustrate the purposes of Proposition 103. "Furthering" may be different from "not frustrating," but avoiding forcing

liability, physical damage or collisions policies. INS. § 1861.02(a); CAL. INS. CODE § 660(a) (West 2011). Since the automobile provisions of Proposition 103 do not apply to commercial policies, manufacturers need not pump, temper or offer a good driver discount.

198. As King Lear lamented when forced to choose, so he thought, between evil daughter Goneril and very evil daughter Regan, "Not being the worst stands in some rank of praise." WILLIAM SHAKESPEARE, KING LEAR art II, sc. iv (W. Cross and T. Brooke, ed., Yale Univ. 1993).

199. There still may be some role for comprehensive, collision and MedPay coverage, at least to the extent that these offer coverages unattached to any fault on the part of the insured or defect on the part of the insured automobile.

Proposition 103 into a mold that does not fit its purposes could be viewed as furthering its purposes. It is also unlikely that the voters considered insurance rules governing automobiles that, at the time they adopted Proposition 103, existed only in fantasy. If the Department of Insurance were to sponsor the legislation, one might expect the sponsorship to be afforded some level of deference.[200]

Jurisdictions not governed by Proposition 103 would find it relatively easy to deal with this advancing technology. Proposition 103, and the difficulties faced with amending it, may leave California at a decided disadvantage when it comes to coping with this developing technology.

IV. ADJUSTING RATES TO REFLECT RAPIDLY IMPROVING TECHNOLOGY

Technology improves at an astounding rate. Gordon Moore, a past president of Intel, famously (and thus far accurately) predicted that transistor count on microprocessors would grow exponentially—doubling every two years.[201] This has become known as "Moore's Law." His colleague at Intel, David House, predicted that this would cause computer performance to double every eighteen months.[202] Perhaps this should be known as "House's Corollary." Whether or not these predictions directly bear on AVs, one can expect rapid developments in the technology controlling them. Thus, the risks they present may dramatically change with the latest download, update or patch. So, too, the appropriate rate for the risk should change—likely downward. Proposition 103 makes it difficult to produce timely rates that are reasonably responsive to changes in loss exposures.

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200. *See* Found. for Taxpayer & Consumer Rights v. Garamendi, 132 Cal. App. 4th 1354, 1373 (Ct. App. 2005) ("Great weight should be given to an agency's construction of a rule or regulation it enforces.").

201. Gordon E. Moore, *Cramming More Components onto Integrated Circuits*, 38 PROC. OF THE IEEE 1, *available at* ftp://download.intel.com/museum/Moores_Law/Articles-Press_Releases/Gordon_Moore_1965_Article.pdf. The increase in the number of transistors on a microprocessor looks roughly like this: 1971—2300, 1985—275,000, 2000—42 million, 2004—592 million, 2011—3 billion. Steven Johnson, *More & More of Moore's Law*, SAN JOSE MERCURY NEWS, Dec. 5, 2011, at C1.

202. INTEL, VIDEO TRANSCRIPT: *EXCERPT* FROM A CONVERSATION WITH GORDON MOORE: MOORE'S LAW (2005), ftp://download.intel.com/museum/Moores_Law/Video-Transcripts/Excepts_A_Conversation_with_Gordon_Moore.pdf.

Automobile manufacturers and sellers may adjust their prices according to the market. Proposition 103, however, provides, in effect, that those who sell automobile insurance must charge the full sticker price.[203] Proposition 103 also provides that "[e]very insurer which desires to change *any rate* shall file a complete rate application with the commissioner."[204] While this may, on its face, seem a neutral provision, its practical impact is contrary to the interests of consumers. Like other businesses, insurance is somewhat cyclical. There are "hard markets" in which supply is restricted and one might expect rates to rise. There are "soft markets" where insurance is more available or demand is lower, thus one might expect rates to fall. This provision, as currently interpreted, applies even when an insurer wants to lower rates. Lower rates, of course, benefit consumers.

While voters who adopted Proposition 103 may well have had in mind keeping rates at the lowest rate at which an insurer will be willing to bring a product to the market, it seems unlikely that the voters intended to increase impediments to lowering rates—at least not when lowering rates would not threaten the solvency of the insurer.

Filing a "complete rate application with the commissioner" is a substantial impediment to reducing rates. A complete rate application is an expensive, ponderous and time-consuming process. A typical filing may take three to five months before approval. Some applications have even been delayed for a year.[205] In 2009, when insurers filed many new rate plans in order to comply with the new territorial rating regulations, delays among the top twenty private passenger auto insurers ranged from a low of 54 days (Viking) to a high of 558 days (USAA and USAA Casualty). Many took over 300 days (e.g., State Farm Mutual, Farmers Insurance Exchange, Progressive Choice).[206] If the desire to lower rates is in response to a "soft market," by the time the lower rate has been approved, the market may have significantly altered. Thus, it removes, to the detriment of

203. *See* MacKay v. Superior Court, 188 Cal. App. 4th 1427, 1440–41 (Ct. App. 2010).

