Background (Fixed-Cost) Avoidance-Choices, Foreground (Variable-Cost) Avoidance-Choices, and the Economically Efficient Approach for Courts to Take in Martine-Salvage Cases: A Positive Analysis and Related Critique of Landes and Posner's Classic Study

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Background (Fixed-Cost) Avoidance-Choices, Foreground (Variable-Cost) Avoidance-Choices, and the Economically Efficient Approach for Courts to Take in Marine-Salvage Cases: A Positive Analysis and Related Critique of Landes and Posner's Classic Study

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This Article (1) analyzes the second-best[1] and third-best[2] economic (allocative[3]) efficiency of the approach the courts are reported to use to determine the payment they require marine rescuees to make to marine salvors who rescued them in situations in which the salvors could not negotiate binding prices for their services and (2) evaluates the argument that Landes and Posner used in their classic article to establish the allocative efficiency of the courts'

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1. The second-best allocatively efficient approach to any issue takes complete account of all Pareto imperfections present in the system that affect the allocative efficiency of the events or policy-options whose allocative efficiency is being analyzed.

2. Third-best-allocative-efficiency analysis takes account of the inevitable cost and inaccuracy of data and the inevitable cost and probable imperfectness of theoretical analysis when deciding what data to collect and what theoretical possibilities to consider. Third-best-allocative-efficiency analysis is the approach that is ex ante allocatively efficient, given the cost and imperfectness of data and analysis.

3. I substitute "allocative" for "economic" to remind readers that the concept of allocative efficiency is a technical economic concept and that choices that are allocatively efficient may be inconsistent with our rights-commitments and/or undesirable, rights-considerations aside. *See* Richard S. Markovits, *On the Relevance of Economic Efficiency Conclusions*, 29 FLA. ST. U. L. REV. 1, 26-28 (2001).

(reported) approach to such marine-salvage cases.[4] I want to emphasize at the outset, however, that although the Article does take Second-Best Theory into account, Second Best plays a far less important role in the analysis that follows than the reality that marine-salvage law affects the distortion in the profitability not only of relevant variable-cost (foreground) avoidance-decisions at the time of imperilment but also of relevant pre-imperilment fixed-cost (background) avoidance-decisions (which affect possible rescuers' ability to effectuate a rescue and possible rescuees' "need for rescue").

Marine-salvage law affects the distortion in the incentives of potential marine salvors to make not only foreground decisions on such matters as whether to attempt a rescue or the nature of the rescue attempt to make (given the attributes and locations of their salvage ships and the quantity, attributes, and training of each of their salvage ships' personnel) but also background decisions on such matters as whether to build a salvage ship, the attributes of any salvage ship they construct, the quantity, attributes, and training of each of their salvage-ship's officers and crews, and the physical disposition of any salvage ships they own. Similarly, marine-salvage law affects the distortion in the incentives of potential marine rescuees to make not only foreground decisions on such matters as whether to accept offers of assistance, whether to make efforts to rescue themselves, and what type of self-rescue attempt to make (given the ship they are operating, the location of that ship, the weather, the quantity and nature of the cargo they are carrying, the manner in which that cargo has been stowed, and the quantity, attributes, and training of their ship's personnel), but also background decisions about whether to operate a ship at all, whether to operate a cargo or passenger ship, the physical attributes of the ship they operate, the attributes of the cargo and/or passengers they carry, the quantity, attributes, and training of their officers and crew, how many trips to make each year with any ship they operate, the route to take on any voyage, the time of year (weather conditions) at which (under which) they make any trip. As we shall see, this complexity of the relevant

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4. William M. Landes & Richard A. Posner, *Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism*, 7 J. LEGAL STUD. 83 (1978) [hereinafter *Landes & Posner*].

reality is important because (1) the particular formula for determining marine-salvage awards that will do best at inducing one party to make allocatively efficient foreground or background decisions will not do best at inducing that party to make allocatively efficient decisions of the other type and (2) the formula that will do the best job that any such formula could do of minimizing the amount of marine-peril-related economic inefficiency that one party's choices will generate will not do the best job that any such formula could do at minimizing the amount of marine-peril-related misallocation that the other party will generate.

The Article has seven sections. The first delineates two equivalent operationalizations of the most-allocatively-efficient response a State could make to marine losses and marine-peril contingencies.[5] One of the operationalizations focuses on the various types of allocative costs that marine-peril contingencies can generate, and the other focuses on the various types of marine-peril-related misallocation that can be generated. In addition to distinguishing these two operationalizations, Section One delineates a comprehensive list of the various specific types of possible marine-peril-related costs that can be generated. Section Two lists various types of policies that could be components of the most-allocatively-efficient response a State could make to such realities and possibilities. This list includes, but is not restricted to, decisions to require marine rescuees to compensate their rescuers—the kinds of decisions that admiralty courts make in marine-salvage cases. Section Three describes the second-best-allocatively-efficient approach for a judicial system to take in suits in which successful salvors who have not been able to negotiate binding prices for their salvage services seek to obtain compensation from the owners of the salvage they rescued (and/or from other potential marine-peril victims whose losses they prevented). Section Four speculates on the third-best-allocatively-efficient approach for a judicial system to

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5. Admittedly, marine-salvage law is not concerned exclusively with marine perils in the sense of perils that arise at sea. Thus, the fact that goods flooded into the sea from the land and perhaps airplanes that crashed into the sea are salvageable show that marine-salvage law may apply when a rescued object did not become imperiled at sea. However, for expositional reasons, the text will continue to use locutions that imply that marine-salvage law and policy are concerned with marine-peril issues—indeed, are concerned with situations that involve the imperilment of a ship on navigable waters.

take to such "marine-salvage" suits. Section Five explains why a law granting such marine salvors a right to obtain compensation through a private lawsuit that would be handled in such a third-best-allocatively-efficient way (A) would almost certainly not minimize the amount of misallocation generated by the marine-peril-related decisions of potential marine rescuers and potential marine rescuees;[6] (B) would be unlikely to constitute the third-best-allocatively-efficient response a State could make to marine-peril contingencies; and (C) might be a component of such a third-best-allocatively-efficient response to marine-peril contingencies. Section Six then analyzes the various respects in which the courts' reported approach to such marine-salvage cases is not second-best or third-best allocatively efficient. Finally, Section Seven uses Section Six's conclusion to criticize Landes and Posner's claim that the common law of marine salvage "is consistent with"[7] and displays "impressive congruence" with their hypothesis that "the rules of judge-made law are best explained as efforts— however unwitting—to bring about [economically-]efficient results,"[8] and points out the deficiencies of the type of argument Landes and Posner use to support their claim that judicially-announced marine-salvage law is allocatively efficient. The importance of this argument-type critique is enhanced by the fact that Landes and Posner and others use the type of argument Landes and Posner employ to establish the economic efficiency of judge-announced marine-salvage law to establish the economic efficiency of "judge-made" law in general.[9]

The Article's analysis is important for at least five reasons. First, marine-salvage law is important in itself—it affects decisions that seem likely to have a considerable impact on allocative efficiency and that do have a considerable distributive impact.[10] Second, the full analysis

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6. Potential rescuers in salvage situations occupy the position of potential injurers in conventional accident situations, and potential rescuees in salvage situations occupy the position of potential victims in conventional situations.

7. *Landes & Posner, supra* note 4, at 102.

8. *Id.* at 128.

9. RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 23 (4th ed. 1992).

10. See, for example, Wayne T. Brough, *Liability Salvage—by Private Ordering*, 19 J. LEGAL STUD. 95, 109 n.40, for Brough's account of the dollar

of the allocative efficiency of marine-salvage law applies equally well not only to finders and Good Samaritan law (as Landes and Posner recognize)[11] but also to tort law and environmental law (in multiple-care cases, in which allocative efficiency will be maximized only if both the potential injurer and the potential victim engage in appropriate avoidance). Third, half of the analysis of the allocative efficiency of marine-salvage law (the part that focuses on the potential rescuer) applies to individual-care[12] tort and environmental situations and to intellectual-property problems (in which the potential discoverer or information-disseminator occupies the position of the potential rescuer or potential injurer). Fourth, the Article's analysis of the allocative efficiency of marine-salvage law takes account of general-equilibrium feedback-loops and The General Theory of Second Best[13]—two considerations

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amounts involved in the salvage cases heard by the American Institute of Marine Underwriters.

11. *Landes & Posner*, *supra* note 4, at 84, 119-27.

12. In my terminology, "individual-care" situations are situations in which the most-allocatively-efficient response to an accident-or-pollution-loss contingency is for either the potential victim or the potential injurer to avoid. Such situations are contrasted with "no-care" and "multiple-care" situations, in which the most-allocatively-efficient response to such a contingency is respectively for no one to avoid and for both the potential victim and the potential injurer to engage in some avoidance. I substitute the expression "multiple-care" for its standard counterpart "joint-care" to avoid giving the impression that, in multiple-care situations, the potential victim and potential injurer must arrange the coordination of their avoidance-moves—for example, by discussing their responses. I should point out that, in my usage, joint-care situations are not synonymous with situations in which "joint torts" may occur—that is, with situations in which any resulting loss will have been caused by the choices of multiple potential injurers (by more than one "joint tortfeasor").

13. General-equilibrium analysis takes account of the interrelationship between various decisions—for example, a general-equilibrium analysis of the impact of some choice on outcomes in one "sector" of the economy will take account of the way in which the choice in question will influence outcomes in that sector indirectly by influencing choices made in other sectors of the economy. The General Theory of Second Best asserts the following proposition: Given a series of conditions whose fulfillment guarantees the attainment of an optimum, if one or more of these conditions cannot be or will not be fulfilled, there is no general reason to believe that fulfilling or more closely approximating more of the remaining conditions will bring one closer to the optimum than fulfilling or more closely approximating fewer of the remaining conditions. The intuitive justification for this proposition focuses on the fact that the "imperfections" one can remove will in general be as likely to counteract as

that are virtually always critical and that virtually all Law & Economics scholarship ignores. And fifth, this Article is important (1) because its conclusion that judge-announced[14] marine-salvage law is not as allocatively efficient as it could be runs counter not only to Landes and Posner's conclusion but also to a more general (and equally-wrong) "Chicago" claim that all judge-announced law is in some (ill-specified) sense "best explained as a system for maximizing the wealth of society" (in essence, for maximizing economic efficiency)[15] and (2) because its argument reveals the deficiencies in the type of argument that Landes, Posner, and others use to support their "economic efficiency of judge-made law" claim.

I. THE NOTION OF THE MOST-ALLOCATIVELY-EFFICIENT RESPONSE FOR THE STATE TO MAKE TO MARINE-PERIL CONTINGENCIES—TWO EQUIVALENT OPERATIONALIZATIONS

Analyses of the allocative efficiency of any State response to marine-peril contingencies could focus either on the impact of that response on the total amount of allocative costs the relevant contingencies would generate if the policy or policies in question were adopted or on the total amount

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to compound the "imperfections" one cannot or will not eliminate. Virtually all Law & Economics economic-efficiency analyses ignore The General Theory of Second Best by proceeding on the assumption that any policy that reduces the number or extent of Pareto imperfections in the economy (that reduces the extent to which the conditions for maximum allocative efficiency are not fulfilled) will on that account increase allocative efficiency. For the first formal statement of The General Theory of Second Best, see R.K. Lancaster & R.G. Lipsey, *The General Theory of Second Best*, 24 REV. ECON. STUD. 11, 11-13 (1956). For a more general discussion of the significance of Second-Best Theory for legal scholarship, see RICHARD S. MARKOVITS, TRUTH OR ECONOMICS: ON THE DEFINITION, PREDICTION, AND RELEVANCE OF ECONOMIC EFFICIENCY (2008); Richard S. Markovits, *Second-Best Theory and Law & Economics: An Introduction*, 73 CHI.-KENT L. REV. 3 (1998).

