

**REAL ARROW-SECURITIES FOR ALL: JUST AND EFFICIENT  
INSURANCE THROUGH MACRO-HEDGING**

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*Abstract*

*As a new hurricane season opened in June of 2006, it emerged that a number of onlines gaming sites were offering bettors the opportunity to wager on whether New Orleans might suffer another Katrina calamity. Commentators condemned the announced practice with howls of disgust, labeling it both tasteless and heartless. Perhaps they were right. All I could think about as one who grew up in New Orleans, however, was how risk pools might hereby be broadened to include all the world's bettors. We shouldn't condemn these people; we should use them—while requiring that they maintain margin accounts at their betting sites. For to bet on an event's happening is a way to insure against it, and there are currently more things we're able to bet on than to purchase ordinary insurance policies against.*

*This essay elaborates and draws consequences from that observation. In a manner I hope is more concretely appreciable and intuitively graspable than in more technical work I did some years back, I work to show that we have it within our power to spread risks both more justly and more efficiently than we do now—in effect by designing new hedging instruments suitable for “ordinary Janes and Joes.” In this sense the essay amounts to a contribution to the project of “democratizing” finance. Working along such lines now seems particularly worthwhile, as more and more people below the tops of our income and wealth distributions face more and more uninsurable risks—both to labor incomes and to that one form of wealth which they hold when they hold anything more than mere “human capital”—their homes.*

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### ***Introduction***

As a new hurricane season opened in June of 2006, it emerged that a number of online gaming sites were offering bettors the opportunity to wager on whether New Orleans might suffer another Katrina calamity.<sup>1</sup> Commentators condemned the announced practice with howls of disgust, labeling it both tasteless and heartless.<sup>2</sup> Perhaps they were right. All I could think about as one who grew up in New Orleans, however, was how risk pools might hereby be broadened to include all the world's bettors. We shouldn't condemn these people; we should use them—while requiring that they maintain margin accounts at their betting sites. For to bet on an event's happening is a way to insure against it,<sup>3</sup> and there are currently more things we're able to bet on than to purchase ordinary insurance policies against.

This essay elaborates on, and draws consequences from, that observation. In a manner I hope is more concretely appreciable and intuitively graspable than in more technical work I did some years back,<sup>4</sup> I work to show that we have it within our power to spread risks

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<sup>1</sup> See, e.g., *Wanna Bet That a Hurricane Will Hit U.S.? Now You Can*, USA TODAY (July 4, 2006, 11:08 PM), [http://usatoday30.usatoday.com/weather/hurricane/2006-07-02-hurricane-betting\\_x.htm](http://usatoday30.usatoday.com/weather/hurricane/2006-07-02-hurricane-betting_x.htm), archived at <http://perma.cc/2RXY-2ZTP>.

<sup>2</sup> *Id.*

<sup>3</sup> See Robert Hockett, *Just Insurance Through Global Macro-Hedging: Information, Distributive Equity, Efficiency, and New Markets for Systemic-Income-Risk-Pricing and Systemic-Income-Risk-Trading in a "New Economy"*, 25 U. PA. J. INT'L ECON. L. 107, 210-11 (2004) [hereinafter *Just Insurance*].

<sup>4</sup> See generally *id.*; Robert C. Hockett, *The Deep Grammar of Distribution: A Meta-Theory of Justice*, 26 CARDOZO L. REV. 1179 (2005) [hereinafter *Deep Grammar of Distribution*]; Robert Hockett, *Why Paretians Can't Prescribe: Preferences, Principles, and Imperatives in Law and Policy*, 18 CORNELL J.L. & PUB. POL'Y 391 (2009) [hereinafter *Why Paretians Can't Prescribe*]; Robert Hockett, *Pareto Versus Welfare* (Cornell L. Sch., Working Paper No. 08-031, 2008), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1309699](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1309699) [hereinafter *Pareto Versus Welfare*]; Robert Hockett, *Taking Distribution Seriously* (Cornell L. Sch., Working Paper No. 08-004, 2008), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1108217](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1108217) [hereinafter *Taking Distribution Seriously*], archived at <http://perma.cc/ZZN3-5G3Q>; Robert Hockett, *Market Completeness, Market Neutrality, and Ethically Cognizable Efficiency: An Ordinal Equivalence Theorem* (2014) (unpublished manuscript) (on file with the author).

both more justly and more efficiently than we do now—in effect by designing new hedging instruments suitable for “ordinary Janes and Joes.” In this sense the essay amounts to a contribution to the project of “democratizing” finance. Working along such lines now seems particularly worthwhile, as more and more people below the tops of our income and wealth distributions face more and more uninsurable risks—both to labor incomes and to that one form of wealth which they hold when they hold anything more than mere “human capital”—their homes.

To see why this project might be important to more than just New Orleanians, consider the following. Many contemporary societies appear to be vexed of late by two complementary trends. One is dramatic and still-worsening income and wealth inequality.<sup>5</sup> The other is income and wealth *insecurity* on the part of those under the tops of those inequalities.<sup>6</sup> There also appear to be at least two distinct *drivers* of the two mentioned trends. First is that those under the tops of the relevant inequalities derive most of their incomes from labor rather than capital, while returns to the latter outpace returns to the former through time.<sup>7</sup> Second is that markets as we presently find them afford

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<sup>5</sup> See, e.g., Robert Hockett & Daniel Dillon, *Income Inequality and Market Fragility: Some Empirics in the Political Economy of Finance* (2013) [hereinafter *Income Inequality and Market Fragility*] (under review by E. ECON. REV.) (manuscript at 2), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2204710](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2204710), archived at <http://perma.cc/U3S7-HGZP>.

<sup>6</sup> See, e.g., Hockett, *Just Insurance*, *supra* note 3, at 110-11; Robert Hockett, *Making Sense of the Health Care Reform Debate*, CHALLENGE, Jan.-Feb. 2010, at 28, 49-51 [hereinafter *Making Sense*].

<sup>7</sup> See, e.g., Robert Hockett, *Materializing Citizenship: Finance in a Producers' Republic*, 63 EMORY L. J. ONLINE 2071, 2084 (2014), <http://law.emory.edu/elj/documents/volumes/63/6/online/hockett.pdf> [hereinafter *Materializing Citizenship*], archived at <http://perma.cc/5F59-MHW7>; cf. Robert Hockett, *What Kinds of Stock Ownership Plans Should There Be? Of ESOPs, Other SOPs, and "Ownership Societies"*, 92 CORNELL L. REV. 865, 877 (2007) [hereinafter *What Kinds of Stock*]. See generally Robert Hockett, *A Jeffersonian Republic by Hamiltonian Means: Values, Constraints, and Finance in the Design of a Comprehensive and Contemporary American "Ownership Society"*, 79 S. CAL. L. REV. 45 (2005) [hereinafter *Jeffersonian Republic by Hamiltonian Means*]; Robert Hockett, *Whose Ownership? Which Society?*, 27 CARDOZO L. REV. 1 (2005) [hereinafter *Whose Ownership?*]. See also, of course, THOMAS PIKETTY, *CAPITAL IN THE TWENTY-FIRST CENTURY* (Arthur Goldhammer trans., 2014), which has drawn sorely needed public attention at last to this development. For two interesting earlier works along these lines, see

little opportunity to diversify *risks* that attend income or wealth deriving entirely from (a) labor on the one hand, and (b) that principal form of nonhuman capital which most of the nonwealthy hold when they hold anything other than human capital, on the other hand—their homes.<sup>8</sup>

If you'll pardon the pun, the first mentioned driver of inequality and insecurity is a matter of capital importance in any polity founded, as was ours in the U.S., on what I call a “productive republican” ethos.<sup>9</sup> Productive republican citizens tend to favor stocks over flows, property over contract, and private over public, such that welfare state transfer systems tend over time to fall prey to political suspicion and squabbling.<sup>10</sup> For this reason much of my research and writing concerns how we might act collectively to make individual capital-owners of more citizens.<sup>11</sup> This work, I anticipate, will continue.<sup>12</sup>

I also believe, however, that the *second* mentioned driver of inequality and insecurity matters a great deal, and I've accordingly written on this also.<sup>13</sup> But there is much more to be said—particularly in light of the just mentioned prospect of spreading more capital more widely to more citizens.<sup>14</sup> For success with that project itself will

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generally ASSAF RAZIN & EFRAIM SADKA, *LABOR, CAPITAL, AND FINANCE: INTERNATIONAL FLOWS* (2001); Jeffrey N. Gordon, *Employees, Pensions, and the New Economic Order*, 97 COLUM. L. REV. 1519 (1997). See also Hockett, *Just Insurance*, *supra* note 3, at 110.

<sup>8</sup> See, e.g., Hockett, *Just Insurance*, *supra* note 3, at 213-221.

<sup>9</sup> See Hockett, *Materializing Citizenship*, *supra* note 7, at 2072 & n.5.

<sup>10</sup> The idea is that entitlements secured by property rights are more secure than those secured by contract or government “entitlement program.” That in turn means that already accumulated property—stocks—are more secure than future income—flows—even when one is legally entitled to the latter. See generally *id.* for more on this complex of thought, its apparent historical origins, and its manifestations in American public policy since the founding.

<sup>11</sup> See generally Hockett, *Jeffersonian Republic by Hamiltonian Means*, *supra* note 7; Hockett, *Just Insurance*, *supra* note 3; Hockett, *Materializing Citizenship*, *supra* note 7; Hockett, *What Kinds of Stock*, *supra* note 7; Hockett, *Whose Ownership?*, *supra* note 7.

<sup>12</sup> See, e.g., Robert Hockett, *A Republic of Owners: Jeffersonian Democracy, Hamiltonian Finance, and a Blueprint for Permanent Post-Crisis Recovery* (2014) (unpublished manuscript) (on file with the author).

<sup>13</sup> See generally Hockett, *Just Insurance*, *supra* note 3.

<sup>14</sup> See *supra* text accompanying note 11.

occasion new risks—risks to the incomes the new capital generates. Hence there are at least two complementary reasons to query whether we might more fully complete our risk-diversification markets: (a) to lessen income and wealth insecurities currently faced by our non-wealthy citizens, and (b) to minimize such insecurities as might later face citizens once we make capital-owners of more of them.

Why worry about these things, you might ask. My reasons sound in both justice and efficiency. As to the first, some distributions of wealth, income, and risk are just wrongful.<sup>15</sup> Most societies aim to minimize wrongful, and to vindicate rightful, distributions—that's part of what property, contract, tort and criminal law, not to mention tax and other policies, sometimes are about.<sup>16</sup> As to efficiency, dramatic wealth and income disparities tend, as I have shown elsewhere, to issue in wealth-destructive forms of market volatility.<sup>17</sup> Our most recent crisis, in fact, is demonstrably a case in point.<sup>18</sup> But dramatic disparities in *risk-bearing* can be inefficient as well—not only as causes in reinforcing the volatility-inducing effects of wealth and income disparities themselves, but also as manifestations, in evidencing the absence of markets that channel risks to their most efficient bearers.<sup>19</sup>

We have known since Ken Arrow's, Gerard Debreu's, and Lionel McKenzie's pioneering work of over half a century ago that introducing certain state-contingent claims to a market can, by "completing" that market—that is, by enabling its participants to price and provide against unpleasant future contingencies in the same currency they use to buy goods and services—facilitate its reaching a state of Walrasian general equilibrium, with all the efficiency features that such states entail.<sup>20</sup> We also have known, since likewise pioneering

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<sup>15</sup> See generally, e.g., Hockett, *Taking Distribution Seriously*, *supra* note 4; see also Hockett, *Just Insurance*, *supra* note 3, at 111; *infra* Part II.

<sup>16</sup> See Hockett, *Just Insurance*, *supra* note 3, at 111-12.

<sup>17</sup> See generally Hockett & Dillon, *Income Inequality and Market Fragility*, *supra* note 5.

<sup>18</sup> See, e.g., *id.* at 12 & fig.1.

<sup>19</sup> See *infra* Part III; see also Hockett, *Just Insurance*, *supra* note 3, at 256.

<sup>20</sup> See generally GERARD DEBREU, *THEORY OF VALUE* (1959); Kenneth J. Arrow, *Le Rôle de Valeurs Boursières pour la Répartition la Meilleure des Risques*, 40 *ECONOMETRIE, COLLOQUES INTERNATIONAUX DU CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE* 41 (1953); see also Maurice Allais, *Généralisation des Théories de L'Equilibre Economique Général et du Rendement Social au Cas du Risque*, 40 *ECONOMETRIE, COLLOQUES INTERNATIONAUX DU CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE*

work by Bill Baumol, Serge-Christophe Kolm, Elisha Pazner, David Schmeidler, and Hal Varian done some twenty years later, that such an equilibrium, if reached via trades that proceed from an equal division of resources among trading agents, will be fully as fair, on a plausible understanding of fairness, as it is efficient.<sup>21</sup>

We have *not* known, however, what I believe to be two equally important things.