204. CAL. INS. CODE § 1861.05(b) (West 2011) (emphasis added).

205. CALIFORNIA DEPARTMENT OF INSURANCE (July 28, 2009), http://insurance.ca.gov/.

206. *Id.*

consumers, one motive to lower rates in a soft market. In addition, once an application to lower rates is filed, the Commissioner, consumer groups, and others can intervene and ask that the rates be lowered even further.[207] Thus, an application to lower a rate by six percent may invite pressure to lower it even further.[208] If they "substantially contributed, as a whole" to the decision, a consumer group can also bill the insurance company for its legal, advocacy, and witness fees.[209]

Unless otherwise required by the Commissioner of Insurance, an insurer may normally expect a rate, once approved, to remain valid for three years.[210] Given the disincentives to lowering rates outlined above, one may expect that an insurer who wants to lower its rates to compete for greater market share in a softening market may temporize until otherwise required to make a new rate application.[211] This is especially so because, even if the insurer successfully completes a rate application to lower its rates, if market conditions harden during this three year period, there is no assurance, without going through the entire process again, that the insurer can return its rates to the previously approved rates.

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207. INS. § 1861.05(c).

208. For example, GEICO General filed to lower rates by 9.70%. On July 5, 2007, the Department approved a rate reduction of 14.50%, - 4.80% lower than requested. This is not to suggest that the lower rate is not justified, but just to illustrate that applications to lower rates come with some risk to the insurer. There are numerous other examples on the Department's web site. State Farm Mutual filed to lower its rates by 3.20%, but the approved rate on April 5, 2009 was -8.00%—a difference of -4.80%. Infinity Insurance filed to lower rates by 2.79%, but the approved rate on 7/22/09 was -10.44%—a difference of -7.65%. CALIFORNIA DEPARTMENT OF INSURANCE, *supra* note 205.

209. INS. § 1861.10(b).

> The commissioner or a court shall award reasonable advocacy and witness fees and expenses to any person who demonstrates that (1) the person represents the interests of consumers, and, (2) that he or she has made a substantial contribution to the adoption of any order, regulation or decision by the commissioner or a court. Where such advocacy occurs in response to a rate application, the award shall be paid by the applicant.

Id.; *see also* CAL. CODE REGS. tit. 10, § 2661.1(k) (2008).

210. Tit. 10, § 2644.50. Many insurers, however, file rate plans more frequently. Yearly filings are not uncommon.

211. Indeed, it may be that some of the longer rate processing times noted above may have been in part a result of temporizing by insurers who, during the process, were applying what they thought were favorable rates.

Experience elsewhere suggests that this disincentive to lowering rates, with respect to personal automobile insurance, is unnecessary. Relying primarily on competition to regulate automobile rates, there are numerous file-and-use or use-and-file states. These all allow insurer's to lower rates (or raise them for that matter) without prior approval—usually subject to the regulator's ability to disapprove a rate based on inadequacy, excessiveness, or unfair discrimination.[212] Even among the states that generally apply "prior approval" to private auto, many permit insurers to lower rates below the approved rate.[213] This is usually accomplished by moving the process from prior approval to either file-and-use or use-and-file if the change (often up or down) falls within a prescribed percentage. The percentage ranges from a high of 25% (Kentucky) to 10% (Alabama, Pennsylvania), 7% (South Carolina and possibly New Jersey), 5% (New York) and "less than 5%" (North Dakota).[214]

There does not appear to be any indication that facilitating the lowering of rates has impaired the solvency of insurers.[215] The benefits of lower rates to consumers are obvious. States that show a concern for solvency modulate the impact by designating a range between five and ten percent.[216] Others simply rely on the regulator's ability to disapprove a filed or used rate. California consumers would

212. For examples see Alabama, Alaska, Arizona, Arkansas, Colorado, Delaware, District of Columbia, Florida, Georgia (rate decreases for auto), Idaho, Kansas, Kentucky (if rate change is not over twenty-five percent in last twelve months), Louisiana, Maryland, Maine, Mississippi, Minnesota, Missouri, Montana, New Hampshire, New Jersey (only if decrease is revenue neutral), New Mexico, New York (for rate decreases only), North Dakota (if less than five percent), Ohio, Oklahoma, Oregon, Pennsylvania (decreases of ten percent or less), Rhode Island (unless decrease exceeds five percent), South Carolina (up to seven percent below company's existing rate), South Dakota, Texas, Utah, Vermont, Virginia, and Wisconsin. *Regulation Modernization*, *supra* note 34.