14. I use the expression "judge-*announced*" law to avoid the following issue: Do judges find the law or make new law in cases in which the internally-right answer to the legal-rights issue posed is contestable? My own clearly-contestable position is that judges find the law in all such cases. For an explanation, see RICHARD S. MARKOVITS, MATTERS OF PRINCIPLE (1998). Virtually all Law & Economics scholars believe that judges make the law in such cases. *See, e.g.*, *Landes & Posner*, *supra* note 4, at 128.

15. POSNER, *supra* note 9, at 23.

of marine-peril-related misallocation the policies would cause or fail to eliminate (if one adopts the standard, implicit economic convention of counting allocative transaction costs as a type of misallocation).[16] Correspondingly, the State response to marine-peril-related contingencies that was most allocatively efficient could be said to be most allocatively efficient either because it minimized total marine-peril-generated allocative costs or, equivalently, because it minimized marine-peril-related allocative inefficiency (if one follows the above convention). Somewhat more concretely, on this latter articulation, the most-allocatively-efficient State response to marine-peril-related contingencies would be the response that minimized the sum of marine-peril-related allocative transaction costs, the misallocation caused by various private parties' marine-peril-related-loss avoidance-decisions, and the non-transaction-cost misallocation caused by financing any marine-peril-related public policies.

Because the approach to allocative-efficiency analysis that I think is third-best allocatively efficient focuses on the disparate conditions under which various types of allocative inefficiency will be generated, the allocative-efficiency analyses that follow focus on the impact that various State responses to marine-peril contingencies will have on the various types of misallocation as opposed to the various types of allocative costs they will affect. However, because it will be easier to appreciate the various possibly-misallocative types of resource-use decisions on which the following analyses will focus if one is aware of the different types of allocative costs that can be affected by State responses to marine-peril-related contingencies, I will list the various relevant categories of costs in this section before listing in Section Three the various types of marine-peril-related misallocation that can be generated.

It is useful to distinguish ten types of allocative costs that marine losses or marine-peril contingencies can generate:

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16. For a critique of this tradition in economics, see Guido Calabresi, *The Pointlessness of Pareto: Carrying Coase Further*, 100 YALE L.J. 1211, 1218-19 (1991).

(1) the fixed allocative cost of marine-salvage operations[17] (net of any allocative gains that specially-constructed, specially-adapted salvage ships generate when performing non-salvage services that they could not otherwise have supplied, such as towing)—for example, the allocative cost of building marine-salvage ships, of adapting passenger and cargo ships to make them more cost-effective marine salvors,[18] of hiring officers and crew members to supply marine-salvage services, of training such personnel to supply such services, and of placing ships in positions that increase their marine-rescue productivity;

(2) the variable non-environmental allocative cost of rescue attempts—for example, allocative fuel costs, the allocative cost of wearing out marine-rescue ships and equipment, the allocative cost that is generated when marine-rescue ships and equipment are damaged or lost, the allocative cost that is generated when marine-rescue personnel are injured or killed, the allocative cost that is generated when passengers and cargo on semi-professional or casual salvaging ships are injured/killed or damaged/lost, the allocative cost of delaying the arrival of passengers and cargo at their destination, and the allocative opportunity cost generated when the salvaging ship's rescue-efforts require it to forego other opportunities;

(3) the variable environmental allocative cost of rescue-attempts—for example, the allocative cost generated when a salvor releases some of the oil a tanker is carrying to lighten the ship to facilitate its rescue;

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17. For example, according to Wayne Brough, "[s]alvage tugs are equipped with chain (4,500 feet), excess electrical power, towing winches, air compressors, cranes, and many other pieces of equipment unique to rescue operations." Brough, *supra* note 10, at 98.

18. In my terminology, "professional marine salvors" operate ships that are specially designed to effectuate marine rescues with personnel that have been primarily selected and trained to perform marine rescues. "Semi-professional marine salvors" operate ships that have been primarily designed to perform other functions but have been altered or equipped to some extent to perform marine rescues with personnel who were primarily selected and trained to perform other functions but may also have been selected and trained to some extent to perform marine rescues. "Casual marine salvors" operate ships whose construction and equipment have not been influenced at all by the possibility of their attempting marine rescues and use personnel whose selection and training was not at all affected by this possibility.

(4) the allocative cost of lost or damaged salvage—that is, lost or damaged ships, lost or damaged cargo, and passenger, crew, and officer injuries and deaths;

(5) the environmental allocative costs marine accidents generate that cannot be attributed to salvor efforts—that is, oil spills, leaks of other toxic materials, shipping-lane blockages, or the rusting of sunken ships that salvor-efforts did not actively cause but also did not prevent;

(6) the allocative cost of potential-rescuee avoidance-moves—for example, the allocative costs or allocative losses (salvage-losses aside) that are generated by decisions not to purchase passenger or cargo ships, to buy ships with thicker hulls, to keep on board spare parts, such as propellers and engine components, to hire more and better-trained mechanics, to give officers and crew more safety-training, to pack cargo in water-resistant or flame-resistant containers, to stow cargo in safer positions, to reduce the physical volume, value, vulnerability, or dangerousness of the cargo carried, to reduce the number, vulnerability, and wealth (life-value) of the passengers transported, to reduce the number of trips each ship operated makes in any given time period, to travel by more circuitous but safer routes, to travel at safer times of the year, to travel under safer weather conditions,[19] etc.;

(7) the marine-peril-related risk costs that marine salvors and potential victims of marine peril bear;

(8) the allocative transaction costs generated by (A) the marine-peril-related policies the government adopts, (B) the policies the government adopts to finance its marine-peril-related policies, (C) the consideration, formation, and enforcement of marine-peril-related insurance contracts, (D) the consideration, formulation, and enforcement of any marine-salvage contracts relevant parties contemplate entering into or actually enter into, and (E) the implementation of any government-transfer or bankruptcy policies that marine losses call into play;

(9) the non-transaction-cost allocative cost of (that is the non-transaction-cost misallocation generated by) any choices the government made to finance its marine-peril-

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19. Some of the items in this list are taken from Note, *Calculating and Allocating Salvage Liability*, 99 HARV. L. REV. 1896, 1902 n.26 (1986) [hereinafter Harvard Note].

related policies—the sum of the misallocation generated by (A) any additional taxes that are levied to finance the policies in question, (B) any price increases the government effectuates for goods and services it supplies to pay for the relevant policies, (C) any inflation the government causes by using deficit financing to pay for the policies in question, and (D) any decision the government makes to "finance" the relevant policies by foregoing other allocatively-efficient expenditures; and

(10) any external-distributive-preference value-related net external costs (or net external benefits) generated by the relevant marine perils and government policies.

II. THE POSSIBLE COMPONENTS OF THE MOST-ALLOCATIVELY-EFFICIENT RESPONSE A STATE CAN MAKE TO MARINE-PERIL CONTINGENCIES

A wide variety of policies might be components of the most-allocatively-efficient State response to marine-peril-related contingencies:

(1) government choices to supply rescue services itself;

(2) government policies about the pricing or other methods of financing of such government-supplied rescue-services;

(3) government subsidies paid to or taxes levied on private professional marine salvors;

(4) government regulations of the attributes of salvage boats and the qualifications and training of their owners, officers, and crews;

(5) government licensing schemes for marine salvors (that determine both the number and attributes of professional and semi-professional salvors);

(6) government regulations about the geographic disposition of salvage boats;

(7) government imposition of a legal duty to rescue on potential salvors in specified situations;

(8) government regulations, backed up by civil fines and/or the possibility of license cancellations, controlling which potential salvor(s) may attempt a rescue when more than one potential rescuer is in position to make such an attempt;

(9) government regulations, backed up by civil fines and/or the possibility of license cancellations, of the priorities that should guide any rescue attempt that is made and/or of the methods a salvor may or must employ when attempting a rescue;

(10) government financial-compensation schemes for those who have attempted to perform a marine rescue or have succeeded in such an attempt (schemes that may make the salvor's award depend either exclusively or inter alia on whether the salvor was supposed to attempt the rescue, on whether he made his attempt with a ship that departed from a government-approved location, and on whether his attempt used the recommended techniques);

(11) government finance schemes that finance awards to those who have attempted marine rescues from taxes or fees levied on those who ship goods over the seas, who travel on the seas, and/or who provide marine-transport services;

(12) government decisions to impose fines on any salvor whose rescue efforts generated environmental damage (for example, who released oil from an imperiled ship to facilitate its rescue) or to establish a private-law right of those who have been harmed by any oil spill or other hazardous-substance spill that the salvor caused to recover those losses from the salvor (perhaps combined with a policy of requiring all salvors to insure against this contingency);

(13) government policies (license schemes, tax. or subsidy policies) designed to control the number of passenger ships and/or freighters in operation;

(14) government regulations of the attributes of ships that travel the seas (for example, of the thickness of the hulls of ships that carry certain types of cargo or travel certain routes);

(15) government regulations backed up by civil fines and/or the possibility of a restriction on the types of cargo that may be shipped;

(16) government regulations of the way in which cargo of different types must be stowed;

(17) government regulations of the safety training of ship officers and crew;

(18) government regulations of the routes ships may take, the times of the year they may operate on certain

routes, and/or the weather conditions under which they may operate (with certain cargo, at certain times of the year, along certain routes);

(19) government choices to compensate salvors who have made appropriate rescue attempts or have succeeded in rescuing ships, cargo, and/or lives or in preventing environmental damage;

(20) government decisions to confer a legal right on those who have attempted a marine rescue or have succeeded in rescuing ships, cargo, and lives or preventing spills that would have damaged the environment to obtain compensation from the beneficiaries of their salvage activities—compensation that might be made to vary with the fixed cost of the salvor, the variable cost of the salvage attempt, the weighted-average-expected benefits of the rescue attempt, and/or many other factors; and

(21) various other policies the government could devise to alter the distributive consequences of marine-peril-related contingencies and various decisions that might otherwise cause allocative inefficiency that could be affected by marine-peril risks—for example, various government-transfer-to-individuals programs (Medicare, welfare, disability insurance, unemployment insurance, widow's benefits policies), corporate-bailout programs, and individual and business bankruptcy policies.

III. THE SECOND-BEST-ALLOCATIVELY-EFFICIENT APPROACH FOR COURTS TO TAKE TO DETERMINE THE COMPENSATION THAT THE BENEFICIARIES OF MARINE RESCUES ARE REQUIRED TO PAY THOSE OF THEIR "RESCUERS"[20] WHO HAVE NOT BEEN ABLE TO NEGOTIATE BINDING PRICES FOR THEIR SERVICES

Second-best-allocative-efficiency ("SBLE") analysis proceeds on the assumption that the analyst can execute all

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20. This way of posing the issue assumes that only successful rescuers will be able to secure compensation from the potential beneficiaries of their rescue attempts. Although this is a feature of our current law and Landes and Posner have attempted to argue for its allocative efficiency, see *Landes & Posner*, *supra* note 4, at 104, a system that entitles unsuccessful as well as successful rescue-attempters to obtain compensation from their efforts' potential beneficiaries might in fact be more allocatively efficient. *See infra* text accompanying notes 48-50.

relevant theoretical analyses perfectly and costlessly and can collect perfect data on all the parameters that such theoretical analyses reveal to be relevant without generating any allocative costs. This section examines the approach that would be second-best allocatively efficient (also symbolized as SBLE) for courts or anyone else to take to determining the compensation that would be most allocatively efficient for courts to require marine-rescue beneficiaries to pay their rescuers when the parties have not negotiated a binding price for the rescue-service.