The first is that, on any ethically interesting conception of efficiency, to render a market more “complete” in the sense just alluded to is likewise to render it both more efficient and more fair in the sense just alluded to.<sup>22</sup> And the second is that we can actually *render* our markets much more complete, hence more fair and efficient, than they currently are. We can do that essentially by designing a variety of what would nowadays be called “state claims,” or “Arrow securities,” “a kind of derivative aimed at enabling people below the tops of their national income and wealth distributions to insure both their housing wealth and their labor incomes.”<sup>23</sup> And this means, in light of the foregoing, that by

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81 (1953); Maurice Allais, *L’Extension des Théories de l’Equilibre Economique Général et du Rendement Social au Cas du Risque*, 21 *ECONOMETRICA* 269 (1953). The results are anticipated by J. R. HICKS, *VALUE AND CAPITAL* (2d ed. 1946), the theory of which generalizes from observations of the behavior of early twentieth century British futures markets. A thorough contemporary synthesis of prior and recent developments is 1 MICHAEL MAGILL & MARTINE QUINZII, *THEORY OF INCOMPLETE MARKETS* (1996). An interesting recent account of the work of Arrow, Debreu, and McKenzie, suitable for a popular audience, is TILL DÜPPE & E. ROY WEINTRAUB, *FINDING EQUILIBRIUM: ARROW, DEBREU, MCKENZIE AND THE PROBLEM OF SCIENTIFIC CREDIT* (2014).

<sup>21</sup> See, e.g., SERGE-CHRISTOPHE KOLM, *JUSTICE ET ÉQUITÉ* (1972); *SOCIAL GOALS AND SOCIAL ORGANIZATION: ESSAYS IN MEMORY OF ELISHA PAZNER* (Leonid Hurwicz et al. eds., 1985); Hal R. Varian, *Equity, Envy, and Efficiency*, 9 *J. ECON. THEORY* 63 (1974); Hal R. Varian, *Two Problems in the Theory of Fairness*, 5 *J. PUB. ECON.* 249 (1976). A helpful synthesis is WILLIAM J. BAUMOL, *SUPERFAIRNESS* (1986).

<sup>22</sup> See Hockett, *Deep Grammar of Distribution*, *supra* note 4, at 1238-39; Hockett, *Why Paretians Can’t Prescribe*, *supra* note 4, at 403; Hockett, *Pareto Versus Welfare*, *supra* note 4, at 2-3; Hockett, *Taking Distribution Seriously*, *supra* note 4, at 74-76; Hockett, *Market Completeness*, *supra* note 4.

<sup>23</sup> See Hockett, *Just Insurance*, *supra* note 3, at 237-38; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 74-75; *infra* Part IV.

designing and facilitating markets for such state claims as these we can render our economies more just and efficient.<sup>24</sup>

My hope with this essay, then, is to elaborate and substantiate these last two claims in an intuitively accessible manner, since I have done so in more formal manners elsewhere.<sup>25</sup> I'd like, in other words, to show in a straightforward way just how easily we might act collectively to render income and wealth risk more individually insurable, thereby bringing greater justice and efficiency to our economies.

Here, then, is how I'll proceed. Part I first tells an all-too-familiar tale of two middle class citizens who work hard and "play" by the proverbial "rules," but face risks to their incomes and accumulated possessions that presently are not insurable. It then suggests that, for reasons that sound in both justice and efficiency, we should as a polity hope to find means of enabling ourselves and our fellow citizens to insure against such risks where possible. We should, in other words, collectively enable ourselves individually to provide against risks that uniquely attend each of our livelihoods and, when we have them, our assets.

Part II then explains with more care what I mean by "both just and efficient" when I speak of "both just and efficient insurance." It does so by systematically cataloguing deep analytical parallels between justice and insurance theory. Part III then returns to the tale told in Part I, systematically showing both why, by reference to insurance theory, efficient markets for the needed insurance are missing, and why, by reference to justice theory, we should in justice wish to supply such markets where possible. Parts IV and V then show how we *can* supply such markets, thereby effecting a simultaneously more just, and more efficient, distribution of basic risks faced by our citizens. Part VI presents a conclusion that wraps things up and looks forward.

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<sup>24</sup> See Hockett, *Just Insurance*, *supra* note 3, at 237-38; *infra* Part V.

<sup>25</sup> See generally Hockett, *Just Insurance*, *supra* note 3; Hockett, *Deep Grammar of Distribution*, *supra* note 22; Hockett, *Why Paretians Can't Prescribe*, *supra* note 22; Hockett, *Pareto Versus Welfare*, *supra* note 22; Hockett, *Taking Distribution Seriously*, *supra* note 15; Hockett, *Market Completeness*, *supra* note 22.

**I. *Motivating the Proposal: Bob & Barbara Go Steadily, Faultlessly, Needlessly Bust***

I'll start with a story that might ring familiar.<sup>26</sup> Meet Bob and Barbara. Bob is a small town lawyer. He has been in practice since the mid-1980s, when he graduated from his state university law school. He is in his mid-fifties, and is pretty good at what he does. His practice involves, primarily, drafting wills and advising private parties in estate-planning, assisting small business people in the formation of business partnerships or limited liability companies and the drafting of contracts, facilitating small business transactions and negotiations, and like work.

When Bob decided to become a lawyer, the town where he lived and grew up was humble but reasonably prosperous. Its population had been by and large stable in size, perhaps slowly growing, for decades. It was a pleasant, easy place to live. Bob was very much taken with the character of Atticus Finch in the Harper Lee novel, and went to law school with the aim of becoming his own town's Atticus. Upon graduating he returned to his home town, hung out a shingle, soon married his high school sweetheart, Barbara, who had attended the business school at Bob's university and now owned a small sole proprietorship, and made a down-payment on a stately, one hundred year-old "fixer-upper" of a late Victorian home.

Soon Bob and Barbara began to bring children into the world. Bob did not make a great deal of money in his practice, but he earned enough, when added to Barbara's income, to keep the family quite comfortable, to set aside funds in anticipation of the children's education, to improve the house and keep the mortgage payments up to date.

Sometime in the early- to mid-1990s, things began to just noticeably change in Bob's and Barbara's town. Fewer children

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<sup>26</sup> The remainder of this Part I is largely drawn from an article I published in 2004 titled *Just Insurance Through Global Macro-Hedging: Information, Distributive Equity, Efficiency, and New Markets for Systemic-Income-Risk-Pricing and Systemic-Income-Risk-Trading in a "New Economy"* in the *University of Pennsylvania Journal of International Economic Law*, now called the *University of Pennsylvania Journal of International Law*. See Hockett, *Just Insurance*, *supra* note 3, at 214-18. All rights relating to this Part of the Article reside with the *University of Pennsylvania Journal of International Law*, and I thank the *University of Pennsylvania Journal of International Law* for allowing my use of this analogy and thereby facilitating the further development of this field of scholarship.

appeared to be being born there, and fewer still were staying or returning to town after graduating from university. The population was gradually aging, and more people seemed to be departing than moving in.

About the same time, a number of large, multi-department retail stores and fast food establishments began to crop up on the outskirts of the town, capitalizing upon national and even global economies of scale (often, indeed, selling cheap imported goods from developing countries). These stores tended to pay their employees—first teenagers and retirees, then increasingly young and middle-aged adults—lower wages in order to offer goods and services at yet cheaper prices. These businesses attracted customers away from the charming town square, and many of the independent, locally owned shops and restaurants that once had brought in or paid living profits, salaries, or wages and rendered that square so quaint and enjoyable began to deteriorate or close. Barbara's business was among those affected.

The new businesses tended to retain counsel from the larger law firms located in the nearest metropolitan area, not Bob, when in need of legal assistance. And, of course, there now were fewer in-town clients requiring recourse to Bob's particular portfolio of skills—skills like contract and will drafting and so on—which Bob had developed carefully and gradually with the local clientele's needs in view. The larger law firms, not all that surprisingly, also were uninterested in what Bob might offer. He was no longer all that young, and, as noted before, he had developed his capacities very much with a particular set of needs—classic, small town needs—in view.

What is more, there were scores of younger lawyers, still protean and not yet fully formed, pouring out of the law schools each year. These folk generally preferred, and were more easily adaptable to, the city lawyer's life and work than was Bob. So even were Bob's livelihood the only thing that mattered to him or the only piper to whose tune Bob had to dance, it is far from clear that he could simply have changed his clientele and practice areas. Similar observations, alas, hold of Barbara as well. The business acumen she first developed at school and then honed at a local business or two, seemed to grow less and less needed in the town's steadily proliferating "big box" stores.

On top of all this, even had Bob and his family been vocationally and temperamentally prepared to relocate to some place far distant where Bob's and Barbara's abilities might have been more marketable, they would in a sense still have been, in significant measure, in other ways "locked-in" to their present place of residence.

It is not simply that their lives, children, and traditions have been rooted in their town now for decades.

It is, for one, that their children, well educable in the public schools of their present town, would have to attend distant magnet or expensive private schools in the larger city were the family to move, and were they to hope that the children might continue developing their minds and their sociabilities as well as they currently are doing. And it is, at least as urgently, that Bob's and Barbara's parents, now up in years, are in need of assistance and unlikely to live very much longer should they themselves relocate. They might, of course, move to the larger city with their children and their grandchildren, but this would seem quite difficult to pull off. For a nursing home would be quite expensive, not to say demoralizing.

So, of course, would a new home, given the decline in property values in the hometown consequent on that town's current economic prospects, and the greater expense of a place in the city or its suburbs. And Bob and Barbara would have to work farther from the home than they do at present, and thus be unable to look in on their parents during the day should the entire family take up residence in one large house.

It also seems unlikely that Bob and Barbara will be able to afford so large a home as would be required by the latter prospect in any event. For because their present town's economic prospects are, again, at least for the time being, on the wane, their own present property value also has diminished markedly, while Bob and Barbara remain contractually committed to making mortgage payments tied to the home's previous value. Their principal "nest egg," then, is fully as imperiled as are their sources of labor income, and for largely the same reason.

Bob, Barbara, and family are increasingly in a bind. They are going to have to make some very painful choices. And no matter what choice they make, they are going to be significantly worse-off than they used to be and, not unnaturally, expected by this point in their lives to be.<sup>27</sup>

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<sup>27</sup> I could have made the story a bit more poignant by picturing Bob as, for example, a steel or other industrial worker. In such cases his losses would be even more dramatic, and more directly wrought by economic "globalization." I keep Bob as he is, however, in order to show that even less dramatic examples closer to home give reason to consider markets such as I propose. Much of what I say on behalf of Bob the small town lawyer could be said of Bob the steel worker.

Now, here are some questions. Could Bob and Barbara have acted to prevent things coming to this pass? Was the whole scenario, in the language of the law, reasonably foreseeable in the 1980s? Are Bob and Barbara in any recognizable sense at fault for having relied, to their detriment, upon things' going largely as they'd gone for decades? Is there anything, realistically speaking, that they could have done to mitigate this, and is there now?

In light of our answers to the foregoing—particularly if we answered “no”—is it *just* for Bob, Barbara, and theirs to suffer? Is it welfare-efficient, for that matter, if, for example, someone else might have willingly *shared* this risk with them, for a premium, had it not been for the absence of any market in such risk? Would it not in any event be *more* just and *more* efficient if such risk-trading opportunities had been available, or if they were now? Well then, why aren't they?

What we are envisaging in our story, of course, is a classic social-insurance-implicative set of scenarios. Social insurance is meant precisely to ease some of the “no fault” hardships and dislocations that we find occasioned by sundry unforeseeable catastrophes and gradual macroeconomic changes. Significantly, however, there is no form of social insurance currently on offer in “developed” economies that fully or near-fully addresses Bob's and Barbara's predicament.

Now, one way of looking at social insurance is as a surrogate for missing markets. For familiar reasons that we shall get into a bit more below, we do not currently find private insurance markets for the trading or laying-off of risks like those now emerging for Bob and his family—risks that could more efficiently be borne by more well-to-do people than Bob and Barbara. Social insurance programs, administered by governments possessed of authority over broad territorial expanses, step in to fill some of the more dramatic of the resultant gaps, by exploiting governmental powers to universalize risk pools and collect compulsory premia in the form of taxes, and by their powers to monitor, to some extent, insureds.