213. *See id.*

214. For examples, see Alabama (ten percent or less), Georgia (rate decreases for all lines except large commercial risks), Kentucky (decreases of more than twenty-five percent within twelve months), New Jersey (increases of seven percent, unclear about decreases), New York (as of 2010, flex rating up or down within five percent band in any twelve month period), North Dakota (if less than five percent), Pennsylvania (decreases of ten percent or less), and South Carolina (decrease of up to seven percent). The essential elements of various state regulations are listed online. *See id.*

215. *See id.*

216. *See* CAL. INS. CODE § 1861.05 (West 2011).

benefit from a similar approach.

While insurers must charge the rate approved by the Commissioner, that a "rate" has been approved should be no impediment to charging a lower rate. It seems reasonable that a rate of $100 includes the lower rate of $95.[217] Thus, insurers should be allowed to flex down without doing violence to the words or purpose of Proposition 103. New York, a prior approval state, is probably the most recent state to move in this direction. Effective January 2010, auto insurers may flex up or down within a five percent band in any twelve-month period without seeking prior approval.[218]

Ability to lower rates will be even more important as the safety of AVs evolves. Predicting loss trends for one, two or three years into the future is difficult at best. Marketing insurance is much like trading in futures. Money is collected now against a promise to deliver a service later at an unknown cost. The analogy may be even more apt than appears. Following the oil crisis of 1979–1980 claims frequency dropped. Drivers were not driving more safely; they were simply driving less because fuel prices had spiked.[219] Where rapidly advancing technology pushes down the risk presented by AVs, the regulatory environment should be nimble enough to allow consumers to benefit with equal promptness.

As in other states, solvency concerns can be addressed by bounding the flex range within reasonable limits. Proposition 103 provides that the commissioner must hold a hearing if requested to do so and a rate adjustment for auto insurance exceeds seven percent.[220] This number seems a fair average for those many states that allow flex down (and usually up) without prior approval. If claims experience for AVs were to drop dramatically within the time frame in which an insurer might reasonably be expected to file a new rate plan, seven percent may prove too conservative a parameter.

217. *See* CAL. CIV. CODE § 3536 (2011) ("The greater contains the less.").

218. *See Regulation Modernization*, *supra* note 34.

219. LeRoy Boison, *Will Post-Katrina Gas Shortages Impact Auto Claim Frequencies?* PINNACLE ACTUARIES, Dec. 2005, at 1, *available at* http://www.pinnacleactuaries.com/Files/Publications/mon-PinnacleMonograph2005GasShortages.pdf.

220. INS. § 1861.05(c) ("[T]he proposed rate adjustment exceeds 7% of the then applicable rate for personal lines or 15% for commercial lines, in which case the commissioner must hold a hearing upon a timely request.").

There may be some concern that an insurer might flex down in an unfairly discriminatory way. This concern, if valid, may be addressed by requiring the insurer to flex down equally across all classes within the class plan. If improvements among the pool of AVs lower claims experience, lowering rates across the board is an awkward compromise. Unless rates may be lowered only for AVs, all insureds, whether driving AVs or more dangerous automobiles, will benefit from the lower rates attributed to improvements brought to the pool only by AVs. It should also be kept in mind that the Commissioner has the power to halt any rate change by holding a hearing on the Commissioner's own motion.[221] Virtually every state forbids rates that are unfairly discriminatory, but this has not been an impediment to states with the flexibility noted above.

In order to credit savings to the AV owners who have earned them, it might be helpful to think of an AV that has been upgraded with a download as a vehicle different from the one that was originally rated. If a policyholder changes automobiles mid-term, or changes the use of an automobile (e.g., a change from commuting to pleasure), the insurer immediately adjusts the policyholder's rates. The adjustment, however, will be to a rate already pre-approved in the insurer's class plan. If, however, an insured purchases a new model that did not exist at the time of the previous rate filing, the insurer need not submit a new rate filing to rate the car. The new model is simply accounted for in the next rate filing. It may be helpful, then, to think of each significant upgrade to self-driving cars as analogous to a new model.

Anticipating rapid advances based on experience and technology, it might also be possible to pre-approve rate adjustments based on verifiable improvements. To insure the integrity of the suggested rate changes, perhaps some independent certification of the efficacy of the change might be required. The National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT), or some other body may be an appropriate certifier.

Even if cost savings are clearly attributable to improvements in AVs, crediting them to AV policyholders

221. *Id.*

may be difficult for another reason. Again, the mandatory rating factors impose their restraints. If rates fall for the "type of vehicle" rating factor, the factor's weight may, then, exceed the weight of the third mandatory factor—years of driving experience. The insurer would, then, be out of compliance.