The first point I wish to make about this approach is that rather than focusing exclusively on the allocative costs that marine-peril-related contingencies will generate, which were listed in Section One, this approach focuses on the marine-peril-related "misallocation" that is generated. The word "misallocation" is enquoted because I am using it to refer not only to (1) the misallocation properly so-called that is generated by the various types of marine-loss avoidance-decisions that are made and (2) the non-transaction-cost misallocation that is generated by the financing of marine-peril-related policies but also to (3) the various types of marine-peril-related allocative costs that economists implicitly and misleadingly classify as "misallocations." More specifically, the analysis that follows focuses on the misallocation generated by five types of private marine-loss-avoidance decisions, the non-transaction-cost misallocation generated by the public financing of the relevant State responses to the marine-peril contingency, any external-distributive-preference/value-related net external cost (or benefit) generated by the combination of the marine-peril contingency and the policy under consideration, and the difference between the allocative transaction costs the marine-peril contingency generates (which costs economists misleadingly treat as misallocations) and any reduction in allocative risk costs some of the transactions or policies in question generate.

Some elaboration may be useful. The five private-avoidance-decision misallocations are:

(1) the amount of misallocation caused by the fixed-cost choices of potential marine rescuers (choices about constructing salvage ships, adapting non-salvage ships, hiring and training officers and crew, and deploying ships that could effectuate marine rescues);

(2) the amount of misallocation caused by the number of rescue attempts that are executed, given the fixed-

salvage-cost decisions that potential salvors have made—
that is, the amount of misallocation associated with the
quantity of variable rescue-attempt costs that potential
rescuers incur;

(3) the amount of misallocation caused by the attributes
of the rescue attempts that are made—that is, the
misallocation that results because, given the amount of
resources consumed by the fixed-cost and variable-cost
expenditures of potential rescuers, allocative efficiency
would have been higher had a different set of rescue
attempts been made;

(4) the amount of misallocation caused by the various
avoidance-choices made by potential marine rescuees—
delineated in item six of Section One's list of marine-peril-
related allocative costs; and

(5) the misallocation generated by decisions of owners
of imperiled ships to reject or accept offers of rescue
assistance.

The non-transaction-cost misallocation properly so-
called that is generated by the public financing of the State
response to the relevant marine-peril contingencies are
delineated in item nine of Section One's list of marine-peril-
related "costs." The marine-peril-related allocative
transaction costs that economists misleadingly implicitly
treat as misallocations appear in item eight of Section One's
list. The reduction in allocative risk costs the referenced
transactions or policies effectuate are the reductions
generated by private marine-loss-insurance policies,
relevant government-transfer programs, and bankruptcy
laws. The external-distributive-preference/value-related
sum, which most economists think should not be considered
in any allocative-efficiency analysis,[21] is the sum that
appears as item ten of Section One's "allocative cost of
marine peril" list.

In brief, I believe that the third-best-allocatively-
efficient approach to analyzing the allocative efficiency of
any State response to marine-peril contingencies will focus
on the above mixed list of misallocations and allocative costs
rather than on Section One's allocative-cost list because I

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21. For the arguments that economists make to support this conclusion and
my reasons for rejecting them, see Richard S. Markovits, Book Review, 115
ETHICS 593, 593-94, 597 (2005). S*ee also* MARKOVITS, *supra* note 13, at 31-34.

believe it will be cost-effective to use various Welfare Economics theories to assess the impact of any policy on the five private-avoidance-decision-generated misallocations in this section's list (as well the impact of any policy on the non-transaction-cost public-finance-generated misallocation that appears in both lists).

The second point I wish to make about the second-best-allocatively-efficient approach to identifying the most-allocatively-efficient award a court could make to a successful salvor is that it is highly complicated. Indeed, even if one could ignore everything but the effect of any award on the amount of misallocation generated by private marine-loss-avoidance decisions, the relevant analysis would be rendered complicated by the following three realities:

(1) the fact that the award granted would affect five types of avoidance-decisions and avoidance-decision misallocation—a fact made salient by the reality that, almost certainly, no individual award will be able to eliminate all types of private-avoidance-move misallocation (for example, that the award that would provide potential salvors with economically efficient incentives to make fixed-cost [background] decisions will not provide potential salvors with economically efficient variable-cost incentives or potential rescuees with economically efficient incentives to make foregone decisions to avoid marine perils or to accept offers of rescue services, etc.);

(2) the fact that the private benefits and private costs of various marine-loss avoidance-decisions are distorted by various Pareto imperfections that admiralty-law doctrine did not cause—for example, the externalities that are generated when decisions by potential rescuers to make rescue attempts reduce the allocative benefits generated by other rescue attempts made on the same body of salvage (by reducing the likelihood that they will be successful) and various imperfections in price competition, which "distort"[22]

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22. In my terminology, a private cost, benefit, or profit figure is "distorted" to the extent that it diverges from its allocative counterpart. Relatedly, a private cost, benefit, or profit figure is said to be *ceteris paribus* distorted by some Pareto imperfection if that imperfection would distort the private figure in question in an otherwise-Pareto-perfect world ("if other things were equal"). More specifically, in my terminology, a private figure is said to be "deflated" to the extent that it is higher than its allocative counterpart.

the private fixed cost of building a salvage ship, the private variable cost of a rescue attempt, the private cost to a potential rescuer of avoiding by taking a longer but safer route or building or buying a safer cargo or passenger ship, etc.;[23] and

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23. Some explanation is in order. I will focus on the way in which imperfections in price competition can distort the private cost of the resources that salvors use to construct salvage ships and execute rescue-attempts and that potential rescuees use to execute "resource-consuming" avoidance-moves— i.e., that can cause these private costs to diverge from their allocative counterpart. The starting-point is to note that the private costs that potential marine rescuers and rescuees must incur to obtain the relevant resources equal (or infinitesimally exceed) the private value these resources would have for their alternative users whom the potential rescuers and rescuees must outbid for the resources in question, while the allocative cost that is generated by the relevant "fixed cost of salvage operations," "variable cost of rescue-attempts," and "potential-rescuee marine-loss-avoidance" resource-uses equals the allocative value that the resources in question would have generated in the alternative uses to which they would have been devoted had they not been used by potential marine rescuers and rescuees. This point implies that imperfections in price competition will distort the private cost of resource-consuming marine-loss-avoidance resource-uses to the extent that they cause the private value of the resources in question to their alternative users to diverge from the allocative value the resources in question would have generated in their alternative users' employ. The way in which imperfections in price competition will cause this last type of divergence will vary with the function that the resources in question would perform in the alternative (non-marine-loss-avoidance) use—i.e., will vary according to whether the resources would otherwise be used to increase the unit output of an existing product, to create a new product, or to execute a production-process-research project (designed to reduce the private or allocative cost of producing a relevant quantity of an existing product). To save space, I will assume that all the resources that are allocated to marine-peril-loss avoidance would otherwise be used to increase the unit output of existing products. Now assume in addition that the unit-output producers who would otherwise use the resources devoted to marine-loss avoidance are imperfect competitors who face downward-sloping demand curves and do not engage in price discrimination (because they do not find it profitable to do so). Since the private value of the resources in question to these unit-output producers—the marginal revenue product the resources will yield them—is a function of the marginal revenue they would obtain by selling the units of output the resources would enable them to produce while the allocative value these resources would generate in these alternative users' employ is a function of the price for which the units of output the relevant resources would enable them to produce could be sold (is a function of the value of the relevant units of output to their consumers rather than to their producers), the fact that marginal revenue is less than price for unit-output producers who face downward-sloping demand curves and do not engage in price discrimination implies that, to the extent that the alternative employer of any resources devoted to marine-loss avoidance is a

(3) the fact that both the profitability and the allocative efficiency of the various marine-loss avoidance-moves in question are interdependent and that, as a result, marine-salvage awards will affect the profitability and allocative efficiency of any given avoidance-decision that any given actor could make not only directly but also indirectly by affecting the various avoidance-decisions that other actors make.[24]

To simplify the exposition, I will focus here on the approach that I think constitutes the second-best-

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non-discriminating unit-output producer who faces imperfect price competition, the private cost of the relevant marine-loss-avoidance resource-uses will be less than their allocative cost. For a more detailed analysis of the above distortion and analyses of the ways in which imperfections in price competition (and other Pareto imperfections) will distort the private value of resources to choosers who would use them to create new products or execute production-process-research projects, see Richard S. Markovits, *Monopoly and the Allocative Inefficiency of First-Best-Allocatively-Efficient Tort Law in Our Worse-Than-Second-Best World: The Whys and Some Therefores*, 46 CASE W. RES. L. REV. 313, 346-64 (1996); Richard S. Markovits, *On the Economic Efficiency of Using Law to Increase Research and Development: A Critique of Various Tax, Antitrust, Intellectual Property, and Tort Law Rules and Policy Proposals*, 39 HARV. J. ON LEGIS. 63, 78-101 (2002); MARKOVITS, *supra* note 13, at 89-137.

24. I will illustrate the relevant complications by analyzing the impact of an increase in salvage awards on the number of salvage ships that are constructed. Obviously, the direct impact of increases in individual salvage awards on the number of salvage ships that are built will be positive. However, the indirect impact of salvage-award increases on the number of salvage ships constructed cannot be predicted on *a priori* grounds. In the one direction, higher individual awards will tend to have an indirect negative impact on the number of salvage ships constructed (the profits a salvage ship can earn) (1) by decreasing the number of rescue opportunities any given salvage ship will have (A) by increasing the amount of avoidance in which potential rescuees engage by increasing the cost to them of any rescue services for which they must pay and (B) by increasing the percentage of rescue offers that potential rescuees reject and (2) by increasing the number of rescue attempts that will be made on any given imperiled ship that accepts offers of help or is not in a position to reject rescue-service offers, controlling for the number of salvage ships in operation. In the other direction, higher individual awards will tend to have an indirect positive impact on the number of salvage ships constructed (the profits a salvage ship can earn) by increasing the number of rescue opportunities any given salvage ship will have by reducing the amount of avoidance in which potential rescuees engage by reducing the probability that their ship, cargo, officers, crew, and passengers will be lost if they become imperiled by increasing the probability that one or more rescue-attempts will be made on them if they are imperiled.

allocatively-efficient way to determine the award that would minimize total private marine-loss avoidance-decision misallocation—that is, I will ignore any differences in the impact that different awards would have on (1) allocative transaction costs, (2) allocative risk costs, (3) the non-transaction-cost misallocation that the public financing of the relevant admiralty-law and insurance-law adjudications, government transfers, and bankruptcy proceedings would generate, and (4) net external-distributive-preference/value-related equivalent-dollar gains or losses.[25]

Unfortunately, even given this simplification, space constraints preclude me from doing more than outlining the approach that I think would be second-best allocatively efficient for a court system to take to identifying the most-allocatively-efficient award to require marine rescuers to pay their salvors. Rather than working through the kind of factually-detailed numerical example whose analysis would best reveal the SBLE (and TBLE) approach,[26] the text will

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25. This note will make some observations on these issues. Obviously, the execution of the SBLE approach will generate considerable allocative transaction costs directly, given that it will take all Pareto imperfections and feedback effects into account. These allocative transaction costs (as well as the impossibility of collecting perfect data on all relevant parameters) account for the difference between the approach that is SBLE and the approach that is third-best allocatively efficient ("TBLE"). The impact of the SBLE approach on the amount of allocative transaction cost generated by marine-loss insurance-policies, marine-loss-related government-transfer programs, and marine-loss-related bankruptcy proceedings obviously depends on the impact of the SBLE award formula on the risk that potential rescuees bear, on the number of individuals that marine losses render eligible for government transfers, and on the number of individuals and companies that marine losses force into bankruptcy. The SBLE award formula affects marine-peril-related risk costs not only directly by affecting the loss that actual rescuees sustain once the award is taken into account but also by affecting the probability that they will be rescued if imperiled. The non-transaction-cost public-finance-related misallocation that will be generated by the use of any marine-salvage-award formula will increase with the transaction cost of its use and the amount by which its use increases the number of government-transfer payments requested, the magnitude of any government-transfer payments made, and the number of bankruptcies that must be processed. The impact of the SBLE award-formula or external-distributive-preference/value-related equivalent-dollar gains or losses depends not only on the size of the awards that are SBLE but on the substance of the relevant population's external-distributive preferences or values.