But there are well-known information costs and consequent inefficiencies that attend such monitoring efforts.<sup>28</sup> There also are

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<sup>28</sup> Concern with the difficulties of monitoring beneficiaries of Temporary Assistance for Needy Families payments, of course, prompted the “end to welfare as we [knew] it.” Governor Bill Clinton, *The New Covenant: Responsibility and Rebuilding the American Community* (Oct. 23, 1991), available at <http://www.ibiblio.org/pub/academic/political-science/speeches/clinton.dir/c24.tntp>, archived at <http://perma.cc/8WGD-LHMN>. See also the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of

constant political pressures to exit the compulsory premium-paying risk pools—i.e., to be let off the taxation or “mandate” hooks—exerted by many who, often by Providence—e.g., inherited wealth—rather than diligence, find themselves less subject to risk, even while less risk-averse, than others. The two sources of instability, of course, dovetail: Opportunistic behavior by some who exploit the difficulties that attend monitoring afford ammunition to the better-off who denigrate the legitimacy of social insurance programs.

It is accordingly worthwhile asking whether, by both returning to first principles and turning to new mathematical, legal, and information technologies only recently to have become available and still coming online, we might actually provide the heretofore missing markets for which standard social insurance programs are offered as coarse-grained and incomplete substitutes.

If we might, then we might supplement existing social insurance programs with new forms of de facto social insurance—new forms, indeed, of actually, literally, privately provided insurance. And thus we might, by means not subject to the classic vulnerabilities of traditional social insurance programs, spare Bob, his family, and many like them much of their apparently unfairly and inefficiently borne anguish. We might, that is, render the distribution of certain kinds of risk both more efficient and more just in the bearing. I turn first, then, to those advertised “first principles.” Then I will look to those technologies and markets-soon-to-be. (I’ll get back to Barbara and Bob, too.)

## ***II. Why We Should Work Toward a Happy Ending: Of Justice and Insurance***

The tale of Barbara and Bob as just told is a tale of both justice and insurance. It is a tale of “life’s” being “unfair,” and of how we collectively sometimes attempt, and yet fail, to render it *more* fair. The reasons we fail, for their part, are reasons that sound in certain structural impediments that bedevil our efforts. Insofar as these

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1996, Pub. L. No. 104-193, 110 Stat. 2105 (codified as amended in scattered sections of the U.S.C.), through which President Clinton and Congress expressed evident sympathy with Ronald Reagan’s concerns over an apocryphal “welfare queen.” See Gene Demby, *The Truth Behind the Lies of the Original ‘Welfare Queen,’* NPR (Dec. 20, 2013, 5:03 PM), <http://www.npr.org/blogs/codeswitch/2013/12/20/255819681/the-truth-behind-the-lies-of-the-original-welfare-queen>.

impediments do this, they impede not only fairness, but efficiency as well. For in the realm of insurance at least, justice and optimal efficiency are by and large—not completely, but by and large—coextensive.<sup>29</sup>

In this Part, I further explicate and, in so doing, substantiate that claim. This should ultimately assist with the task of articulating just why it is that we wish—and if possible ought—to do something for Bob and Barbara. The strategy I'll employ is to exploit certain close structural parallels that subsist between justice and insurance. For justice theory and insurance theory are, I shall argue, quite intimately linked.<sup>30</sup>

It is somewhat surprising that the linkage I reference is not more commonly remarked or systematically explored in the ethical or economic literatures.<sup>31</sup> For probably the best way to characterize the remarkable progress made in justice theory since the mid-twentieth century is as the gradually dawning—though still inchoate and incomplete—recognition that justice itself is best understood as a kind of insurance.<sup>32</sup> And probably the best way to understand truly efficient insurance, as I shall show, is as (nearly) distributively just risk-allocation.<sup>33</sup> I adopt and examine these perspectives in turn.

### A. Justice as Insurance

Justice is concerned with appropriate distributions of benefits and burdens over persons.<sup>34</sup> That suggests at least three constitutive concerns of justice theory, each taking as a point of departure one of the words I've just used.

First comes the word “appropriate.” That implicates what I call the “pattern” or “formula” pursuant to which one's account of justice

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<sup>29</sup> See Hockett, *Just Insurance*, *supra* note 3, at 195-96.

<sup>30</sup> See *id.* at 184.

<sup>31</sup> The subjects are at least considered together, even if in ultimately unsatisfactory, fragmentary fashion, in KENNETH S. ABRAHAM, *DISTRIBUTING RISK: INSURANCE, LEGAL THEORY, AND PUBLIC POLICY* (1986).

<sup>32</sup> See *infra* Part II.A; see also Hockett, *Just Insurance*, *supra* note 3, at 202.

<sup>33</sup> See *infra* Part II.B; Hockett, *Just Insurance*, *supra* note 3, at 195-96.

<sup>34</sup> See Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1187; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 5 & n.14. For a caveat about “persons,” see *infra* note 37.

maintains that we ought to distribute.<sup>35</sup> Next come the words “benefit” and “burden.” Those implicate what I call the “distribuenda,” or “objects of distribution,” that one’s account of justice takes for ethically salient.<sup>36</sup> Finally comes the word “persons.” This implicates those whom I call the “distribuees,” or “recipients” of benefits and burdens that one’s account of justice takes for ethically salient.<sup>37</sup>

Justice theory has tended toward, and in my own work I endeavor to complete, a convergence upon the following values as those that best fill the variables just elaborated.<sup>38</sup>

### 1. Distribution Formulae

First, the appropriate distribution formula seems to be that which *equalizes* across persons such benefits and burdens as for which we are *not responsible*, and to allow our outcomes therefore to *vary* solely and precisely with such variable efforts as for which we *are* responsible.<sup>39</sup> While it can, of course, be difficult to sort between these sources of well-faring and ill-faring in specific cases—conducting an ethically critical process that I think of as “justice-accounting,” or

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<sup>35</sup> See *infra* Part II.A.1; see also Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1187; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 19.

<sup>36</sup> See *infra* Part II.A.3; see also Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1220-58; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 15.

<sup>37</sup> See *infra* Part II.A.2; see also Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1216-19; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 22-28. I don’t take a position here as to whether persons must be human, whether they must be adult, whether they must be individuals rather than collectivities such as ethnic groups or nation states, etc. For more on those kinds of considerations, see Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1216-19.

<sup>38</sup> See Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1318; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 93-94.

<sup>39</sup> See Hockett, *Taking Distribution Seriously*, *supra* note 15, at 58-59. Our outcomes and our responsible efforts, of course, often will be mediated by some form of recompense—“payment”—from others for those efforts. See Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1320-21. This conception of justice therefore incorporates a role for social value—the valuing and disvaluing by others of what we do or fail to do. See Hockett, *Just Insurance*, *supra* note 3, at 143. It is that mediation that renders this conception friendly to efficiency, as further noted below. See *infra* note 46 and accompanying text.

“responsibility-tracing”—as a rough and ready matter, the distinction seems clear enough.<sup>40</sup>

This view of the appropriate distribution formula is sometimes referred to as the “‘responsibility-tracking,’ or ‘luck’ egalitarian[.]” ideal.<sup>41</sup> I prefer to call it “opportunity-egalitarian,” with the proviso that opportunity must be understood in decidedly material, not just formal, terms.<sup>42</sup> “Opportunity” in this sense is roughly synonymous with “exogenously given resource.”<sup>43</sup>

The guiding intuition on this understanding of justice is to equalize “brute luck” or fortune over persons, while allowing differential diligence, including differential “option luck”—that is, fortune consequent upon choices for which agents are responsible, such as the outcomes of voluntarily undertaken gambles or insurance purchases—to result in differential outcomes.<sup>44</sup> We can think of this as a matter of treating luck or fortune as what I call “ethically exogenous,” and treating responsibility as what I call “ethically endogenous.”<sup>45</sup>

Please note the friendliness, on this conception, of justice to efficiency—i.e., to the production, via what *counts* as “diligence,” of social value, or “wealth.”<sup>46</sup> Note its friendliness also, for much the same reasons, to markets of certain sorts.

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<sup>40</sup> See Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1296-99; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 52-59.

<sup>41</sup> Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1259; *see also* Hockett, *Taking Distribution Seriously*, *supra* note 15, at 53.

<sup>42</sup> Hockett, *Taking Distribution Seriously*, *supra* note 15, at 52-59.

<sup>43</sup> *See* Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1238; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 25, 53; *see also* JOHN E. ROEMER, EQUALITY OF OPPORTUNITY 24 (1998); Richard J. Arneson, *Equality and Equal Opportunity for Welfare*, 56 PHIL. STUD. 77, 85 (1989); Richard J. Arneson, *Liberalism, Distributive Subjectivism, and Equal Opportunity for Welfare*, 19 PHIL. & PUB. AFF. 158, 175-77 (1990); G. A. Cohen, *On the Currency of Egalitarian Justice*, 99 ETHICS 906, 916 (1989).

<sup>44</sup> Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1306-07.

<sup>45</sup> *Id.* at 1219; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 38 n.62.

<sup>46</sup> For more on “wealth” as efficiency, *see of course* J. R. Hicks, *The Foundations of Welfare Economics*, 49 ECON. J. 696, 701 (1939); J. R. Hicks, *The Valuation of the Social Income*, 7 ECONOMICA 105, 122 (1940); Nicholas Kaldor, *Welfare Propositions of Economics and Interpersonal Comparisons of Utility*, 49 ECON. J. 549, 549-50 (1939); Richard A. Posner, *The Ethical and Political Basis of the Efficiency Norm in Common Law Adjudication*, 8

## 2. Distributions

The opportunity-egalitarian view of the proper distribution formula as just described dovetails with a view of distributees as responsible agents or active “subjects,” as distinguished from mere patients or passive “objects.”<sup>47</sup> We take the ethically relevant recipients of benefits and burdens, for purposes of just distribution, to be “active forgers” of parts of their fates rather than mere passive victims or beneficiaries of fortuity or charity.<sup>48</sup>

The reason that this conception of distributees dovetails with the opportunity-egalitarian distribution formula is that it only makes sense to trace responsibility in our distribution formula if we view those who receive distributions as being *capable* of responsibility.<sup>49</sup> And that is just what it is to call them responsible agents. Responsible agents’ well- or ill-faring is a function in part of what they do, and in part of what they have.<sup>50</sup> What they have in turn is itself partly attributable to what they do, but also partly attributable to what they “are dealt.”<sup>51</sup>

The opportunity egalitarian ideal just is to equalize what agents “are dealt,” while honoring—and holding them accountable in justice for—what they “do.”<sup>52</sup>

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HOFSTRA L. REV. 487, 488 (1980); Richard A. Posner, *Utilitarianism, Economics, and Legal Theory*, 8 J. LEGAL STUD. 103, 124 (1979).

<sup>47</sup> Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1241-42; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 23-28.

<sup>48</sup> Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1241; *see also* Hockett, *Taking Distribution Seriously*, *supra* note 15, at 23-28.

<sup>49</sup> *See* Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1235-36; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 23-24.

<sup>50</sup> Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1235-36; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 23-24.

<sup>51</sup> Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1235-36; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 23-24. Again, there is no claim that these two “inputs” to well- or ill-faring are easily disentangled in practice. *See supra* note 40 and accompanying text. The claim is simply that they are analytically distinguishable and ethically salient, which suggests in turn that it is worth looking for means of separately tracing them in practice. For proposals of such means, *see generally* ROEMER, *supra* note 43. *See also* Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1296-99; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 52-59.

<sup>52</sup> *See* Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1235-36; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 23-24. *See also* the caveat registered *supra* note 51.

### 3. Distribuenda

These views of appropriate distribution formulae and recipients of distribution dovetail with a view of the ethically salient distribuenda—sometimes called the “currency” of justice<sup>53</sup>—as ethically exogenous benefits and burdens, or material opportunities and risks. We can also think of these as exogenously given resources in the one case, and as handicaps or deficits in the other.<sup>54</sup>

Distribuees are responsible for making their own happiness of their opportunities, which accordingly constitute a kind of “raw material” or “resource” employed in the production of individual “welfare.”<sup>55</sup> Distribuees also are responsible for making additional opportunities of such raw materials as they are dealt.<sup>56</sup> Finally they also are responsible for providing against and mitigating, so far as they are able, such risks or harms as they are dealt.<sup>57</sup> But, by definition, they are *not* responsible for what they are *not* able to provide against or to mitigate.<sup>58</sup>

### 4. Distribution Mechanisms

Perhaps the best way to explicate more comprehensively the linkage among distributive patterns, benefits and burdens, and recipients is by reference to a particular mechanism that distributes the right things to the right people in appropriate quantities. Please note, as I proceed along these lines, how a fuller visualization of this sort begins to suggest a specific institutional embodiment—an embodiment not unlike that referenced earlier in introducing this essay and further schematized below.<sup>59</sup>

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<sup>53</sup> See generally Cohen, *supra* note 43; see also Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1234.

<sup>54</sup> See Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1203; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 15-16.

<sup>55</sup> Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1236; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 26.

<sup>56</sup> See Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1236; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 26.

<sup>57</sup> See Hockett, *Taking Distribution Seriously*, *supra* note 15, at 31-32.

<sup>58</sup> See Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1219; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 81.

<sup>59</sup> See *infra* Part IV.