As noted above, to the extent the liability and insurance burden passes to manufacturers and their insurers, rates may be adjusted outside the restraints of Proposition 103. Because the liability and/or insurance costs were passed on to the buyer in the cost of the car, it would be difficult to pass savings onto current owners after the sale was completed. Only new buyers would benefit from insurance savings attributable to more recent technological improvements.

It may be that the Commissioner could adopt a definition of "rate" that is broad enough or flexible enough to accommodate this new technology. Alternatively, the Commissioner could sponsor legislation to authorize "flex down." If the legislation were viewed as a modification of Proposition 103, it would require the two-thirds super majority noted above. It is at least arguable that lowering rates in a non-discriminatory way and consistent with maintaining solvency furthers the purposes of the Proposition.

CONCLUSION

California is the cradle of technological innovation. Not surprisingly, Google, one of the primary developers of AVs, is located in California.

California is not the cradle of insurance innovation. Despite Woody Allen's 1973 film, *Sleeper*, the drafters of Proposition 103, and the voters convinced to follow their lead, embedded in California a regulatory system ill-suited to insuring self-driving automobiles that are controlled by new and fast developing technology.[222]

Unless ways can be found to conform Proposition 103 to this new reality, insurance for AVs is likely to migrate to a statutory and regulatory environment untrammeled by Proposition 103—commercial policies carried by manufacturers and suppliers. This migration presents its

222. *See* SLEEPER, *supra* note 6.

own set of problems. While the safety of AVs could be more fairly rated, other important rating factors, such as annual miles driven and territory, must be compromised. Whether this migration occurs will also depend on how liability rules do or do not adjust to a world in which people will nevertheless suffer injuries from AVs, but in which it is unlikely our present fault rules will adequately address compensation.

If concepts of non-delegable duty, agency, or strict liability attach initial liability to owners of faulty cars with faultless drivers, the insurance burden will first be filtered through automobile insurance governed by Proposition 103. These insurers will then pass the losses up the distribution line to the insurers of suppliers and manufacturers that are not governed by Proposition 103. Manufacturers and suppliers will then pass the insurance cost back to AV owners in the cost of the vehicle. The insurance load reflected in the price of the car will pass through to automobile owners free of any of the restrictions imposed by Proposition 103. There will be no GDD, such as it is, no mandatory rating factors, and, depending on where the suppliers' or manufacturers' insurers are located, more flexible rating. One may ask: What is gained by this merry-go-round?

When addressing the insurance challenges of AVs, perhaps the regulatory system needs someone with the vision of the late Steve Jobs. In the age of the MacBook Pro, developers of AVs may find themselves working in a legal and regulatory environment (the Operating System, if you will) somewhat akin to the 1985 Mac.

APPENDIX A

Example with Self-Driving Cars (SDC)[223]

Base Rate =	98.09	(1)			
(2)	(3)	(4)	(5)	(6)	(7)
	Units	"Proper" per unit cost	Total	Prop 103 GDD	Rating Factor
Good	95	100	9,500	95.91	0.978
Good SDC	5	50	250	95.91	0.978
Not Good	9	110	990	119.89	1.222
Not Good - SD(	1	50	50	119.89	1.222
Totals	110	98.09	10,790	98.09	1.00
	(11)	(12)	(13)	(14)	(15)
Car Type	Units	"Proper" per unit cost	Initial Relativity	Prior Factors	Adjusted Factor
SDC	6	50	0.51	1.02	0.50
No SDC	104	100.87	1.03	1.00	1.03
Totals	110	98.09			1.00
OR					
Good					
Good SDC					
Not Good					
Not Good - SDC					

223. *See* http://digitalcommons.law.scu.edu/facpubs/337/ to access the excel spreadsheet.

(8)	(9)	(10)		
Weight	Prop 103 Cost - tempered	Prop 103 Cost - pumped	Difference from True cost (9)/(4)	Difference from True cost (10)/(4)
1.88	98.01	97.97	-2.0%	-2.0%
0.10	60.44	47.63	20.9%	-4.7%
1.78	122.51	131.04	11.4%	19.1%
0.20	75.55	63.71	51.1%	27.4%
3.96326905417815	98.10	98.07		
(16)	(17)	(18)		
Weight	Tempered Relativity	Weight Check		
2.68	0.63	1.98		
2.68	1.02	1.98		
5.35	1.00	3.96326905417814		
	(19)	(20)		
	Pumped Relativity	Weight Check		
	0.97	2.57		
	0.97	0.14		
	1.30	2.39		
	1.30	0.27		
		5.35		