26. For an analysis that develops and works through such an example, see Richard S. Markovits, Marine Salvage Policy and the Law of Marine Salvage: A

delineate the various components of the SBLE approach and explain one of those components—namely, the calculation of the award (the determination of the award formula) that would eliminate any distortion in the profitability of each type of marine-loss-avoidance decision I previously distinguished.

The SBLE approach to determining the award that would be allocatively efficient to require marine rescuees to pay rescuers who have not been able to negotiate binding prices for their services has three steps:

(1) determine for each marine-loss avoidance-decision the award formula that would yield awards that would eliminate any distortion in the profitability of the avoidance-move in question (or would yield a set of distortions in the profitability of the relevant type of avoidance-move for relevant potential avoiders that would perfectly offset any errors the relevant potential avoiders would commit when deciding whether to make or reject the type of avoidance-decision in question);

(2) for each type of marine-loss-avoidance-move decision, calculate the amount of marine-loss-avoidance-decision misallocation that would be generated if the set of awards the courts required to be paid deviated to different extents in either direction from the awards that would eliminate the misallocation caused by choices to make or reject the type of avoidance-decision in question; and

(3) taking account of the fact that different award formulas and, relatedly, different sets of awards would eliminate the misallocation generated by the different types of marine-loss-avoidance decisions that can be made, determine the award formula (set of awards across all cases) that would minimize the total amount of marine-loss-avoidance-decision-generated misallocation.

I will now elaborate on the first of these three steps by discussing the marine-salvor-compensation awards that would eliminate the distortion in the profits that would be yielded by the respective types of marine-loss-avoidance decisions. I begin with potential-marine-rescuee decisions to accept or reject offers of marine-rescue services. Sovereign, maximizing potential rescuees will reject an offer of

First-Best, Second-Best, and Third-Best Allocative-Efficiency Analysis (Jan. 10, 2005) (unpublished manuscript) (on file with author).

allocatively efficient rescue-services only if the certainty-equivalent private benefits[27] of accepting such an offer are lower than the certainty-equivalent private cost of doing so (the certainty-equivalent award the potential rescuee reckons with paying)—that is, only if (1) the private benefits of accepting such an offer are critically deflated while the private cost of doing so is undistorted, (2) the private cost of accepting such an offer is critically inflated while the private benefits of doing so are undistorted, or (3) the net effect of the distortions (inflations and/or deflations) in both the private benefits and the private costs of accepting such an offer critically deflates the profitability of doing so. Similarly, sovereign, maximizing potential rescuees will accept an offer of allocatively inefficient rescue services only if the certainty-equivalent private benefits the related performance should be expected to generate exceed the certainty-equivalent private cost the performance should be expected to impose on the potential rescuee—that is, only if (1) the private benefits of accepting such an offer are critically inflated while the private cost is undistorted, (2) the private cost of accepting such an offer is critically deflated while the private benefits are undistorted, or (3) the net effect of the distortions (inflations and/or deflations) in both the private benefits and the private costs of accepting the offer critically inflates the profitability of doing so (renders acceptance profitable though allocatively inefficient). In order to simplify the exposition that follows, I will assume that (1) the offer in question is made in circumstances in which no binding agreement can be formed, (2) the offered rescue-service has (A) an X% probability of rescuing $Y in salvage that would otherwise clearly be lost (where $Y stands for the private value of the rescued salvage to the owner of the imperiled ship) and (B) a 0% probability of rescuing any other amount of salvage or preventing or causing any environmental loss, (3) the private cost to the potential rescuer of the offered rescue attempt is $Z, (4) all rescue service offerors and potential acceptors are risk-neutral, (5) the acceptance/rejection decision is made either by the owner of the imperiled ship or by someone whose goal is to maximize the interests of this

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27. The certainty-equivalent private benefits equal the sum of the weighted average benefits the rescue attempt is expected to confer on the potential rescuee and the amount by which the rescue attempt is expected to reduce his risk costs.

ship owner, and (6) the individual who makes the acceptance/rejection decision makes the choice that does maximize the ship owner's profits.

On these assumptions, if the economy is otherwise-Pareto-perfect, the private profitability of a potential rescuee's accepting the relevant rescue-attempt offer will be undistorted (no rescue-offer acceptance/rejection misallocation will be generated if the potential rescuee is a sovereign maximizer) if the judicially-adopted compensation formula requires courts to order potential rescuees who have received offers of rescue services to pay successful rescuers whose offers they accepted—that is, X% of the potential rescuers whose offers they accepted— *(100%/X%)($Z)*. In brief, under the assumptions now being made, such an award formula would cause the profits the potential rescuee would earn by accepting any offer of assistance to equal the allocative efficiency of his doing so since (1) it would equate the private cost to the potential rescuee of accepting the offer with the allocative cost of his doing so *([X%][100%/X%][$Z]* where $Z equals not only the private but also the allocative cost of the offered rescue attempt) and (2) the applicable otherwise-Pareto-perfect assumptions guarantee both (A) that (as just stated) $Z equal not only the private cost but also the allocative cost of the offered rescue attempt and (B) that $Y equal not only the private value of the salvage that might be rescued to the potential rescuee but also the allocative benefits any successful rescue attempt would generate). Relatedly, on our current assumptions, any compensation-award formula that required a rescuee to pay more than *(100%/X%)($Z)* to his successful rescuer would tend to misallocate resources by inducing potential rescuees to reject offers of allocatively efficient rescue services—in particular, would lead to the rejection of allocatively efficient rescue services whenever the mandated compensation-award C exceeds *(100%/X%)($Z)* by more than the amount by which the offered rescue service would increase allocative efficiency.[28]

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28. Although the award of Cs below *(100%/X%)$Y* could also misallocate resources by inducing potential rescuees to accept offers of allocatively inefficient rescue services if any such offers were made, on our current assumptions, this possibility can be ignored since no allocatively inefficient rescue service offers will be made under the relevant award conditions.

Of course, in our actual, highly-Pareto-imperfect world, one will have to alter the award formula to counteract the tendency of the other imperfections present in the system to distort the profitability of accepting an offer of rescue services. Thus, in our actual economy, the following imperfections will distort the profitability of accepting the offer of rescue services if (on our other assumptions) C is set at *(100%/X%)($Z)*:

(1) the external benefits that the acceptance of the rescue service offer should be expected to generate because the relevant rescue attempt should be predicted to increase the probability that imperiled-ship passenger-and-personnel lives for whose loss the owner of the imperiled ship might not be liable or might not have to pay (because he was insured or judgment-proof) would be saved;

(2) the external benefits that the acceptance of the rescue-service offer should be expected to generate because the relevant rescue attempt should be predicted to increase the probability that cargo for whose loss the owner of the imperiled ship might not be liable or might not have to pay (because he was insured or judgment-proof) would be saved;

(3) the external benefits the acceptance of the rescue-service offer should be expected to generate because the relevant rescue attempt should be expected to increase the probability that the imperiled ship would be saved when the owner of the imperiled ship might be insured for any such loss or might be judgment-proof;

(4) the external benefits that the acceptance of the rescue-service offer should be expected to generate because the relevant rescue attempt should be predicted to reduce the weighted-average-expected environmental loss the ship's imperilment would yield in circumstances in which the owner of the imperiled ship might not be liable or might not have to pay (because he would not be liable for the loss or would be insured against or judgment-proof in relation to any such environmental losses for which he would be legally responsible); and

(5) the imperfections in competition or other Pareto imperfections not yet discussed that would distort the profitability of accepting a rescue-service offer by distorting the private cost of the offered rescue attempt or the private value of the cargo and ship that might be saved.

Since the first four imperfections listed above all tend to deflate the profitability of accepting a rescue-service offer,

their presence would reduce the C that would eliminate any distortion in the profitability of accepting such an offer below *(100%/X%)($Z)* on our assumptions. The imperfections to which item five in the above list refers (1) will reduce the C in question to the extent that they deflate the private value to the owner of the imperiled ship of the cargo and ship that might be saved (since that deflation will deflate his incentives to save those assets, *ceteris paribus*) or to the extent that they inflate the private cost of the offered rescue service to the potential rescuer and (2) will increase the C in question to the extent that they inflate the private value of the relevant cargo and ship to the ship owner (in whose interest I am assuming the acceptance/rejection decision is being made) and to the extent that they deflate the private cost of the offered rescue attempt (since, *ceteris paribus*, that deflation will cause the profits the potential rescuee can realize by accepting the rescue-service offer to be inflated).

A. *A Final Reminder*

The preceding analysis assumed that the individual who chose whether to accept or reject the offered rescue attempt would make the choice that was in the interest of the owner of the imperiled ship. If the relevant chooser was trying to maximize some other objective function or was not a sovereign maximizer, one would probably have to adjust the C-formula on these accounts to award Cs that would prevent any misallocation from being generated by rescue-offer acceptance/rejection decisions.

A second type of marine-loss-avoidance decision relates to the characteristics of any individual rescue attempt that is made and of the set of rescue attempts that are made, given the total variable costs that the relevant rescue attempts generate. This type of avoidance-decision generates misallocation when, given the amount of resources devoted to rescuing a given imperiled ship, rescuing its cargo, passengers, and personnel, and reducing the environmental damage the relevant marine peril generates, the amount of allocative benefits generated are lower than they could have been. Such misallocation can arise for two basic reasons: (1) because the C-formula in use rewards successful salvors different percentages of the different kinds of allocative benefits their rescue efforts generate or (2) because the C-formula in use does not reward the salvor for altering his rescue attempt to increase

the allocative benefits other rescue attempters generate and does not reduce the award given a salvor to reflect the fact that the particular rescue attempt he executed reduced the allocative benefits other salvors generated (by more than alternative attempts he could have made would have done). As Section Six points out, although the current United States salvage law does reduce the award a salvor obtains if his rescue effort unnecessarily interferes with the rescue attempts of others, it has at least two features that cause it to generate this type of misallocation for the first of the above two reasons:

(1) it does not award salvors for reducing the environmental allocative losses the marine peril generates and does not penalize salvors for causing environmental losses (say, by releasing oil to lighten tankers to facilitate their rescue); and

(2) it does not compensate salvors for saving lives unless they also save ships or cargo—a feature that will deflate the profitability of saving lives when no other type of salvage is rescued and will inflate the profitability of saving cargo or a ship when one or more lives have been or could be saved.