Intuitively, then, the simplest way simultaneously to equalize ethically exogenous endowments on the one hand while holding people responsible for the product of their ethically endogenous decisions on the other would seem to be this: Afford everyone equal shares of everything at time  $t_0$  and then both (a) allow them to trade toward welfare-maximizing equilibria from those identical initial “baskets” of resources, while (b) trading contingent compensatory claims upon one another to provide against welfare-risks that can eventuate at any time  $t_{n>0}$ .<sup>60</sup> (The mentioned risks are future contingencies about which all have equal—in fact, no—knowledge and control at  $t_0$ .)

Note how this mechanism embodies the opportunity-egalitarian understanding of appropriate distribution formula, distribuee, and distribuenda just elaborated. The resources at  $t_0$  are ethically exogenous—they’re “given”—hence they are equalized.<sup>61</sup> The trades that are subsequently made are voluntarily made by responsible agents, who are accordingly responsible for what they have after each of them. Finally, because contingent claims-trading also can be done—pursuant to which trading agents provide against unpleasant future contingencies by foregoing present goods for future compensation should unpleasant things occur—even some future, exogenously occurring misfortunes now are “endogenized” in such a way as simultaneously enables responsible agents to “take responsibility” for them and thereby “become responsible” for them.<sup>62</sup>

Justice, then, on this view of distribuees, distribuenda, and appropriate distribution formulae, is a kind of ongoing, life-long market in goods, services, and insurance, the participants in which market are equally endowed with knowledge and control over future contingencies. It is the ever-fluctuating outcome of an iterated set of fair trades freely conducted by materially equally-situated parties,<sup>63</sup> some of whom are willing to purchase, at the price of consumption forgone now, contingent future compensation from others, who themselves perhaps prefer more consumption now, in the event that undesired fortuities should occur later.

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<sup>60</sup> See Hockett, *Taking Distribution Seriously*, *supra* note 15, at 74-78.

<sup>61</sup> See *supra* notes 44-45.

<sup>62</sup> See Hockett, *Taking Distribution Seriously*, *supra* note 15, at 25-26.

<sup>63</sup> Please bear in mind that “equally” here pertains only to the ethically exogenous, endowment-originating portion of one’s holdings, pursuant to the “luck-egalitarian” conception described above. See *supra* note 41 and accompanying text.

William Vickrey, John Harsanyi, and other “veiled” utilitarians evidently were groping toward some such image as this.<sup>64</sup> The “veil of ignorance”<sup>65</sup> that they used to justify utilitarian distribution principles was in essence a contrived equalization of the informational and resource endowment, under which circumstance, these thinkers thought, parties all “would” purchase the utilitarian “policy,” i.e., the aggregate- or average-utility-maximizing distribution formula.<sup>66</sup>

John Rawls essentially did the same thing, but imputed a different choice of distribution formula, namely the “difference principle” as implemented via the maximin formula, pursuant to which the prospects of the least well off would trump those of everyone else.<sup>67</sup> In both cases the imputations entailed, in effect, attributions of extreme attitudes toward risk to the “insurers”—Rawls an extreme aversion to risk, Harsanyi et al. an extreme foolhardiness toward the same.<sup>68</sup>

Ronald Dworkin, more exactly, thought through the likely choices of insurers on the basis of behavior observable in actual insurance markets—the insurance metaphor at last was recognized explicitly and taken seriously—but again the choices were, in the final

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<sup>64</sup> See generally, e.g., John C. Harsanyi, *Cardinal Utility in Welfare Economics and in the Theory of Risk-Taking*, 61 J. POL. ECON. 434, 434 (1953) [hereinafter *Cardinal Utility*]; John C. Harsanyi, *Cardinal Welfare, Individualistic Ethics, and Interpersonal Comparisons of Utility*, 63 J. POL. ECON. 309 (1955) [hereinafter *Cardinal Welfare*]; William Vickrey, *Utility, Strategy, and Social Decision Rules*, 74 Q.J. ECON. 507 (1960).

<sup>65</sup> See, e.g., JOHN RAWLS, A THEORY OF JUSTICE 11 (rev. ed. 1999).

<sup>66</sup> In the 1953 paper, Harsanyi “proved” that agents conforming to the axioms of von Neumann-Morgenstern expected utility theory would agree to maximize aggregate utility. See generally Harsanyi, *Cardinal Utility*, *supra* note 64. In the 1955 paper, he “proved” that they would agree to maximize average utility. See generally Harsanyi, *Cardinal Welfare*, *supra* note 64.

<sup>67</sup> JOHN RAWLS, A THEORY OF JUSTICE 72-73 (rev. ed. 1999); see also Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1202.

<sup>68</sup> See, e.g., KENNETH J. ARROW & LEONID HURWICZ, STUDIES IN RESOURCE ALLOCATION PROCESSES 463-71 (1977) (finding that maximin scores a perfect “1” on the pessimism index); GEOFFREY A. JEHLE & PHILIP J. RENY, ADVANCED MICROECONOMIC THEORY 260 (2d ed. 2001); Kenneth J. Arrow, *Some Ordinalist-Utilitarian Notes on Rawls’s Theory of Justice*, 70 J. PHIL. 245, 256-57 (1973) (book review); John C. Harsanyi, *Can the Maximin Principle Serve as a Basis for Morality? A Critique of John Rawls’s Theory*, 69 AM POL. SCI. REV. 594, 595-96 (1975). One might say that Rawls’s distributees are effectively treated as implausibly risk-averse, while Harsanyi’s distributees were effectively treated as implausibly risk-cavalier.

analysis, imputed.<sup>69</sup> “One size” was selected to “fit all.” And though, presumably, it did fit more, there must of course be many whom the garment does not clothe.<sup>70</sup>

This invites an obvious question: What if we could offer *actual*, rather than *imputed*, choices to our agents as self-insurers? Might we get our sizing straight? Might we offer *actual* insurance that works the same justice-magic as the likes of Vickrey, Harsanyi, Rawls, and Dworkin seemed to sense intuitively it might?

Before turning to that prospect, I’d like to examine the justice/insurance relation from the other—the insurance—side of the disciplinary divide. For this will both further illuminate the underlying unity of justice and insurance, and take us more readily appreciably back, through examination of the current *practice* of insurance, to the concrete reality faced by Bob and his family above in Part I.

## B. Insurance as Justice

Insurance is a means of pooling, generally through market exchange, broad classes of risk, the eventuation of which, in relation to the pool’s risk-bearers as a whole, are reasonably affordable, while in relation to all or most risk-bearers taken as individuals, are not.<sup>71</sup> Herewith, of course, is the source of insurance’s capacity to both effectuate and allocate risk-bearing more efficiently.<sup>72</sup>

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<sup>69</sup> Ronald Dworkin, *What Is Equality? Part 2: Equality of Resources*, 10 PHIL. & PUB. AFF. 283, 314-23 (1981).

<sup>70</sup> See generally Ronald Dworkin, *What Is Equality? Part 1: Equality of Welfare*, 10 PHIL. & PUB. AFF. 185 (1981); Dworkin, *supra* note 69; see also RONALD DWORKIN, SOVEREIGN VIRTUE: THE THEORY AND PRACTICE OF EQUALITY (2000) (reprinting previous two articles and subsequent writing). In comparison to Rawls and Harsanyi as characterized *supra* note 68 and accompanying text, one might say that Dworkin’s imputed choices are more carefully argued, attempting to get things “just right.” But I argue here that a better answer is, if possible, simply to leave-off imputing choices altogether, and make a serious effort at affording actual choice.

<sup>71</sup> See, e.g., Hockett, *Just Insurance*, *supra* note 3, at 184-85.

<sup>72</sup> One can hardly improve upon the venerable Adam Smith in this context: “The trade of insurance gives great security to the fortunes of private people, and by dividing among a great many that loss which would ruin an individual, makes it fall light and easy upon the whole society.” 5 ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 281 (Edwin Cannan ed., Univ. of Chicago Press 1976) (1776).

If each of us is a farmer, each has a barn upon which his livelihood depends, and each of us stands a one in one hundred chance of losing his barn to a fire, most of us will be tempted to save much more than one-hundredth of the replacement cost of a barn given how much each depends on his barn. We will thus set aside in aggregate much more than the actuarial value of the risk we collectively face.<sup>73</sup> If on the other hand we can pool risk together, we'll set aside no more than that actuarial value, and each of us will chip-in merely one one-hundredth of the cost of a barn.<sup>74</sup>

That's one of the senses in which insurance brings greater efficiency—in effect solving a collective action problem and thereby minimizing aggregate (“social”) cost.<sup>75</sup> The other sense is this: If some of those in the hypothetical are more risk-welcoming than others, they will be willing to cover the risk of lost barns for less compensation than will others.<sup>76</sup> If an insurance market facilitates or simulates sale of that “covering” service by the risk-welcoming to the risk-fearing, then we will yet further minimize aggregate (“social”) cost. For risk will be borne by those most ready and least expensively able to bear it.

### 1. Prerequisites to Efficient Insurance

Now, the very characterization just offered implicitly carries three well-known prerequisites to efficiently operating, long-term-sustainable insurance markets. As we shall see, moreover, with one caveat, the same practical measures as ensure that those prerequisites are met actually facilitate a *just*, not only an efficient, distribution of risk.<sup>77</sup> Practically efficient insurance and just risk-distribution, in other words, are near extensional equivalents.

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<sup>73</sup> Cf. Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1250.

<sup>74</sup> See Hockett, *Just Insurance*, *supra* note 3, at 185.

<sup>75</sup> *Id.*

<sup>76</sup> Cf. Hockett, *Deep Grammar of Distribution*, *supra* note 22, at 1273 (“[T]here is a host of institutions . . . all of which exist, in part, to facilitate the transfer of risk from those less willing to bear it to those who are more willing.”).

<sup>77</sup> See *infra* Part II.B.2.

### a. Event Independence

First, then, insured events must be what we call “independent of,” or “orthogonal to,” one another.<sup>78</sup> For risk-pooling to work, risk must actually eventuate for but a small fraction, at most, of the risk pool.<sup>79</sup> The ex ante “probability of an insured event’s befalling one prospective member of the risk pool” must therefore be orthogonal to its befalling another such prospective member.<sup>80</sup> Wavelike, catastrophic, covarying events (within the pool) generally are not insurable.<sup>81</sup>

To recur to the barn story, if the barns are all near one another such that one barn’s burning will likely occasion every barn’s burning, there is no way for our barn-owners to insure among themselves. For there will be no unaffected farmer able to subsidize the affected farmer(s) in rebuilding after the blaze.

### b. Event Estimatability

Second, insured events must be what we call “determinable” and “estimatable,” or “priceable.”<sup>82</sup> The insured event first must be well defined, its occurrence readily verified, so that we know with reasonable certainty when it has transpired.<sup>83</sup> And then the probability and cost—“probable cost”—of the event’s eventuation must also be more or less ascertainable ex ante.<sup>84</sup> Otherwise we don’t know quite what we’re insuring, how to know when payouts are due, or of course what to pay out or, therefore, assess in the way of premia ex ante.<sup>85</sup>

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<sup>78</sup> See Hockett, *Just Insurance*, *supra* note 3, at 186-87.

<sup>79</sup> See *id.* at 187.

<sup>80</sup> See *id.*

<sup>81</sup> See, e.g., KARL H. BORCH, *ECONOMICS OF INSURANCE* 163-74 (Knut K. Aase & Agnar Sandmo eds., 1990); J. FRANCOIS OUTREVILLE, *THEORY AND PRACTICE OF INSURANCE* 132-33 (1998); EMMETT J. VAUGHAN & THERESE M. VAUGHAN, *FUNDAMENTALS OF RISK AND INSURANCE* 43 (11th ed. 2014); Hockett, *Just Insurance*, *supra* note 3, at 187; see also ANDREU MAS-COLELL ET AL., *MICROECONOMIC THEORY* 167-208, 436-73 (1995); DAVID M. KREPS, *A COURSE IN MICROECONOMIC THEORY* 71-124, 577-715 (1990); HAL R. VARIAN, *MICROECONOMIC ANALYSIS* 172-94 (3d ed. 1992).

<sup>82</sup> See Hockett, *Just Insurance*, *supra* note 3, at 187-88.

<sup>83</sup> *Id.* at 188.

<sup>84</sup> *Id.* at 187-88.

<sup>85</sup> See, e.g., OUTREVILLE, *supra* note 81, at 132-33; VAUGHAN & VAUGHAN, *supra* note 81, at 42; see also KENNETH J. ARROW, *Insurance, Risk, and*

### c. Event-Informational Symmetry

Finally, information among prospective insurers and insureds must be more or less what we call “symmetrically” distributed.<sup>86</sup> (Note the cross-resonance between “symmetry” here and “equality” when speaking of justice above.<sup>87</sup>) Insurer and insured must be, in other words, more or less equally informationally endowed with respect to the salient risk that is being insured against.<sup>88</sup>

There are two commonly remarked vitiating consequences of *asymmetrically* distributed information. Please note the ethically pregnant, justice-resonant language of the two terms of art that we commonly employ in naming these consequences.