In any event, to prevent this type of misallocation from being generated, the C-award formula should not treat differently the kinds of allocative benefits marine-rescue attempts can generate and should make a successful salvor's award depend, inter alia, on the effects his attempt had on the allocative-efficiency gains generated by the other rescue attempts made on the salvage in question.

A third type of marine-loss-avoidance decision that needs to be distinguished is whether to attempt a marine rescue at all. Decisions of this type will be misallocative when, given the fixed-cost (background) decisions that have been made, the wrong number of rescue attempts are made on a given imperiled ship from the perspective of allocative efficiency. In an otherwise-Pareto-perfect world (in which the potential rescuer would make the choice that was in his best interest, the private variable cost of his rescue attempt would equal its allocative variable cost, and the private benefits his rescue attempt would confer on the owner of the imperiled ship would equal the allocative benefits it would generate), the C-award that would eliminate any

misallocation of this kind would be an award equal to the "market value"[29] of any rescued salvage, which will equal the private benefits the rescue attempt conferred on the owner of the imperiled ship since, in an otherwise-Pareto-perfect world, he would either own everything that was saved or would have to compensate the owners of the relevant salvage fully for any loss they sustained and (2) there would be no difference between the market value of the salvage and its value to its owner. Before explaining why—in our actual, highly-Pareto-imperfect world—such a C would be unlikely to eliminate any misallocation of this kind (by equating the ex ante profitability and allocative efficiency of any possible rescue attempt), I want to point out that the C in question will almost always substantially differ from the C that would prevent potential rescuees from making allocatively inefficient rescue-offer acceptance/ rejection decisions in a Pareto-perfect-world—namely, a C equal to the product of the private cost of the rescue attempt in question and (100% divided by the probability that this rescue-attempt would be successful). In a Pareto-perfect world (and almost certainly in our actual, highly-Pareto-imperfect world), no C will be able to prevent both these types of misallocation—even if the C in question would affect no other type of misallocation, the most-allocatively-efficient C would be the C that generated the smallest amount of marine-peril-related misallocation that any C would generate, not the C that eliminated all marine-peril-related misallocation.

In any event, even if I assume that the decision to offer to make and to actually make a rescue attempt would be the decision that would maximize the interest of the potential salvor, various Pareto imperfections would cause the profitability of a rescue attempt to the potential rescuer to diverge from its allocative efficiency when the compensation he would receive if successful equaled the market value of the salvage he rescued. At least four sets of such imperfections are worth distinguishing:

(1) the net environmental allocative benefits the rescue attempt will generate, which will (in general) be external to the owner of the imperiled ship and in any event would not

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29. The quotation marks are inserted to acknowledge the problematic character of this notion in relation to lives saved.

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be reflected in any award whose calculation ignored their existence;

(2) the externalities the rescue attempt will generate because—even if no alternative, otherwise-equally-allocatively-efficient rescue attempt the salvor in question could have made would have generated a smaller reduction in the ex ante allocative efficiency of other salvors' rescue attempts—the successful rescue attempt did reduce the ex ante allocative efficiency of the rescue attempts others made;[30]

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30. Assume for simplicity that rescue attempts come in only one form and that at most one rescue attempt will be successful. If the probability that a given body of salvage will be rescued increases less than proportionately with the number of rescue attempts that are made, each successive rescue attempt that is made will reduce the probability that the other rescue attempts will be successful. To see why this externality can cause misallocation, assume that (1) the private and allocative value of the salvage is $1,000,000, (2) the private and allocative cost of each rescue attempt is $200,000, (3) either all or none of the salvage will be rescued, (4) the probability of rescue is 40% if one rescue attempt is made, 65% if two rescue attempts are made, 75% if three rescue attempts are made, 81% if four rescue attempts are made, and 85% if five rescue attempts are made, (5) if more than one rescue attempt is made, each rescue-attempter will be equally likely to succeed, (6) everyone involved is risk-neutral, and (7) a successful rescue-attempter will be awarded the full value of the salvage he rescues—$1,000,000. On these assumptions, four rescue attempts will be made, the allocatively efficient number of rescue attempts will be two, and the misallocation that will be generated by the third and fourth rescue attempts will be $140,000. To see why four rescue attempts will be made, note that if four are made each attempter will perceive ex ante that he has a *20.25%=(1/4)81%* chance of securing the $1,000,000 award and hence the revenue each will expect his rescue attempt to yield him on the weighted average *([20.25%]$1,000,000=$202,500)* will exceed the private cost of his attempting a rescue ($200,000), while if five rescue attempts are made each attempter will perceive ex ante that he has a *17%=(1/5)85%* chance of receiving the $1,000,000 award and hence the revenue each will expect his rescue attempt to yield him on the weighted average *([17%]$1,000,000=$170,000)* will be lower than the private cost of his making the rescue-attempt ($200,000). To see why the number of rescue attempts that will be most allocatively efficient is two, note that (1) the first rescue attempt will yield allocative benefits of *(40%)$1,000,000=$400,000* and allocative costs of $200,000, (2) the second rescue attempt will yield allocative benefits of *(65%-40%)$1,000,000=$250,000* and allocative costs of $200,000, (3) the third rescue attempt will yield allocative benefits of (75%-65%)$1,000,000=$100,000 and allocative costs of $200,000, and (4) the fourth rescue attempt will yield allocative benefits of *(81%-75%)$1,000,000=$60,000* and allocative costs of $200,000. The last two results imply that in the situation in question the last two rescue attempts will have misallocated resources by $100,000 and $140,000 respectively—that is, by a

(3) the external costs the rescue attempt will generate because, even if no one rescued the salvage in question, it might not have been lost;[31] and

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total of $240,000. The reason that the third rescue attempt was ex ante profitable despite its allocative inefficiency—namely, yielded ex ante profits of *25%($1,000,000)-$100,000=$50,000* while decreasing ex ante allocative efficiency by $100,000—is that the allocative cost the third rescue attempt generated by reducing the probability that the first two rescue-attempters would be successful by 15% from 65% to *75%-25%=50%* (the attendant reduction of $150,000 in the ex ante allocative benefits the first two rescue attempts should have been predicted on the weighted average to generate) was external to the third rescue-attempter: this externality accounts for the $150,000 difference between the $50,000 ex ante profits the third rescue attempt should have been predicted to yield and the $100,000 ex ante allocative-efficiency loss it should have been predicted to generate. Similarly, the reason that the fourth rescue attempt was ex ante profitable despite its allocative inefficiency— namely, yielded ex ante profits of *(20.25%)$1,000,000-$200,000=$2500* while decreasing ex ante allocative efficiency by $140,000—is that the allocative cost the fourth rescue attempt generated by reducing the probability that one of its three predecessors would succeed by 14.25% from 75% to *60.75%=(3/4)(81%)* (the attendant reduction of $142,500 in the ex ante allocative benefits the first three rescue attempts should have been predicted on the weighted average to generate) was external to the fourth rescue-attempter: this externality accounts for the $142,500 difference between the $2500 ex ante profits the fourth rescue attempt should have been predicted to yield and the $140,000 ex ante allocative-efficiency loss it should have been predicted to generate. I should perhaps note that, in the situation described, any C at or above *$615,384(8/13)* but below $800,000 would induce the allocatively efficient number of rescue attempts to be made. Thus, any C in that range would induce at least two rescue attempts to be made because a 32.5% chance of collecting at least *$615,384(8/13)* would be worth at least $200,000 to a risk-neutral potential rescuer, and any C below $800,000 will not induce three rescue attempts to be made because a 25% chance of collecting less than $800,000 is worth less than $200,000—the cost of the rescue attempt—to a risk-neutral potential rescuer (recall that if three rescue attempts are made the probability that one of them will be successful is 75% so that each attempter will reckon with a 25% chance of being successful).

31. To demonstrate the relevance of these externalities, one need only alter the example discussed in note 30 in two ways: (1) assume that there is a 10% chance that the salvage involved in that case would not be lost if no one attempted a rescue and (2) alter its second assumption to make the private and allocative cost of each rescue attempt that could be made on the salvage in question equal $350,000 rather than $200,000. On these assumptions, one rescue attempt will be made if a successful salvor would receive the full market value of what he had saved (and the potential rescuee had no opportunity to reject the offer of a rescue attempt). This conclusion reflects the fact that, if one rescue attempt were made, the weighted-average-expected award to the rescue-attempter would be *40%($1,000,000)=$400,000*, which exceeds the private cost

(4) the imperfections in competition and various other types of Pareto imperfections not yet considered (including the possible difference between the value of salvage to its owner and its market value) that would distort the private (variable) cost of the rescue attempt or the market value of the relevant salvage and hence (except fortuitously) the profitability of the rescue attempt in an otherwise-Pareto-perfect world if the C were set at the market value of the rescued salvage.

Obviously, to induce sovereign, maximizing potential marine-rescuers to make allocatively efficient decisions about executing rescue attempts that would generate environmental allocative benefits, one would have to offer successful rescuers who had made attempts of this kind Cs that exceed the market value of the salvage they rescued by an appropriate amount, other things being equal. To induce sovereign, maximizing potential marine-rescuers to make allocatively efficient decisions about executing rescue attempts that would generate the types of allocative external costs discussed in items (2) and (3) in the preceding list, one would have to offer successful rescuers who had made attempts of this kind Cs that were appropriately lower than the market value of the salvage they rescued, other things being equal. To induce sovereign, maximizing potential marine-rescuers to make allocatively efficient decisions about executing rescue attempts whose

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of that attempt ($350,000), while, if two rescue attempts were made, the award that each rescue-attempter would expect to obtain on the weighted average— *(1/2)(65%)\$1,000,000=\$325,000*—would be lower than the private cost of his rescue attempt ($350,000). Unfortunately, on the assumptions of the current example, the rescue attempt that would be made would be allocatively inefficient—namely, would generate weighted-average-expected allocative benefits of $300,000 by increasing the probability that the $1,000,000 of salvage that was at risk would not be lost from 10% to 40% and allocative costs of $350,000. The difference between the $50,000 in profits the rescue attempt in question should be expected to generate ex ante and the $50,000 in allocative inefficiency it should be expected to generate is the $100,000 in external costs it would generate given the C on offer because there was a 10% probability that the salvage in question would not have been lost had no attempt been made to rescue it. Other things being equal, to prevent this type of misallocation, one would have to reduce the C the court awarded by the weighted-average-expected amount of salvage that would not have been lost had no attempt been made to rescue it: in effect, such a reduction would internalize to the potential rescuer what would otherwise be the external cost his rescue-attempt would impose on the owner of the imperiled salvage.

profitability would be distorted by other types of Pareto imperfections than those already considered, one would have to increase or decrease the Cs they would be awarded above or below the market value of what they rescued to offset the profit-distortions these other types of imperfections would generate.

The fourth type of marine-loss-avoidance decisions are background (fixed-cost) decisions to construct marine-salvage ships, to alter or equip other sorts of ships to increase their marine-salvage capabilities, to hire and train personnel to perform marine-salvage functions, and to deploy ships in positions that increase their marine-salvage opportunities. Although one could investigate the C-formula that would make it profitable for potential marine salvors to make the set of fixed-cost decisions that would be most allocatively efficient if all salvage ships that were constructed, all non-salvage ships that were adapted to increase their salvaging capabilities, and all relevant personnel would be deployed and then used as allocatively efficiently as is possible, the more relevant question is: Which C-formula would produce the most-allocatively-efficient set of potential-marine-rescuer background (fixed-cost) decisions, given the way in which each possible set of constructed or adapted salvors and their personnel would actually be deployed and used? I will assume at the outset that all marine salvors are identical professional salvors and that the economy is otherwise-Pareto-perfect. The consequences of relaxing these unrealistic assumptions will be examined at the end of the relevant discussion.

I begin with two fairly obvious observations. First, the C-formula that would prevent marine-salvor fixed-cost-decision (background-decision) misallocation would have to yield salvage awards that would give salvors enough operating profits across all their rescue attempts to cover the fixed costs they would incur if the most-allocatively-efficient set of marine-rescue fixed-cost decisions were made—that is, would have to exceed the product of (the market value of the salvage they rescued) and (100% *divided by* the ex ante probability that they would rescue any salvage [if for expositional reasons we continue to make the simplistic assumption that ex ante the potential rescuer will believe that he has an X% chance of rescuing $Z in salvage and no chance of rescuing any other amount of salvage]). Second, the C-formula in question will not, in general, be the formula that causes each salvor's weighted-

average-expected salvage-awards to exceed his variable rescue costs by the same percentage by which his fixed rescue costs exceed his total variable rescue costs. If courts awarded Cs that enabled all existing salvors to earn a normal return on their fixed costs, those Cs (1) would perpetuate excessive investment in marine-salvage capabilities from the perspective of allocative efficiency if too many resources were devoted to marine-salvage-capabilities investment from that perspective prior to the relevant awards being made and (2) would perpetuate inadequate investment in marine-salvage capabilities from the perspective of allocative efficiency if too few resources were devoted to marine-salvage-capability investment from that perspective prior to the relevant awards being made.

As these two observations imply, in order to determine the percentage by which the total amount of awarded Cs should exceed the total variable rescue costs the salvor incurred, the analyst would have to know not the ratio of existing-salvor fixed (background) costs to existing-salvor total variable (foreground) costs but the ratio of marine-salvor fixed to total variable cost that would prevail if the set of marine-salvor fixed-cost decisions were made that would be most allocatively efficient, given the way in which the relevant salvage ships and personnel would actually be used. Obviously, to determine this latter ratio, the analyst would have to do a complete analysis of the way in which the C-award that would eliminate marine-salvor fixed-cost-decision misallocation would affect all other decisions that would influence the allocative efficiency of any given set of marine-salvor fixed-cost-decisions—that is, would influence not only marine-salvor variable-cost (rescue-attempt) decisions but also potential-rescuee marine-peril-avoidance decisions and rescue-service-offer acceptance/rejection decisions.

I hasten to note that these analyses will take account of the unfortunate fact that the C-award formula that will eliminate marine-salvage fixed-cost-decision (background-decision) misallocation, given the other decisions it will induce potential marine salvors and potential marine rescuees to make, will almost certainly simultaneously cause marine salvors to make allocatively inefficient rescue-attempt (foreground) decisions and potential marine rescuees to make allocatively inefficient marine-peril-avoidance and rescue-service-offer acceptance/rejection decisions. I hasten to note as well that, even on the

simplifying assumptions on which the preceding discussion was based, the second-best-allocative-efficiency analysis of the C-award formula that would eliminate marine-salvor fixed-cost-decision misallocation would be both extremely complex and very difficult.[32]

I will now relax the two simplifying assumptions made at the beginning of this discussion. First, even when the set of marine-salvor fixed-cost decisions is allocatively efficient, the ratio of fixed to total variable cost of different marine salvors will vary substantially. More specifically, the ratio in question (1) will be highest for professional salvors, next highest for semi-professional salvors, and lowest for casual salvors[33] and (2) may vary considerably within the professional-salvor and semi-professional-salvor categories. Obviously, this reality implies that the C-formula that will eliminate marine-salvor fixed-cost-decision misallocation will be more complicated than would otherwise be the case—that is, it will have to reflect inter-salvor variations in the relevant fixed-cost to total-variable-cost ratio. Second, as noted in the discussion of the other types of marine-peril-related misallocation that can be generated, the economy is highly-Pareto-imperfect. Various Pareto imperfections will affect the analysis of the C-formula that will eliminate marine-salvor fixed-cost-decision misallocation in at least two ways:

(1) by complicating the analysis of the marine-salvor fixed-cost decisions that would be most allocatively efficient and

(2) by making it necessary for the analyst of the C-award formula that would eliminate all marine-salvor fixed-cost-decision misallocation to take account of any government subsidization of the relevant fixed-cost

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32. Neither *Landes & Posner* nor the Harvard Note (which makes many improvements on *Landes & Posner*) manifest any awareness of the complexity and difficulty of the analysis one would have to execute to identify "the most-allocatively-efficient set of fixed-cost marine-salvage decisions" in any sense in which that concept might be defined. *See* Harvard Note, *supra* note 19, at 1907-08; *Landes & Posner*, *supra* note 4.

33. I am assuming that, by definition, "casual salvors" are salvors who have not adapted their ship, altered the selection or training of their ship's personnel, or changed their ship's deployment in any way to increase the amount of salvage they rescue. *See supra* text accompanying note 18.

expenditures or any license fees the government charged professional or semi-professional marine salvors.

The first of these two realities requires some elaboration. Pareto imperfections will complicate the analysis both of the total amount of fixed-cost expenditures that will be allocatively efficient for marine salvors to make and of the particular fixed-cost expenditures that will be allocatively efficient for them to make, given the total investment made in marine-salvage "capabilities." Pareto imperfections will affect the total amount of fixed-cost expenditures that will be allocatively efficient (1) by distorting the private cost of the resources the fixed-cost expenditures "consume," (2) by distorting the private variable cost of rescue attempts, (3) by distorting the private value to their owners of any salvage such fixed-cost and variable-cost expenditures enable marine salvors to rescue, (4) by externalizing from the marine salvor any benefit his fixed-cost expenditures generate by causing him to prevent environmental allocative losses, and (5) by influencing the impact of his fixed-cost expenditures on the amount of misallocation generated by marine-peril-related decisions made by potential rescuees. Pareto imperfections will affect the C-formula that will prevent marine salvors from making less-allocatively-efficient fixed-cost expenditures than they could have made given their total investment in marine-salvage "capabilities" (1) because Pareto imperfections may yield different distortions in the private cost of different sorts of fixed-cost expenditures—in particular, different distortions in the private cost of constructing salvage ships, altering non-salvage ships, equipping either sort of ship, hiring and training salvage-operation personnel, and deploying salvage-capable ships in particular ways—and (2) because (A) the type of fixed-cost expenditure that is made may affect the type of salvage that is rescued or the balance between salvage rescued and environmental losses prevented and (B) the operative Pareto imperfections may yield different distortions in the private value to their owners of the different sorts of salvage that different fixed-cost expenditures would cause to be saved and/or in the private value to the salvor of preventing environmental losses. For all these reasons, the C-formula that will eliminate marine-salvor fixed-cost-decision misallocation will have to take account of the nature of the fixed-cost expenditures the salvor in question made or should have made from the perspective of allocative efficiency.

I want to close this discussion by emphasizing two points. First, the C-award formula whose application would eliminate marine-salvor fixed-cost-decision misallocation would focus not just on the expenditures of the successful salvor in the case at hand and the operating profits the award its use would produce in the instant case but on the fixed-cost decisions of all marine salvors and potential marine salvors, on the amount of such expenditures that would be allocative efficient, and on the amount of salvage each salvage-boat or salvage-adapted non-salvage boat would rescue. Second, except fortuitously, the C-award formula whose application would eliminate marine-salvor fixed-cost-decision (background-decision) misallocation would not eliminate marine-salvor variable-cost-of-rescue-attempt-decision (foreground-decision) misallocation, potential-rescue background-avoidance-decision misallocation, or potential-rescuee rescue-service-offer acceptance/rejection-decision (foreground-decision) misallocation.

The final type of marine-loss-avoidance decisions are marine-loss-avoidance decisions by potential rescuees. With two exceptions, the analysis of the C-award formula that would eliminate the misallocation that this type of marine-loss-avoidance decision can generate is identical to the analysis of the C-award formula that would eliminate potential-rescuee rescue-service-offer acceptance/rejection-decision misallocation:

(1) the C-formula that would prevent potential-rescuee avoidance-decision misallocation (if all potential rescuees were sovereign maximizers) would have to take account of the effect that such decisions have on the fixed allocative costs that potential salvors generate as well as on the amount of variable allocative costs rescue attempts generate, the allocative value of salvage that is lost, and the environmental allocative costs that marine peril generates, and

(2) the C-formula that would prevent potential-rescuee avoidance-decision misallocation (if all potential rescuees were sovereign maximizers) would have to take account of the distortion in the private cost of potential-rescuee avoidance-moves that was generated by the operative Pareto imperfections.

Hence, in an otherwise-Pareto-perfect world in which everyone was risk-neutral, the C-award formula that would eliminate potential-rescuee marine-peril-avoidance-decision

misallocation would equal the sum of (1) the product of (the variable cost of the rescue attempts made) and (100%/[the probability that these attempts would be successful]) and (2) (the amount by which the potential rescuee's activities increased the fixed-cost marine-salvage-related expenditures of all marine salvors divided by the number of times the rescuee was the object of a successful marine-rescue attempt—that is, the number of times the rescuee had to compensate a marine salvor). And, in our actual, highly-Pareto-imperfect world, the C-formula that would prevent sovereign, maximizing potential rescuees from making misallocative marine-peril-avoidance decisions would have to be adjusted to offset the distortion in the profitability of such decisions that the operative Pareto imperfections would generate by distorting the private cost of the fixed-cost-of-rescuing and variable-cost-of-rescuing expenditures the avoidance-move in question would deter, the private value to the potential rescuee of the salvage whose loss the avoidance-decisions in question would prevent, the private value to the potential rescuee of the environmental allocative losses the avoidance-decisions in question would prevent, and the private cost of the avoidance-decisions themselves to the potential rescuee in question.

The same two conclusions that I have reached about all the other types of marine-peril-related misallocation this section has discussed will apply equally forcefully in relation to potential-rescuee marine-peril-avoidance-decision misallocation:

(1) the analysis of the C-formula that will prevent this type of misallocation will be complicated and difficult, and

(2) the C-formula that will prevent this type of misallocation will almost certainly not prevent the other types of misallocation that may be associated with marine perils.

I have so far discussed the various C-formulas that would prevent each of the types of marine-peril-related misallocation that judicially-ordered marine-rescuee-to-rescuer compensation-awards could affect. As already indicated, in order to identify the C-formula that would be the most-allocatively-efficient formula a judicial system could use, an analyst would also have to determine the amount of marine-peril-related misallocation of each relevant type that any given C-formula would generate because it differed (if it did differ) from the formula that

would eliminate misallocation of that type and, derivatively, the total amount of marine-peril-related misallocation each possible C-formula would generate.

For the former purpose, the analyst would have to (1) calculate the aggregate distortion in the profitability of the various decisions in each category that the different possible C-formulae would generate, (2) ascertain the way in which the relevant potential-marine-rescuer and potential-marine-rescuee choices would be distorted by the relevant chooser's non-sovereignty and non-maximization—inter alia, the difference between these choosers' perception of the profitability of the relevant choices and those choices' actual profitability, and (3) determine the number of choices in each category whose allocative efficiency was oppositely signed to and absolutely smaller than the sum of the actual distortion in the profitability of the relevant choices and the "equivalent-dollar distortion" in their profitability that one might say was caused by the relevant chooser's non-sovereignty and non-maximization—that is, the number of choices in each category whose profitability would be critically distorted if the C-formula in question were used— and the average allocative efficiency or allocative inefficiency of those choices in the relevant category whose profitability would be critically affected by the C-formula in question.