One such consequence is that known as “adverse (or “anti-”) selection.”<sup>89</sup> Where the insured is positioned to know more about the probability of the insured event’s occurrence than is the insurer, insurers come to fear selection-bias on the part of those seeking

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*Resource Allocation*, in 4 COLLECTED PAPERS OF KENNETH J. ARROW: THE ECONOMICS OF INFORMATION 77, 84-85 (1984) [hereinafter *Insurance, Risk, and Resource Allocation*]; KREPS, *supra* note 81, at 661-79; MAS-COLELL ET AL., *supra* note 81, at 460-67; VARIAN, *supra* note 81, at 42-45; 180-81.

Note that we can sum-up the requirements stated in Part II.B.1.a-b as follows: It is a commonplace that the insurance premium  $P$  for insured event  $i$ — $P_i$ —must be equal to the probability of the insured event’s occurring— $\pi_i$ —multiplied by the loss that will thereby be occasioned— $L_i$ —and by an administrative cost— $a$ . In short,  $P_i = (1+a)\pi_i L_i$ . Now if the probability of the event’s occurring is certain, such that  $\pi_i = 1$ , then  $P_i = (1+a)L_i$ , and the premium exceeds the loss. If  $\pi_i$  is unknown, on the other hand, there will be no  $P_i$  at all.

<sup>86</sup> Hockett, *Just Insurance*, *supra* note 3, at 189.

<sup>87</sup> See *supra* Part II.A.

<sup>88</sup> See, e.g., BORCH, *supra* note 81, at 315-30; KREPS, *supra* note 81, at 625-650; MAS-COLELL ET AL., *supra* note 81, at 437-50; OUTREVILLE, *supra* note 81, at 166-67; VAUGHAN & VAUGHAN, *supra* note 81, at 42-45; VARIAN, *supra* note 81, at 466-70; see also Kenneth J. Arrow, *Limited Knowledge and Economic Analysis*, 64 AM. ECON. REV. 1, 10 (1974); Kenneth J. Arrow, *Risk Allocation and Information: Some Recent Theoretical Developments*, GENEVA PAPERS ON RISK & INS.—ISSUES & PRAC., June 1978, at 5, 6; Michael Rothschild & Joseph Stiglitz, *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information*, 90 Q.J. ECON. 629, 648 (1976).

<sup>89</sup> Hockett, *Just Insurance*, *supra* note 3, at 189.

insurance.<sup>90</sup> Expecting the worst, they accordingly charge higher premia or withdraw from the market altogether.<sup>91</sup> Familiar expressions such as “Gresham’s Law” (“bad [risks] drive[] out the good”), the “market for lemons,” and the like all allude to circumstances in which adverse selection is operative.<sup>92</sup>

The other archetypal information asymmetry situation is that involving so-called “moral hazard.”<sup>93</sup> (The ethical valence of the idea could not be more clearly conveyed.) Here the insured not only better *knows* or is able to *conceal* the relevant probability that determines the actuarial value or disvalue of the insured event, but is able actually to *manipulate or affect* it.<sup>94</sup> Insureds might, for example, slacken efforts to avoid risk’s eventuation, or even act to bring it about, owing to potentially perverse incentive effects of insurance itself.<sup>95</sup>

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<sup>90</sup> *Id.* at 189-90.

<sup>91</sup> *Id.* at 190.

<sup>92</sup> George A. Akerlof, *The Market for “Lemons”: Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488, 489-90 (1970). For a more general and formal discussion, see generally Lawrence R. Glosten & Paul R. Milgrom, *Bid, Ask and Transaction Prices in a Specialist Market with Heterogeneously Informed Traders*, 14 J. FIN. ECON. 71 (1985).

To recur to the formulaic treatment at *supra* note 85, efficiency also “requires” that, for persons 1 & 2,  $Pi1 > Pi2$  if  $\pi i1 > \pi i2$ . But if all pay  $Pi2$ , then there will be insufficient supply, while if all must pay  $Pi1$ , there will be insufficient demand.

<sup>93</sup> Hockett, *Just Insurance*, *supra* note 3, at 190.

<sup>94</sup> See, e.g., ARROW, *Insurance, Risk, and Resource Allocation*, *supra* note 85, at 85; BORCH, *supra* note 81, at 325-30; OUTREVILLE, *supra* note 81, at 133-34, 179-80; J. Hirshleifer & John G. Riley, *The Analytics of Uncertainty and Information—An Expository Survey*, 17 J. ECON. LITERATURE 1375, 1389-91 (1979); see generally Mark V. Pauly, *The Economics of Moral Hazard: Comment*, 58 AM. ECON. REV. 531 (1968).

In terms of the formulaic summation at *supra* note 85, moral hazard brings about a state in which  $\pi i = 1$ , or at any rate in which  $\pi i > Pi/(1+a)L$ , such that the premium exceeds the loss and thus renders the market impossible to maintain.

<sup>95</sup> Such was of course a principal reason offered for Congress’s passage of the PRWORA, Pub. L. No. 104-193, 110 Stat. 2105 (codified as amended in scattered sections of the U.S.C.). It’s as if they were thinking of Reagan’s apocryphal “welfare queen.” See Demby, *supra* note 28.

## 2. **Methods for Meeting the Prerequisites: Optimizing is Fairness-Restoring**

There are several commonly employed practical means—some introduced by insurers and permitted by law, others afforded more directly by the law itself—of ensuring that the three prerequisites to efficient insurability obtain. Note that, with one critical exception, the same means as render insurance efficient render risk-distribution more just.

### a. **Pool-Universalizing and Behaviorally Risk-Segmenting**

Event independence is optimized in two ways. First, we broaden—ideally, we universalize—the risk pool.<sup>96</sup> The broader the pool, the lesser the likelihood of covariance.<sup>97</sup> Also, however, the broader the pool, the more just the risk distribution—at least if the insured event is ethically exogenous, such that no one is responsible for its occurrence. Second, and partly because of that last observation, we separate-off—we “segment,” or “classify”—risks that we come in time to recognize consistently to co-vary, i.e., to be “caused” in their eventuation by, known “risk-factors.”<sup>98</sup> The progress of knowledge, then, tends over time to bring progress to insurance.<sup>99</sup>

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<sup>96</sup> See Hockett, *Just Insurance*, *supra* note 3, at 191.

<sup>97</sup> *Id.* at 191-92.

<sup>98</sup> See *id.* at 196 & n.205.

<sup>99</sup> See OUTREVILLE, *supra* note 81, at 132; VAUGHAN & VAUGHAN, *supra* note 81, at 36. Universalizing of this sort, incidentally, is precisely what the so-called “Obamacare mandate” is meant to do. It works to render American health insurance simultaneously more just and efficient by roping everyone into the risk pool, such that we cross-subsidize one another as justice would mandate and efficiency would require. For more on this, see generally Hockett, *Making Sense*, *supra* note 6.

Broader pooling also improves estimatability, through the operation of the “law of large numbers.” See VAUGHAN & VAUGHAN, *supra* note 81, at 36; *infra* Part II.B.2.b. On risk-classification, see MICHAEL J. GRAETZ & JERRY L. MASHAW, TRUE SECURITY: RETHINKING AMERICAN SOCIAL INSURANCE 16-18 (1999); OUTREVILLE, *supra* note 81, at 150-51. See generally Kenneth S. Abraham, *Efficiency and Fairness in Insurance Classification*, 71 VA. L. REV. 403 (1985). Formally, discovery of more fine-grained “statistical or microstatistical (‘causal’) relations between subfeatures  $\gamma$  and  $\delta$  of events  $\Gamma$  and  $\Delta$ , for

Now note that universalizing the risk pool, at least with respect to truly exogenous—unavoidable—risks, is precisely what would be mandated by justice.<sup>100</sup> Note also that separating-off risks that are, through responsible or diligent behavior, avoidable or mitigable also is mandated by justice.<sup>101</sup> Universalizing the pool of ethically exogenous risk-bearing is mandated by justice’s luck-equalizing imperative, while segmenting ethically endogenous, fault-worthy risk-incurring is mandated by justice’s responsibility-tracing imperative.<sup>102</sup>

Now note as well that our *law* tends to authorize—in some cases even to *mandate*—his form of segmentation. There are few if any legal restrictions upon so-called “bonus/malus” premium structuring (again, please note the morally charged connotation of this insurance term of art).<sup>103</sup> There is no legal impediment, in other words, to pricing pursuant to which, e.g., unsafe drivers or smokers are charged more by the insurance industry.<sup>104</sup> Note also that the one form of risk-segmentation that *would* offend justice—segmenting on the basis of ineluctable traits—often, though perhaps not often enough(!), tends to be regarded with suspicion by the law. The classic case here is the prohibition of discrimination on the basis of genetic information by health insurers and employers.<sup>105</sup>

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example, will render the *degree* of covariance between  $\Gamma$  and  $\Delta$  more predictable; one might, upon such discovery, find that [ $\Gamma \setminus \gamma$  and  $\Delta \setminus \delta$ ] can be *separately* insured because it is only  $\gamma$  and  $\delta$  that covary.” Hockett, *Just Insurance*, *supra* note 3, at 191-92. That is, entire classes of such *subfeatures* might indeed be *separately* insurable. *See id.*

<sup>100</sup> *See supra* Part II.A.

<sup>101</sup> *See supra* Part II.A.

<sup>102</sup> *See supra* text accompanying notes 39-45.

<sup>103</sup> *See BORCH*, *supra* note 81, at 299-300.

<sup>104</sup> *See id.*

<sup>105</sup> It will then simulate “leveling down”—prohibiting, in the idiom of *supra* note 99 the use of certain subclasses of “ $\Gamma \setminus \gamma$  and  $\Delta \setminus \delta$ ” information. *See* Hockett, *Just Insurance*, *supra* note 3, at 198-99. On risk-classification, see *supra* note 98-99 and accompanying text. On its injustice in the genetic informational context, see generally, e.g., ALLEN BUCHANAN ET AL., FROM CHANCE TO CHOICE: GENETICS AND JUSTICE (2000); JUSTICE AND THE HUMAN GENOME PROJECT (Timothy F. Murphy & Marc A. Lappé eds., 1994); Kenneth J. Arrow, Medical Information and Medical Insurance: An Ethical Dilemma? (1994) (unpublished manuscript) (on file with author). On the (il)legality of risk-classification predicated on genetic information, see generally, e.g., Genetic Information Nondiscrimination Act of 2008, Pub. L.

### b. Pool-Universalizing and Learning

Turning from event independence to determinability and probable cost estimatability, these too are affected, as is event independence, by the advancement of scientific knowledge and the broadening of risk pools, both of which phenomena go significantly hand in hand.<sup>106</sup> Broadening the risk pool tends to result in standardization of contracts, liquidity in the insurance market, and sharpening of the definitions of insured events.<sup>107</sup> It also tends to “incentivize” the collection of additional data on the precise causes and likelihoods of insured events’ eventuation.<sup>108</sup>

Now note that precisely the same means tend to facilitate what I call the “justice-accounting” implicitly required by the opportunity-equalitarian ideal in justice theory.<sup>109</sup> That ideal requires careful tracing of the results of, and thus of the precise boundary line between, what is ethically exogenous and beyond control or anticipation on the one hand, and what is ethically endogenous and within our ken and capacity on the other.<sup>110</sup> Learning more over time about what factors tend to cause what harms against which we wish to insure enables us to also better determine, over time, what people can do—hence what they can subsequently be held responsible for doing—to minimize their own risks.<sup>111</sup>

### c. Mandatory Disclosure and Simulated Shared Opacity

Turning finally to symmetric information, this is, in the insurance context—where neither insureds nor insurers have conferred ethically endogenous benefits upon one another such as would warrant a departure from the ethically exogenous equality baseline—simply *equally shared* information.<sup>112</sup> The methods typically employed to

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110-233, 122 Stat. 881 (codified as amended in scattered sections of 26, 29, and 42 U.S.C.).

<sup>106</sup> See Hockett, *Just Insurance*, *supra* note 3, at 192.

<sup>107</sup> See *id.*

<sup>108</sup> See, e.g., OUTREVILLE, *supra* note 81, at 132-33; VAUGHAN & VAUGHAN, *supra* note 81, at 36.

<sup>109</sup> See *supra* text accompanying note 40.

<sup>110</sup> See *supra* note 40 and accompanying text.

<sup>111</sup> See Hockett, *Just Insurance*, *supra* note 3, at 192-93.

<sup>112</sup> See *id.* at 189, 192-93.

combat the effects of *asymmetric* information and thus render insurance efficiently providable, accordingly, *also* tend to render information- and risk-distribution more just.