I want to close this discussion of the approach to marine-salvage awards that would be second-best allocatively efficient for a judicial system to take with a comment on one of its central findings—namely, that no award will be able to eliminate all of the various types of misallocation with which marine peril may be associated, that the most-allocatively-efficient set of C-awards a judicial system could make would not eliminate all marine-peril-related misallocation. The comment is that this conclusion exemplifies the following truism: in order to control X decisions, a decision-maker must have X policy instruments. A judicial system that is authorized solely to require marine rescuees to compensate those of their rescuers who have not negotiated a binding price for their services cannot eliminate marine-peril-related misallocation by making appropriate compensation awards because, regardless of how complicated it makes the formula it uses to determine those awards, the number of policy instruments at its disposal will be smaller than the number of decisions it will need to control to eliminate all marine-peril-related

misallocation. Even on the second-best-allocative-efficiency-analysis assumptions that perfect theoretical analyses can be costlessly executed and perfect data can be costlessly collected and analyzed, such compensation awards would have to be supplemented with other policies such as marine-salvor subsidies or license fees for misallocation to be eliminated.

IV. The Approach That Would Be Third-Best Allocatively Efficient for a Judicial System to Take to Marine-Rescuee-to-Rescuer Compensation-Award Cases

Third-best-allocative-efficiency analysis differs from second-best-allocative-efficiency analysis in that it takes account both of (1) the cost and probable imperfectness of all conceptual analysis and (2) the cost and imperfectness of data. Thus, someone who was trying to execute a third-best-allocative-efficiency analysis would formulate and carry out a theoretical analysis of a particular theoretical issue that a second-best-allocative-efficiency analysis would perfectly analyze if and only if he thought[34] that the allocative cost of his doing so was lower than the amount by which the analysis in question would increase the allocative efficiency of implementing the policy he would conclude would be best to implement from the perspective of allocative efficiency. Similarly, someone who was trying to execute a third-best-allocative-efficiency analysis would collect and analyze data or additional data on some parameter that his theoretical analysis showed would affect the content of the most-allocatively-efficient policy recommendation he could make if and only if he thought that the allocative cost of the

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34. I use the word "thought" to elide a conceptual problem that makes any operationalization of the concept "third-best-allocative-efficiency analysis" problematic—namely, the infinite-regress problem that arises in relation to the following series of questions: How much time and effort should someone who wants to execute a third-best-allocative-efficiency analysis devote to determining whether he should try to formulate and think through a particular theoretical issue (or collect some data)? How much time and effort should such an individual devote to determining the time and effort he should devote to determining the time and effort he should devote to determining the time and effort he should devote to determining whether he should try to formulate and think through a particular theoretical issue (or collect some data)? And so on and so forth until the end of time.

relevant data and its analysis was lower than the amount by which that data would increase the allocative efficiency of implementing the policy he would conclude would be best to implement from the perspective of allocative efficiency. I have four preliminary observations to make about some determinants of the extent to which the analysis of some issue that would be TBLE for a government decision-maker to make would be less complicated than the analysis that would be SBLE for him to execute, one point about a reason why *ceteris paribus* TBLE analysis will be more complicated than SBLE analysis, and four tentative suggestions about the difference between the approaches to marine-rescuee-to-rescuer compensation-award-formula determination that would be second-best and third-best allocatively efficient for a judicial system to adopt.

The four preliminary observations are all general—that is, they apply to the concrete difference between second-best and third-best allocative-efficiency analyses of all issues. These observations are also all obvious. First, the extent to which the TBLE analysis of any issue will be simpler than the SBLE analysis of that issue will depend in part on the general intellectual ability, specific skills, staff, procedures, and budgets of the individuals and institutions that would have to make the decision at which the analyses in question would be directed. Second, these factors will be less important if the decision-makers or decision-making institutions in question can contract out the necessary work—for example, if a court or judicial system can hire a court master to execute the theoretical or empirical analyses in question or can rely on data (say, on Pareto imperfections) collected systematically by administrative agencies. Third, although the factors listed in the first preliminary observation will be less important when the tasks in question can be contracted out, they will still have some significance in such circumstances: decision-makers and decision-making institutions will differ in their abilities to hire "cost-effective" outside contractors, to monitor their work, and to assess and implement their conclusions, and such differences may affect the allocative efficiency of their hiring outsiders at all and will often affect the character and quantity of the theoretical and empirical analyses that will be third-best allocatively efficient for decision-makers to hire outsiders to execute. Fourth, the extent to which the approach that will be TBLE for a given institution to take to some policy-issue will be simpler than its SBLE counterpart will depend in part on the extent to which it can take

advantage of relevant theoretical work and empirical analyses others have already completed. Most of the theoretical analyses and data that a SBLE analysis of marine-rescuee-to-rescuer compensation awards would respectively execute and collect would also be relevant for the analysis of the allocative efficiency of other policies—not just of accident and pollution policies and finders and Good Samaritan policies but also of antitrust, regulated-industry, intellectual-property, and tax policies. A policy-making system that relied on decision-makers to execute such analyses and collect such data when it would be allocatively efficient for them to do so if their efforts would not be valuable to other decision-makers will be allocatively inefficient (1) because the externalities that would be generated in such a system would tend to cause each individual decision-maker to do too little work of the relevant kind and (2) because individual decision makers and decision-making institutions might be unable to take advantage of all available economies of scale in doing the relevant theoretical and empirical work. I should say that, at present, the governments of the United States themselves do virtually no theoretical work on second-best or third-best allocative-efficiency analysis and collect very little data on Pareto imperfections. Nor do they provide significant support for outsiders to do such theoretical and empirical work. Instead of spending billions of dollars on classifying industries and collecting market-aggregated data that has virtually no policy significance,[35] the United States government should support theoretical work on allocative-efficiency analysis and empirical work on Pareto imperfections. If such work were done and its conclusions made available to relevant decision-makers, TBLE analysis would be much closer to SBLE analysis, and government decision-makers would be more able to determine the policy choices that would be allocatively efficient (and, I hope, more able to make policy choices that are desirable in part because they are more allocatively efficient).[36]

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35. *See* Richard S. Markovits, *On the Inevitable Arbitrariness of Market Definitions*, 47 ANTITRUST BULL. 571, 600-01 (2002).

36. I do not deny the political impediments to public decisionmakers' making desirable choices. Nor do I deny the reality that, from various legitimate value-perspectives, the desirability of some or all policy choices will not be affected at all by their allocative efficiency. On the latter point, see MARKOVITS, *supra* note 13, at 396-97; Markovits, *supra* note 3, at 36-40.

I also want to make a specific point about a way in which (against the run of general form) TBLE analyses will be more complicated than SBLE analyses: TBLE analyses will have to take account of theoretical and empirical information-imperfections that will not trouble the SBLE analyst. Thus, since the person who is executing a TBLE analysis will have to recognize that his conclusion about the identity of the policy option that is available to him or the decision-maker who has hired him that is most allocatively efficient may be wrong, he will have to identify the policy that minimizes policy-error misallocation rather than the policy he thinks is most likely to be allocatively efficient—in the marine-salvage-award context, the person who is executing a TBLE analysis will have to determine the C-formula that will minimize C-award-error misallocation rather than C-award errors (the difference between the allocatively-efficient C-award and the actual C-award). If, for example, a marine-salvage-award analyst has reason to believe that awards that exceed the most-allocatively-efficient award by a given amount are likely to be more misallocative than awards that fall below that most-allocatively-efficient sum by the same amount, it will be TBLE for the analyst to recommend an award formula that produces Cs that are on the high side. Obviously, the fact that the information imperfections that TBLE analysis takes into account make this additional calculation part of a TBLE analysis implies that TBLE analysis will tend to be more complicated on this account than SBLE analysis.

Finally, I have four observations to make about the simplifications that would probably be TBLE for a judicial system to make in the approach it takes to developing a C-formula for marine-rescuee-to-rescuer compensation awards. The first relates to the relevant theoretical analysis: nothing about marine-salvage-compensation-award analysis disposes me to depart from my general (admittedly self-serving) conclusion that it will be allocatively efficient to think through the relevant theoretical issues as thoroughly as possible. The remaining observations relate to the relevant empirical work. I should admit at the outset that (1) my own lack of experience at collecting data on the relevant Pareto imperfections and various private cost and benefit figures that a SBLE analysis would take into account, (2) the paucity of independent private studies of these parameters from whose execution I might be able to learn, and (3) the virtual absence of government studies of these parameters all

reduce my ability to say much of value about the specific simplifications that would be TBLE for a judicial system to make in the approach it takes to determining the formula member-courts will use to calculate marine-rescuee-to-rescuer salvage-awards (either if it could appoint a court master to do the relevant work or if it could not contract out this work in some such way).

The second is an admission against interest[37]: I fear or suspect that—given the characteristics of judges and judicial organizations, the failure of government to execute or sponsor the relevant theoretical and empirical analyses, the failure of Economics Departments to train their students to do second-best and third-best allocative-efficiency analyses, and the paucity of economists who know how or are inclined to execute such analyses—it may be TBLE in the short to medium run for courts to ignore the way in which imperfections in competition will distort the private value of rescued salvage, the private fixed and variable cost of marine-rescue attempts, and the private cost of potential-marine-rescuee avoidance-moves.

The third is that it will probably be TBLE for a judicial system that is trying to develop a TBLE marine-rescuee-to-rescuer compensation award formula to ignore the possibility that the affected marine salvors and rescuees may make relevant human errors. In part, this conclusion reflects the fact that those actors are (by and large) sophisticated decision-makers. In part, it reflects the fact that the relevant errors are hard to detect and may not be biased in any particular direction. And in part, it reflects the possibility that paying attention to particular errors may give parties an incentive to make them.

My fourth suggestion is self-serving in the same sense that my first such suggestion was a proposal against interest. I suspect that it would be TBLE for a judicial system to take account of virtually all of the other complexities I have shown would be considered by a second-best-allocative-efficiency analysis.

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37. Because it undercuts the value of the theoretical work I have done on the issue in question. *See, e.g.*, *supra* note 23.

V.   SOME COMMENTS ON THE SENSE IN WHICH THE TBLE
MARINE-RESCUEE-TO-RESCUER COMPENSATION-AWARD
FORMULA IS ALLOCATIVELY EFFICIENT

This section makes three points about the allocative efficiency of the TBLE formula for marine-rescuee-to-rescuer compensation-awards. First, only fortuitously and in practice, I expect, virtually or actually never will the formula for marine-rescuee-to-rescuer compensation-awards that is TBLE do the best job that any such formula could do at reducing the amount of misallocation caused by the marine-loss-avoidance choices made by potential marine rescuers and rescuees. This conclusion reflects the fact that the analysis that generated the formula in question was TBLE—that the analyst stopped doing theoretical work and collecting and processing data not at the point at which he was certain that his formula recommendation would be perfect but at the point at which he thought that the allocative benefits that further work of the relevant kinds would yield by enabling him to improve his formula recommendation would be lower than its allocative cost.

Second, for reasons that the two preceding sections should have made clear, even if one takes account of the fact that the policy-package that would constitute the government's TBLE response to marine peril would be different from and, quite likely, less complex than the policy-package that would constitute the government's response to marine peril that would be SBLE, it is extraordinarily unlikely that—standing alone—a policy of creating common-law-type courts and instructing them to require marine rescuees to pay successful marine rescuers who have not been able to negotiate binding prices for their services sums that are derived by applying the formula that would be TBLE for such courts to employ for this purpose would constitute the TBLE response the government could make to marine peril.