There are two broad classes of such methods—what we might call “leveling-up” and “leveling-down.”<sup>113</sup> These too have emerged from insurance practice and the law alike. Leveling-up is effected by means of transparency rules—e.g., rights to pre-inspection,<sup>114</sup> or the “disclose” component of the SEC’s “disclose or abstain” reading of Rule 10b-5.<sup>115</sup> Leveling-down is effected by means of what I call “simulated shared opacity”<sup>116</sup>—e.g., express or implied warranties, preexisting condition clauses,<sup>117</sup> or the “abstain” component of the SEC’s aforementioned reading of Rule 10b-5.<sup>118</sup> Simulated shared opacity also is, of course, simply the imposition of a “veil of ignorance,” our friend from justice theory mentioned above.<sup>119</sup>

Note that “leveling-up” methods tend to enhance both justice and efficiency.<sup>120</sup> Only “leveling-down” methods might be thought to diminish, to some extent, efficiency conceived as wealth-maximization in some contexts.<sup>121</sup> It must be stressed in this connection, however, that the effect here would tend to be ambiguous, in light of both (a) the

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<sup>113</sup> *Id.* at 199-200.

<sup>114</sup> *See, e.g.,* VAUGHAN & VAUGHAN, *supra* note 81, at 18, 135; Kenneth J. Arrow, *Uncertainty and the Welfare Economics of Medical Care*, 53 AM. ECON. REV. 941, 962 (1963). On legal doctrines, see Genetic Information Nondiscrimination Act of 2008, Pub. L. 110-233, 122 Stat. 881 (codified as amended in scattered sections of 26, 29, and 42 U.S.C.). Note that “preexisting condition” clauses covering genetic traits might offend justice. *See* 42 U.S.C. § 300gg-53(c) (2012).

<sup>115</sup> *See* Chiarella v. United States, 445 U.S. 222, 227 (1980); SEC v. Texas Gulf Sulphur Co., 401 F.2d 833, 848 (2d Cir. 1968); 17 C.F.R. § 240.10b-5 (2014).

<sup>116</sup> Hockett, *Just Insurance*, *supra* note 3, at 198-99.

<sup>117</sup> *See, e.g.,* ARROW, *Insurance, Risk, and Resource Allocation*, *supra* note 85, at 84-85; BORCH, *supra* note 81, at 319; OUTREVILLE, *supra* note 81, at 150-52; VAUGHAN & VAUGHAN, *supra* note 81, at 354, 586. *See generally* Kenneth J. Arrow, *Optimal Insurance and Generalized Deductibles*, 74 SCANDINAVIAN ACTUARIAL J. 1 (1974).

<sup>118</sup> Hockett, *Just Insurance*, *supra* note 3, at 198-99.

<sup>119</sup> *See supra* notes 64-70 and accompanying text.

<sup>120</sup> Hockett, *Just Insurance*, *supra* note 3, at 200.

<sup>121</sup> *Id.*

ethical irrelevance of wealth produced by unjust means<sup>122</sup> and (b) the demoralization and/or resentment effects that injustice can bring.<sup>123</sup> (For example, a commonly offered efficiency-justification for the SEC's "disclose or abstain" rule is that participants will withdraw from, hence deliquify and render less efficient, a market that they think unfair.<sup>124</sup>)

So we see that, from the insurance side of the justice/insurance dyad just as surely as from the justice side, risk-distributive justice and efficient insurance can be seen to be by and large co-extensive. And from the insurance side, we begin to get a glimmer of the very concrete, practical means that might be employed to render the distribution of at least one distribuendum—risk—both more just and more efficient. This takes us back to Bob and Barbara.

### III. *The Injustice and Inefficiency in Our Earlier Story: All for Want of Insurance*<sup>125</sup>

Back to Bob and Barbara. So suppose now that Bob and Barbara had wished somehow to insure, back in the late 1980s or early 1990s as they began their careers, against what is now befalling them and their family. Of course, the unavailability of such insurance as we shall discuss would render it somewhat surprising for Bob or Barbara

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<sup>122</sup> See Hockett, *Why Pareitians Can't Prescribe*, *supra* note 22, at 412; Hockett, *Pareto Versus Welfare*, *supra* note 22, at 25 n.44; Hockett, *Taking Distribution Seriously*, *supra* note 15, at 31.

<sup>123</sup> See, e.g., AMARTYA SEN, ON ECONOMIC INEQUALITY 1 (expanded ed. 1997) ("That a perceived sense of inequity is a common ingredient of rebellion in societies is clear enough . . .").

<sup>124</sup> See, e.g., Mitchell N. Berman, *On the Moral Structure of White Collar Crime*, 5 OHIO ST. J. CRIM. L. 301, 319 (2007).

<sup>125</sup> Parts III-V again draw from my article *Just Insurance Through Global Macro-Hedging: Information, Distributive Equity, Efficiency, and New Markets for Systemic-Income-Risk-Pricing and Systemic-Income-Risk-Trading in a "New Economy."* See Hockett, *Just Insurance*, *supra* note 3, at 218-33, 238-56. As explained previously, though, my work in *Just Insurance* was more formal and technical. See *supra* text accompanying note 4. Here, on the other hand, I intend to make the conclusions of *Just Insurance* in a more accessible manner, *supra* text accompanying note 4, and thus the degree to which the present language traces the language in *Just Insurance* will vary. Again, I thank the *University of Pennsylvania Journal of International Law* and reiterate its retention of the rights relating to this material.

even to consider it. The imaginative space in which demands are formed is itself partly a function of what already is supplied—invention often mothers perceived necessity much as necessity mothers invention. But ignore that for the moment. The question here is, why is there in fact no supply of such insurance as Bob and Barbara might use even for them so much as to imagine or begin to exploit?

### **A. Inefficient Because the Prerequisites Aren't Met**

The reasons are rooted in those prerequisites to efficient insurance rehearsed just above.<sup>126</sup>

#### **1. Local Income and Home Price Covariance**

Many of the principal sources of income- and asset-value-loss to people like Bob and Barbara give rise to classic covariance problems. Those include sectoral, regional, or general macroeconomic downturns or obsolescence, associated demographic trends, and so on as described in connection with Bob's and Barbara's value-added, their particular occupations, their home-valuation, and so on, as described in Part I. Unless Bob and Barbara can access a risk-pool well beyond their local and vocational environments, then, their insurance potential will be quite limited.<sup>127</sup> For their neighbors and colleagues likely are suffering many of the same losses as they are suffering.

#### **2. Extended-Event Nonpriceability**

Insured event determinability and probable cost estimatability also are problematic in Bob's and Barbara's case. With respect to

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<sup>126</sup> See *supra* Part II.B.1.

<sup>127</sup> See, e.g., FRANKLIN ALLEN & DOUGLAS GALE, FINANCIAL INNOVATION AND RISK SHARING 136 (1994) ("Most individual[s] primary asset is their human capital. This is subject to significant fluctuations in value as industries grow and decline. . . . Those people who have nontransferable skills have suffered a large uninsured capital loss."); OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM: FIRMS, MARKETS, RELATIONAL CONTRACTING 258-59 (1985) (discussing the extent to which labor is nondiversifiable); Donald F. Gordon, *A Neo-classical Theory of Keynesian Unemployment*, 12 ECON. INQUIRY 431, 443 (1974) ("One cannot . . . sell a piece of oneself if one is a lawyer in Cincinnati and buy a portion of a carpenter in San Diego.").

determinability, notice that the would-be insured event is not some singular, salient, dramatic, one-off affair—e.g., a fire or death—such as might easily be individuated and verified in the occurrence. It is a multifactorial, protracted affair, rather like the case of the proverbial frog in the gradually heating water.

As for probable cost estimatability, the cost factor is not terribly difficult—it's simply the lost income or asset-value—but probability is a different story. In the absence of careful trend-watching over a lengthy period, the results of which watching are readily accessible both to would-be insurers and to Barbara and Bob, the risk here is going to be quite indefinite as a matter of magnitude. At least that is so *ex ante*, which is of course the relevant temporal perspective from the point of view of insurance.

Were a market for such insurance already to exist and be highly liquid, there would of course be incentives for the ferreting-out and publication—at least in the form of observable prices impounding it—of such information. There might, in other words, be “price discovery.” But there is not yet such a market. Another case, then, this one—like supply and demand—of “chicken and egg.”

### 3. Classic Information Asymmetry

The asymmetric information problems in our story are even worse than the covariance and non-priceability problems. Bob's and Barbara's prospective insurer, had they approached her in hopes of purchasing a policy covering what is now happening to them, would have been apt to wonder whether Bob and Barbara knew something that she did not. After all, that insurer would, in view of the observation made just above, have to be located, or have access to many others located, outside of Bob's locality, and probably wouldn't be a small town lawyer. So Bob is of course better situated than his prospective insurer to know what his town's and his practice's long term prospects are. And the prospective insurer will know this. So that prospective insurer, recognizing a possible adverse selection bias, will be reluctant to insure Bob.

The moral hazard problem is yet more acute, at least with respect to Bob's and Barbara's incomes and perhaps to some extent even with respect to the value of their home. After all, if the insurance policy is drafted in terms of income and home valuation alone—which it will have to be, absent a readily accessed locus of more “macro”-oriented, fluctuating data such as small town lawyers' income trends and small town homes' valuational trends more generally—what is to

keep Bob's and Barbara's incomes or home value from dropping simply owing to their own negligence? Our prospective insurer faces a classic moral hazard risk, the monitoring against which will likely be prohibitively expensive both as a legal and as a logistical matter.<sup>128</sup>

**B. Unjust Because Inefficient: What Impedes Insurance Impedes Fairness as Well**

Notice that a private market for insurance against Bob's and Barbara's fate, apparently rendered impossible by the factors just rehearsed, is missing through no fault of Bob's, Barbara's, or their prospective insurer's. Bob and Barbara are perfectly honest and diligent, their prospective insurer presumably ready to insure them, up to a point, if only she can trust them and her own powers of assessing likely risks such as those that faced Bob and Barbara, then quite remotely, in the later 1980s or early 1990s.<sup>129</sup>

Our insurer, who either bets directly on people like Bob and Barbara or pools risks faced by many diverse people together as a financial intermediary, is a person of good will who is presumptively—because she is an insurer—much better able to cover risks like Bob's and Barbara's than are Bob and Barbara, if, again, she only can trust them and feel relatively confident about the verifiability and real probable cost of their possible misfortunes. Moreover, were she able to be reimbursed by Bob and Barbara were their prospects to improve after initially dropping and bringing them an insurance payout—e.g., after a popular “communitarian” movement and disillusionment with metropolitan life begins to take people back to the towns—she might be even more willing to insure Bob and Barbara.

It begins to look as though all that is really missing here, then, is not good will or a willingness to trade risks from those less efficiently to those more efficiently able to bear them. It is, rather, certain critical forms of *information* and a critical mass of prospective participants who, were they to be made vividly aware of the possibilities, would be willing themselves to *constitute* a market such as

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<sup>128</sup> See *supra* notes 28, 95 and accompanying text (discussing concerns raised in connection with Congress's passage of the PRWORA).

<sup>129</sup> It is critical that we keep the temporal perspective in mind. We now have “20/20 hindsight” with respect to Bob himself. The present project is concerned more directly with the Bobs of the future, whom we cannot now readily identify, in order that they might avoid Bob's quandary when things begin to unfold for them as they have done for Bob.

would begin to “incentivize” both the *generation* and the institutional *concentration* and *deployment* of that needed information. (“Chicken and egg” again.) What we have here, in other words, is perhaps in crucial part a classic problem of inertia and collective action, predicated upon a set of long-settled informational expectations.

Patterns of expectation as to what is possible and what is not have developed around long-enduring—up to now—understandings of what is technologically feasible, in both an informational and in a legal sense, and what is not. We are accustomed to thinking of information such as bears upon Bob’s and Barbara’s income and wealth prospects as the sort of stuff that is gathered, if at all, only with long periodicity, and which is, again, if gathered at all, dispersed over varied, disconnected sites that do not “talk” to one another.

Perhaps some government office keeps some of the information—e.g., home value trends from decade to decade. Perhaps the labor department keeps other bits of it—e.g., lawyers’ income trends from 15-year period to 15-year period. Perhaps the ABA keeps yet other bits—e.g., trends in profitable legal practice areas measured in 20-year increments.

And the *legal* forms taken by our *transactions* tend to *reflect* those settled expectations: We insure—contract over singular, highly salient, one-off type events—events generally involving one or a fairly small number of persons, not many people, and taking place at one time, not over protracted periods. Paid insureds do not typically point to countless others in order to verify what has happened to them, or “give the money back” to insurers when their continuously unfolding fortunes gradually pick up for the better.

But technological feasibility—in both the informational and legal senses—*has changed*: It is now possible, quickly and repeatedly over time, to gather, amass and centrally locate all manner of data bearing upon peoples’ wealth-prospects in a manner previously unimagined. And *legal* technology has *kept pace* with information technology: New kinds of contracts are continually being designed, such as enable people to take opposite sides of transactions on the basis of information that is of differential value-import to the counterparties.

If the only thing standing in the way of exploiting these new technologies in order to supply currently missing markets is inertia or collective action challenge—everybody waiting for the others to act—then we might, quite simply, realize terrific Pareto gains—everyone made better off—if we can but jump-start, collectively, the instituting of such markets. And if the understanding of justice offered above holds, according to which most of Bob’s and Barbara’s sufferings were

not reasonably foreseeable, hence not chargeable to their “diligence account,” and are in that sense undeserved, then the supply of such markets will represent, not only a substantial Pareto gain, but a critical *justice* gain.

Let us now then visualize, a bit more concretely, the sort of instruments and markets that might be of benefit to Bob, Barbara, and those like them—indeed, to all of us who participate in “developed” economies.

#### **IV. *Building Better Betting Markets: Wealth-, Income-, and Other Insurance for Barbara and Bob***

Let’s see, now, whether we might devise privately tradable social insurance by tying micro-insurance policies to macro-aggregates. Were we able to do that, we might enable a simultaneously more just and efficient distribution of risks over our population.

##### **A. Three New Sample “Democratized” Derivatives**

Picture, then, if you would, a new kind of hedging instrument and a new kind of market in such instruments. These instruments and markets are not fanciful extensions of current markets in exotic derivative securities. They simply are designed more with people like Bob and Barbara, rather than large conglomerate firms with Gargantuan portfolios of “value at risk,” in view.

##### **1. A “Small Practice Lawyer’s Income” Collar**

Assume the existence, for the moment, of an index of small practice lawyer income. Perhaps the ABA, perhaps the Labor Department, perhaps the IRS, perhaps some other institution tracks incomes of lawyers engaged in small private practice, aggregates them, and expresses them in terms of some arbitrarily-selected base year, as is familiarly done with the GDP, the CPI, and other such aggregate.

Now imagine that we design a contract, either between Bob and some financial intermediary which pools the savings and risk-provisions of multiple parties, or between Bob and some other counterparty from whom he purchases the contract on an organized exchange. The contract provides that, whenever at the end of some predetermined period—say a half-year, a month, or a week—the index rises above some pre-determined level, Bob must direct a payment

toward that intermediary. And it provides that, whenever the index falls below some pre-determined level, the intermediary directs a payment toward Bob.

The “collar,” is, of course, analyzable in familiar derivative terms as the simultaneous sale of a call option and purchase of a put option on revenue generated by an asset.<sup>130</sup> Here the “asset” simply is the index tracking Bob’s occupational prospects. Now Bob and his counterparties are of course required to maintain margin accounts with the intermediary or the broker on the envisaged exchange to guaranty performance. If clearing is effected frequently—e.g., daily per the “marked to market” system—the margin accounts need not be prohibitively large.

We can do much the same thing, of course, with Barbara’s income if we construct the right index. We might thereby construct, say, a “Small Business Accountant’s Income” Collar, or a “Small Business Executive Officer’s Income” Collar, or what have you. At present there are few obvious limitations on what we might construct.

## **2. A “Small Town Domestic Product” Collar**

Imagine the instrument just described, but now with the pertinent index tracking the economic performance of Bob’s and Barbara’s town or of small towns more generally, suitably defined. When the index rises, Bob and Barbara pay out. When the index falls, their counterparties pay in.

## **3. A “Regional (or Small Town) Real Estate Value” Collar**

Now think as before, but in this case with the relevant index tracking real estate values in the pertinent area or of the pertinent—e.g., “small town”—type. Again, Bob and Barbara pay out or receive pay-ins, which vary countercyclically with the performance of the aggregate

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<sup>130</sup> Collar instruments have been proposed for the protection of returns on retirement investment accounts. *See, e.g.,* Zvi Bodie, *Financial Engineering and Social Security Reform*, in *RISK ASPECTS OF INVESTMENT-BASED SOCIAL SECURITY REFORM* 291, 303-04 (John Y. Campbell & Martin Feldstein eds., 2001); Martin Feldstein & Elena Rangelova, *Accumulated Pension Collars: A Market Approach to Reducing the Risk of Investment-based Social Security Reform*, 15 *TAX POL’Y & ECON.* 149, 152 (2001); Gordon, *supra* note 7, at 1564 & n.143.

to which his net worth is tied. Bob's and Barbara's cyclical net worth is "smoothed," "collared." They surrender some "upside" gains in return for lessening their "downside" losses. Their counterparties do the same.

### **B. Yet More Definable Risks, Yet More Democratized Derivatives**

We can imagine many other such instruments. We can imagine parceling data in all manner of ways, all with a view to tying the aggregate of prospects upon which Bob and Barbara in effect "bet" more closely to the prospects of returns upon their human capital, their social capital (that of their town), their real property, and so on—in sum, to their full net worth. More such instruments will allow for a more "granularly" customized, more fully optimized, portfolio. There is, in effect, a sort of "contingent-consol-swap,"<sup>131</sup> an iterated, ongoing bet between the parties in all of these cases.<sup>132</sup> There is in this sense continuous, efficient, and, because it is voluntary, just risk-sharing.

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<sup>131</sup> "Swaps" are of course agreements pursuant to which parties entitled to particular income-streams trade those rights. *See, e.g.*, GORDON J. ALEXANDER ET AL., *FUNDAMENTALS OF INVESTING* 405-10 (3d ed. 2001). "Consols" are perpetual annuities not often found in the U.S. but rather more familiar in Great Britain. Hockett, *Just Insurance*, *supra* note 3, at 225 & n.255.

<sup>132</sup> The notion of an aggregate-associated hedging instrument, in this case a so-called "macro" security, appears to have first been discussed in print by John F. Marshall et al., *Hedging Business Cycle Risk with Macro Swaps and Options*, 4 *CONT'L BANK J. OF APPLIED CORP. FIN.* 103 (1992). Marshall elaborates in John F. Marshall, *Derivatives and Risk Management*, in *THE NEW TOOL SET: ASSESSING INNOVATIONS IN BANKING* 79, 83 (1995).

The idea is implicit, of course, in the failed attempt, prior to the stock market crash of October 1987, to market a CPI-derivative instrument. *See* Brian R. Horrigan, *The CPI Futures Market: The Inflation Hedge That Won't Grow*, *BUS. REV.*, May-June 1987, at 3, 4. The market crash itself and subsequent attenuation of inflationary threat might account for the failure of this market. *See id.* at 4-5. A similar story, also involving regulatory uncertainty, unfolded in the case of another early consumer macro-derivative, the S&P-indexed CD. *See generally* Joseph P. Ogden, *A Strategic Analysis of Stock Index-Linked CDs*, in *DERIVATIVES, REGULATION AND BANKING* 193 (Barry Schachter ed., 1997).

The principal champion of markets in instruments tied to macro-indices over the past two decades has surely been my mentor Robert Shiller. *See, e.g.*, ROBERT J. SHILLER, *FINANCE AND THE GOOD SOCIETY* 98 (2012); ROBERT J. SHILLER, *THE NEW FINANCIAL ORDER: RISK IN THE 21ST CENTURY*

In so far as there are willing counterparties, these effective “swaps” of asset-value-streams will, by definition, result in welfare gains for all. And insofar as they enable Bob and Barbara to mitigate the ravages of fortune over which they lack control, they will result both in justice gains with respect to risk-allocation, and in chargeability, through their “diligence accounts,” of Bob and Barbara both with some degree of responsibility to insure and with some degree of “constructive knowledge”—in the form of securities prices—of the likely longer term income-consequences of his choices. Let’s particularize those observations a bit more, by reference to the prerequisites to just and efficient insurance described just above.

### **C. How the “Democratized” Derivative Instruments Avoid the Usual Impediments to Just and Efficient Insurance**

Now note how these instruments and markets address the three classic insurance problems:

#### **1. Randomizing Covariance**

The instruments just pictured pair parties who are differently situated—people whose prospects are likely to counter-vary to one degree or another. We can enumerate all manner of pair and  $n$ -tuple of full or partial complements and substitutes within economies, counter-varying regional or national economic performances themselves (Japan and Germany versus the US and UK, for example), and other magnitudes the varying of which will be tied to one degree or another with one’s net worth.

Non-small-practice lawyers, for example, hoping to hedge their own income risks, are likely to be among Bob’s counterparties—they and Bob will in effect insure one another, each faring better when the other fares worse, and each directing payments to the others precisely when those others are more needful and they themselves less. Likewise, Bob’s non-small-town-dwelling counterparties, and so on.

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122-23 (2003); ROBERT J. SHILLER, MACRO MARKETS: CREATING INSTITUTIONS FOR MANAGING SOCIETY’S LARGEST ECONOMIC RISKS, at v (1993) [hereinafter MACRO MARKETS]. See generally Hockett, *Just Insurance*, *supra* note 3, composed while I was one of Professor Shiller’s students.

## 2. “Estimatabilitating” Inestimatability

Were a liquid market in such index-tied instruments to develop—with prices recorded and tracked by the financial press, on centralized exchanges, or both—analysts and speculators increasingly would be “incentivized” to set about seeking information bearing upon the underlying values of the instruments. And that information would be impounded in the instruments’ prices, in effect pooling social knowledge and making it available to all. Risks themselves would be dynamically, fairly, and socially optimally priced (assuming, of course, that market participants enter the market upon fair and equal terms) over time in view of available and ever-changing social knowledge.

People situated as were Bob and Barbara in the later 1980s or early 1990s would be better able to assess the prudence of making Bob’s and Barbara’s own vocational, locational, and real estate-purchasing decisions—and, of course, better able to hedge such bets as they made. The earlier mentioned process of “justice-accounting” would thus be eased, at least with respect to many risks. People situated as Bob’s prospective insurers would be likewise advantaged. Contracts between such parties would be more readily made with confidence about what was being “bet” upon, and the contracts themselves would be amenable to more temporally-flexibly defined—indeed, valuationally fluctuating—“bets.”

### 3. Symmetricalizing Asymmetric Information

The same information-uncovering, -pooling, and -impounding effects just described would render information bearing upon future wealth and income prospects more widely available. Information would be more efficiently generated, pooled, publicized, and shared. Adverse selection—the circumstance in which those wishing to sell risk-bearing know more than those ready to purchase it—would considerably recede as a problem.

So would moral hazard, in that individuals—other than, say, Janet Yellen, the President, or particularly effective terrorists—generally would be unable directly or significantly affect the values of the underlying macroeconomic indices. Prospective insurers of Bob and Barbara would worry less that he or she knows something that they do not. And they would no longer need worry that Bob or Barbara might actually bring about the eventuation of the risk that they were seeking to insure.

## V. *Where Is The Better Betting Market? Wherever We Build It*

So why, then, does this “better betting market” not yet exist? Much of the reason, I suggest, has been hinted at above.<sup>133</sup> We are faced with inertial challenges, grounded in contract and market structures predicated upon long-established expectations as to what sorts of information can be generated, pooled, and shared; how often it can be supplemented, pooled, and shared anew; and how transactions can be framed around such information-technical modalities. But there are other difficulties as well. So perhaps it will be well to enumerate them, along with their likely means of solution.

### A. **Indices and Index Numbers**

The better betting markets that we’ve been imagining rely upon macro-indices. These have to be constructed. The challenge that this presents is that these are theoretically daunting to construct.<sup>134</sup> The task requires masses of data, and inherently contestable assignments of “weights” to vector components in the reduction of vector to scalar quantities. There is not yet a great deal of appreciated private incentive for their production.

But there is an obvious solution. First, governments and/or international organizations can establish a central database, at which various instrumentalities that gather economic data can pool that data. Then governments, nonprofits, public-minded professionals (e.g., ABA, the NASD, NARED, etc.), or some combination thereof can develop the initial indices from those numbers. These might be supplemented later by private actors appreciating potential profits. The story of the Human Genome Project serves as a telling example.<sup>135</sup>

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<sup>133</sup> See *supra* Part III.

<sup>134</sup> See generally IRVING FISHER, *THE MAKING OF INDEX NUMBERS: A STUDY OF THEIR VARIETIES, TESTS, AND RELIABILITY* (1922); CHENG HSIAO, *ANALYSIS OF PANEL DATA* (1986); *THEORY AND APPLICATIONS OF ECONOMIC INDICES* (Wolfgang Eichhorn et al. eds., 1978). See also SHILLER, *MACRO MARKETS*, *supra* note 132, at 152-81.

<sup>135</sup> The project began as a government effort until three private firms entered the field. See, e.g., *About NHGRI: A Brief History and Timeline*, NAT’L HUMAN GENOME RESEARCH INST., <http://www.genome.gov/10001763> (last updated Jan. 20, 2015), archived at <http://perma.cc/3WVW-R83J>.

### B. Supply-Side Incentives

Supply side incentive problems pose another challenge. Here, the problem is possible rent-appropriation by imitators or marginal improvers of newly invented instruments, the prospect of which might serve to dissuade would-be innovators from even trying.<sup>136</sup> We might also worry here about demand-side inertia: Will there be sufficient demand? (“Chicken and egg” again.)

Here too, however, an obvious solution would seem to lie on hand. Again, government or public-spirited private sector actors (academics, lawyers, investment professionals, etc.) can design the initial instruments. Patent protection might be extended as well, if necessary.<sup>137</sup> We might try, for example, a new kind of patent—affording a full monopoly on each new instrument, but limiting its duration to two or three years.

### C. Demand-Side Incentives

Just like the supply side, the demand side present challenges. Here the principal problem is apt to stem from simple unfamiliarity with the exotic new instruments, or with finance more generally, for a time.<sup>138</sup> Fear of numbers, “rocket science,” “financial bingo,” “the Wall Street game,” and/or unwillingness to learn of and devote sustained attention to such matters would also play a role. Would-be suppliers and demanders each await some sign from the others that this might get underway. (Again, “chicken and egg.”)

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<sup>136</sup> See, e.g., Dennis W. Carlton, *Futures Markets: Their Purpose, Their History, Their Growth, Their Successes and Failures*, 4 J. FUTURES MARKETS 237, 244 (1984); Peter Tufano, *Financial Innovation and First-Mover Advantages*, 25 J. FIN. ECON. 213, 214 (1989).

<sup>137</sup> See, e.g., ALLEN & GALE, *supra* note 127, at 47-50. Bob Shiller and two colleagues patented an instrument of this sort over a decade ago. Press Release, Macro Sec. Research, Macro Securities Research Announces New Financial Security (Oct. 17, 2000) (on file with author).

<sup>138</sup> See, e.g., ALLEN & GALE, *supra* note 127, at 3-41, 157-97; Kimberly D. Krawiec, *More Than Just “New Financial Bingo”: A Risk-Based Approach to Understanding Derivatives*, 23 J. CORP. L. 1, 3-4 (1997). *But see* Carolyn H. Jackson, Note, *Have You Hedged Today? The Inevitable Advent of Consumer Derivatives*, 67 FORDHAM L. REV. 3205, 3207 (1999) (“Retail derivative activity is inevitable. . . . The risk management benefits of derivatives are too substantial to be kept from consumers.”).

Once again, though, there seems to be an obvious solution. That is to “prime the pump.” Government, nonprofits, professional associations, academics or some combination thereof can commence public information and financial literacy campaigns. We might compare here health literacy, drug literacy, and related public information campaigns. Note also that increasing popularity of lotteries might represent an opportunity here. Tell folk, “this is a better way to bet”—a way that is actually guaranteed, on balance, to lessen all-but-inevitable losses.

Business schools might also develop financial counseling clinics, analogous to legal aid clinics afforded by law schools. (I have proposed such at Yale School of Management.) Vast infrastructure of pension funds, mutual funds, retirement accounts, individual development accounts, etc. can be utilized here as well. Should supplemental security income, for example, be supplemented by added “private accounts,” citizens might be permitted or encouraged to add appropriate macro-hedging instruments, in effect insuring against their specific net worth risks, to their individual accounts. The accounts would thus evolve into, and be better conceived as, more general “risk-management accounts,” rather than simply retirement accounts.

Counseling services currently available to the middle class in maintaining their individual retirement accounts and other investment vehicles presumably could assist in the selection of such securities, and feedback from such counselors could assist suppliers in the development of optimally customized, while suitably standardized, instruments. (Suze Orman and “Motley Fool” types presumably would follow suit and clamber aboard the bandwagon.)

#### **D. Institutional Infrastructure**

We will also need new financial intermediaries or exchanges and brokerages, or expansions of existing ones, that require and facilitate maintenance of margin accounts and enforceability mechanisms. But this can largely be handled via solutions of the kind already noted. Government might also afford some start-up cost compensation to existing institutions to put the necessary structures in place. We can justify it by reference to current social insurance rationales, as well as by those offered above—justice and efficiency.

### **E. Regulatory Uncertainty**

Another challenge might be posed by regulatory uncertainty. Would the new macrosecurities fall within the SEC or the CFTC? There might be similar uncertainties at the global scale. ERISA trust regulations also might seem to prohibit or severely limit investment by some financial intermediaries, notably pension funds, in such instruments. The solution here seems pretty obvious, though. Just decide between SEC/CFTC. Provide some safe-harbor under ERISA for some degree of experimentation with new hedging instruments as well. And, of course, regulate the new markets carefully both on behalf their users, through the CFPB, and as important components of a macroprudentially regulated financial system.<sup>139</sup> As for global regulation, please see Subsection F immediately below.

### **F. Need of Global Cooperation**

Finally, in order to secure maximal advantage from the prospects offered by these new instruments and markets, we must design them and draw counterparties taking opposite sides of them without a view to international boundaries. Many of the instruments, for example, would derive their values from transnational aggregates, and many of the counterparties would hail from different jurisdictions. We would thus require transnational agreement on indexing the relevant aggregates and, therefore, on accounting principles. We will also require, of course, a workable transnational contracting and

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<sup>139</sup> See Robert Hockett, *The Macroprudential Turn: From Institutional 'Safety and Soundness' to Systematic 'Financial Stability' in Financial Supervision*, 9 VA. L. & BUS. REV. 201, 201 (2015); Robert Hockett, *Leaning, Cleaning, and Macroprudence*, HARVARD L. SCH. F. ON CORP. GOVERNANCE & FIN. REG. (Mar. 27, 2013), <https://blogs.law.harvard.edu/corpgov/2013/03/27/leaning-cleaning-and-macroprudence/>, archived at <http://perma.cc/S869-6U3A>; Robert Hockett, *Practical Guidance on Macroprudential Finance-Regulatory Reform*, HARVARD L. SCH. F. ON CORP. GOVERNANCE & FIN. REG. (Nov. 22, 2013), <https://blogs.law.harvard.edu/corpgov/2013/11/22/practical-guidance-on-macroprudential-finance-regulatory-reform/>, archived at <http://perma.cc/VU55-KZ3E>; Robert Hockett, *Recursive Collective Action Problems: The Structure of Procyclicality in Financial and Monetary Markets, Macroeconomies, and Formally Similar Contexts*, 3 J. FIN. PERSP. \_\_ (forthcoming 2015) (manuscript at 15), available at <http://papers.ssrn.com/sol3/papers.cfm?abstractid=2239849>, archived at <http://perma.cc/CXJ8-8HLB>.

contract-enforcement regime, as well as, of course, a general securities- and more general finance-regulatory regime to foster the widest, most liquid possible market.

In many ways, however, global cooperation already is well underway along the dimensions needed to secure a functioning global market in the new securities. We have a regime of international contracting and contract enforcement, and we have both a developing international consensus on accounting and financial solvency principles and developing cooperation and shared mindsets on the part of global finance-regulatory officials. Much of this development takes place under the rubric of the “new international financial architecture” fostered by the International Monetary Fund, the Organization for Economic Cooperation and Development, the Basle Committee of the Bank for International Settlements, the G-20, and other organizations.<sup>140</sup>

The development of an individual citizen-friendly, global risk-market regime would be a natural, and quite incremental, extension to this already coalescing framework.<sup>141</sup> The key is to ensure that the

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<sup>140</sup> For works on the “New International Financial Architecture,” see, e.g., BARRY EICHENGREEN, TOWARD A NEW INTERNATIONAL FINANCIAL ARCHITECTURE: A PRACTICAL POST-ASIA AGENDA 25-27 (1999); RICHARD J. HERRING & ROBERT E. LITAN, FINANCIAL REGULATION IN THE GLOBAL ECONOMY 120-51 (1995); PETER B. KENEN, THE INTERNATIONAL FINANCIAL ARCHITECTURE: WHAT’S NEW? WHAT’S MISSING? 87-117 (2001). See also Robert Hockett, *Bretton Woods 1.0: A Constructive Retrieval for Sustainable Finance*, 16 N.Y.U. J. LEGIS. & PUB. POL’Y 401, 405 (2013); Robert Hockett, *From Macro to Micro to “Mission-Creep”: Defending the IMF’s Emerging Concern with the Infrastructural Prerequisites to Global Financial Stability*, 41 COLUM. J. TRANSNAT’L L. 153, 154-58 (2002); Hockett, *Just Insurance*, *supra* note 3, at 255; Robert Hockett, *Three (Potential) Pillars of Transnational Economic Justice: The Bretton Woods Institutions as Guarantors of Global Equal Treatment and Market Completion*, 36 METAPHILOSOPHY 93, 94 (2005); Robert Hockett, *Toward a Global Shareholder Society*, 30 U. PA. J. INT’L L. 101, 181 (2008).

<sup>141</sup> Some such data already is beginning to come online. See, e.g., Data, INT’L MONETARY FUND, <http://www.imf.org/external/data.htm> (last updated Apr. 8, 2015), archived at <http://perma.cc/86LR-78BL>; EDGAR, SEC. & EXCH. COMM’N, <http://www.sec.gov/edgar/searchedgar/companysearch.html> (last visited Apr. 11, 2015), archived at <http://perma.cc/V8DQ-J2P7>; National Economic Accounts, U.S. DEPARTMENT COM. BUREAU ECON. ANALYSIS, <http://www.bea.gov/national/> (last visited Apr. 11, 2015), archived at <http://perma.cc/MPL7-QWZX>; PANEL STUDY INCOME DYNAMICS,

process be permitted to continue. One obstacle to that progress is, of course, a growing disenchantment with global financial and economic cooperation, which increasingly is seen by many as a source of grand dislocation and injustice operating in the service of already wealthy interests. Extension of global finance policy to embrace what we might call “democratized global *risk*-management policy” might, then, not only result in substantial justice and welfare gains to global society, but, indeed, help to legitimate the international economic and financial cooperation both through which those gains can best be made, and which has done so much to occasion their need.

## VI. *Conclusion*

I trust and hope the point is made. We can insure much more in the way of risks to incomes and assets upon which people below the tops of wealth and income distributions rely than we do presently. All we need do is develop the financial instruments and institutional infrastructures requisite to their betting on macro-aggregates that correlate, in various ways, to their incomes and to the values of their assets. Because such aggregates are observable and not moveable by individuals, and because growing use of these markets as fora for risk trading will gradually facilitate more and more accurate risk pricing, enabling parties to trade on them, will serve as a very close, very effective substitute for presently missing, more familiar insurance markets. Working to enable this will be working to render the distribution of risks we all face simultaneously more just and more efficient, largely in owing to justice’s close family resemblance to efficient insurance.

Early in the summer of 2006, as the hurricane season opened, it emerged that some “online gaming” sites were offering bettors the opportunity to bet upon whether another Katrina-like horror might

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<http://psidonline.isr.umich.edu/> (last visited Apr. 11, 2015), *archived at* <http://perma.cc/9GL6-HQXQ>; *The System of National Accounts (SNA)*, UNITED NATIONS DEPARTMENT ECON. & SOC. AFF. STAT. DIVISION, <http://unstats.un.org/unsd/nationalaccount/sna.asp> (last visited Apr. 11, 2015), *archived at* <http://perma.cc/ATF8-HLYG>. Note, in this connection, similar proposals made by Ronald Coase. See R.H. Coase, *Industrial Organization: A Proposal for Research*, in POLICY ISSUES AND RESEARCH OPPORTUNITIES IN INDUSTRIAL ORGANIZATION 59, 59-70 (Victor R. Fuchs ed., 1972); R.H. COASE, *The Institutional Structure of Production*, in ESSAYS ON ECONOMICS AND ECONOMISTS 3, 10-14 (1994).

strike New Orleans again.<sup>142</sup> Television commentators and others decried the crass tastelessness, even heartlessness, of these offerings. Perhaps they were right. All I could think about, however, was how lovely it now might become, that New Orleanians and others at last might insure against flooding—often offered as the literal textbook case of an uninsurable, because definitionally “wavelike,” event.<sup>143</sup> In effect, what the online gamers were offering was a chance to broaden the risk-pool for New Orleanian flooding well beyond New Orleans, thereby rendering flood insurance at long last available to New Orleanians. That would have rendered the distribution of that form of risk both more just and efficient than it had been thitherto.

What I am advocating in this essay is, in effect, simply that we re-think that attitude toward the gamers. Instead of categorically condemning them, we should use them. For what they offer, ironically, is more justice and more efficiency—in a world in which risks appear every day more to proliferate.

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<sup>142</sup> See *Wanna Bet That a Hurricane Will Hit U.S.? Now You Can*, *supra* note 1.

<sup>143</sup> See *supra* text accompanying note 81.