Third, a policy of obligating such courts to order any marine rescuee who has been sued by a salvor who has rescued some or all of its salvage in circumstances in which the salvor could not negotiate a binding price for his rescue services might well be part of the TBLE response a government could make to marine peril. A decision to create such a cause of action would have at least the following five advantages over such alternatives as the combination of government-financed awards paid to successful marine

salvors whose conduct increased allocative efficiency in some sense and government civil or criminal penalties levied on potential marine rescuees whose background-marine-loss-avoidance-move rejections and marine-rescue-offer rejections decreased allocative efficiency in some sense:

(1) it would provide marine rescuees with incentives to supply government decision-makers with information about the probability that their ship, cargo, passengers, and officers would not have been lost had no one attempted a rescue and various details about the rescue attempts that were made on their salvage (for example, about the extent to which they interfered with each other);

(2) it might save allocative transaction costs by combining two proceedings into one;

(3) to the extent that the fines that would be collected would be lower than the awards that would be given, it would obviate the government's generating allocative transaction costs and misallocation to finance the relevant short-fall;

(4) it would reduce the misallocation and other bad consequences that a government-run system of awards and penalties would generate if those who administered it were financially or politically corrupt; and

(5) (almost certainly least importantly) to the extent that members of the public place a positive value on the beneficiaries' of a marine rescue compensating their rescuer, it will generate external-distributive-preference-based external benefits on this account.

On the other hand, in comparison with such an alternative approach, a decision to create such a cause of action would have at least the following four disadvantages:

(1) it would sacrifice any skill and economies-of-scale-related efficiencies that might be secured by creating a specialized institution that concentrated on these issues and heard all cases of the relevant kind;

(2) by relying on the successful salvor who was the plaintiff in an individual case to provide information about the rescuees' allocatively-inefficient marine-loss-avoidance-decision conduct, it would misallocate resources not just because the individual salvor might be less adept than a government investigator at securing such information but also because the private value of such information to the individual plaintiff (the amount by which it would increase

the award he received) would almost certainly be lower than the allocative value of that information—the amount by which the prospect of its discovery and use would increase the allocative efficiency of the awards that are made;

(3) by relying on marine rescuees to counter the claims their rescuer makes about his salvage-operation investment, the variable cost of his rescue attempt, the ex ante probability of its success, and the number of rescue opportunities he has, it would misallocate resources not just because the individual rescuee might be less adept at securing such information than a government investigator would be but also because the private benefit to a marine rescuee of challenging his rescuer's claims on these issues would be likely to be lower than the allocative value the prospective provision of such information would generate by affecting the allocative efficiency of the awards that are made; and

(4) to the extent that the fines that would be collected would exceed the awards that would be made, it would reduce the misallocation the government would generate when financing its expenditures (by reducing the government's expenditures).

Although this set of observations about the allocative-efficiency advantages and disadvantages of granting successful marine salvors a legal right to secure compensation from their rescuees is far too off-hand to deserve much weight, I would not be surprised if a decision to establish such a cause of action would be part of a TBLE policy-package response to marine peril, at least if jurisdiction for such cases were centralized or perhaps assigned to a specialist court.

VI. The Third-Best Allocative Efficiency of Our Current Judge-Announced-and-Applied Marine-Rescuee-to-Rescuer-Compensation Law

This section examines whether our current judge-announced positive marine-salvage law is third-best allocatively efficient. Before proceeding to this task, I want to make six preliminary observations. First, the discussion that follows is not based on any assumption that the internally correct way to resolve suits for compensation brought against the owner of an imperiled ship by a plaintiff who had tried to rescue that ship and/or the cargo, passengers, and personnel it carried without being able to

negotiate a binding price for the relevant rescue service would be to apply a compensation formula whose derivation and use would be third-best allocatively efficient.[38]

Second, the account of judge-announced marine-rescuee-to-rescuer-compensation law on which this section focuses is derived from the leading treatises on this subject[39]: I have no expertise on the positive law of marine salvage and no ability to assess whether the treatise consensus I report is accurate.

Third, it is clear that the positive judge-announced law of the United States on which this section focuses is different in some respects from the positive judge-announced marine-salvage law or actual "legal" practice of other countries. For example, American courts seem to be less willing than British courts to award compensation to pure-life salvors—rescuers who save lives but no property—and to place a lower value on lives saved than do their British counterparts.[40] American and British courts also

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38. For some accounts of why I do not think that in the United States the internally-right answer to moral-rights-derived legal-rights questions (the kinds of questions with which I think parts of constitutional law, all of the common law, and non-statutory marine-salvage law are concerned) will not in general be the answer that would be allocatively efficient, see generally Richard S. Markovits, *On the Economic Inefficiency of a Liberal-Corrective-Justice-Securing Law of Torts*, 2006 U. ILL. L. REV. 525 (2006); Markovits, *supra* note 3, at 26-34, 44-47.

39. *See, e.g.*, GEOFFREY BRICE, MARITIME LAW OF SALVAGE (1983); GRANT GILMORE & CHARLES L. BLACK, JR., THE LAW OF ADMIRALTY (2d ed. 1975); 3A MARTIN J. NORRIS, THE LAW OF SALVAGE (7th ed. 1997); and DAVID W. STEEL & FRANCIS D. ROSE, KENNEDY'S LAW OF SALVAGE (5th ed. 1985).

40. "Historically, [in the United States,] the saving of life was regarded as fulfilling a moral duty but not as entitling the salvor to a reward." GILMORE & BLACK, *supra* note 39, at 532. Since 1912, by statute, "[a] salvor of human life, who gave aid following an accident giving rise to salvage, is entitled to a fair share of the payment awarded to the salvor for salvaging the vessel or other property or preventing or minimizing damage to the environment." 46 U.S.C. § 80107 (2006). At least one American court has held that this statute does not entitle pure-life salvors to compensation if no property is rescued at the time they saved the lives in question—for example, even if the imperiled ship sinks and is raised subsequently. *See In re* St. Joseph-Chicago S.S. Co. (The Eastland), 262 F. 535, 540-41 (N.D. Ill. 1919). Other American courts have argued that life salvors are entitled to compensation only if they had to forego a meaningful opportunity to rescue non-life salvage to save the lives they rescued. *See, e.g.*, Strachan Shipping Co. v. Cities Servs. Ref. Transp. Co. (The Shreveport), 42 F.2d 524, 537-38 (E.D.S.C. 1930). In any event, even if the life

seem to differ on the way to divide any compensation that is awarded to marine salvors between owners of the salving ship and its officers and crew.[41] (Admiralty courts are authorized not only to divide the compensation they award among these three classes of possible recipients but also to grant awards separately to individual officers and crew members. However, in practice, admiralty courts rarely if ever grant such individualized awards. Awards to individual officers and crew members are almost always made by the ship's owner or master.)

Fourth, the fact that many marine-salvor-compensation cases are submitted to arbitration may not significantly undercut the significance of judge-announced marine-salvage law—in particular, if (as some observers claim) "[a]rbitrators generally calculate salvage awards using the same methods as do courts."[42]

Fifth, the greatly admired authors of at least one of the canonical treatises on admiralty law appear to disagree with the assumption this section makes that judicial marine-rescuee-to-rescuer-compensation practice can be

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salvor is held to be entitled to compensation under the statute, he is not entitled to recover from those he has saved: his share must come out of the award made against the property that has been salved. Moreover, in practice, life salvors have received a surprisingly low percentage of the awarded compensation. Although the few life-salvage cases on which the following assessment was based may have been atypical in that the life salvors faced substantially less danger and difficulty than the property salvors, one treatise concluded that "if the few life salvage awards which have been made are enough to support a generalization, it can be said that it is still far more profitable to save property than to save lives." GILMORE & BLACK, *supra* note 39, at 573. British courts can award compensation to pure-life salvors at the discretion of the Government, and, in practice, seem to grant pure-life salvors awards more frequently than their American counterparts and to place a higher value on lives saved than do their American counterparts. *See* D. Rhidian Thomas, *Life Salvage in Anglo American Law*, 10 J. MAR. L. & COM. 79, 90-91, 101 (1978); Harvard Note, *supra* note 19, at 1897 n.10.

41. GILMORE & BLACK, *supra* note 39, at 566, reports that in the "recent American cases . . . the ordinary division is two-thirds to the owner, one third to the crew[,]" and cites a 1958 edition of Kennedy's treatise on civil salvage for the proposition that the English courts were more favorable to the owners, a three-fourths to one-fourth split being customary. *Id.* at 567 n.103 (citing KENNETH C. MCGUFFIE, KENNEDY'S CIVIL SALVAGE 235 (4th ed. 1958) [hereinafter KENNEDY]).

42. *See* Harvard Note, *supra* note 19, at 1897 n.8 (citing BRICE, *supra* note 39, at 63).

derived from the holdings and dicta of the canonical cases in the field—indeed, manifest any consistency whatsoever. Thus, Grant Gilmore and Charles Black have argued that (1) "[n]o formula precise enough to be useful can be worked out to indicate how large salvage awards will be in particular cases,"[43] (2) "[e]eventually the trial judge will pull an arbitrary figure out of the air,"[44] and (3) "each award continues to be a law unto itself."[45]

Sixth, and finally, my decision to ignore Gilmore and Black's skeptical conclusion and adopt the consensus treatise-writer position (which Landes and Posner and the author of the Harvard Note adopt) has the virtue of being a decision against interest. The Gilmore and Black claim clearly disfavors the hypothesis that judge-announced marine-salvage law is allocatively efficient—a hypothesis that I am seeking to disprove.

After commenting on the third-best allocative efficiency of five components of "marine-peril law" other than the approach the courts have taken to calculating the compensation marine salvors are legally entitled to secure from their rescuees, this section summarizes and assesses the third-best allocative efficiency of the way in which most treatises claim the courts calculate such marine-salvage awards. Technically, the first component of marine-peril law whose TBLE I want to discuss does not relate to the compensation that successful *marine salvors* are entitled to secure from rescuees when they have not negotiated a binding price for their services. Rather, this component is the law on "finders" of property that is classified as "abandoned" rather than salvage.[46] The American law that relates to the general issue is complicated. Not only does it vary from state to state, but in all states of which I am aware it distinguishes among "mislaid property," "lost property," and "abandoned property." "Mislaid property" is

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43. *See* GILMORE & BLACK, *supra* note 39, at 564.

44. *Id.* at 563.

45. *Id.*

46. *See Landes & Posner*, *supra* note 4 at 105 ("[P]roperty is abandoned where either (1) the owner has relinquished the property voluntarily because its expected value to him has become zero or negative, or (2) the owner's identity has become so obscure by passage of time or other circumstances that the costs of ascertaining it would be prohibitive.").

property that was intentionally placed somewhere by an owner who subsequently forgot its location (or, possibly, its existence). In part because the owner of mislaid property may recall its existence and location, U.S. law tends to award title to the owner over the finder. Indeed, courts have held that the length of time the "find" was mislaid is irrelevant to whether title belongs to the party that owned the property before it was mislaid or the finder. More recently, some states have adopted statutory regimes that shorten the duration of the title that owners of mislaid property have to that property to a period that gives them a reasonable opportunity to reclaim the property.

"Lost property" is property that belonged to someone who—through neglect, carelessness, or inadvertence—lost control and possession of it and has no knowledge of its whereabouts. Traditionally, U.S. law gave title of such property to the finder if the finder did not know and had no reasonable means of discovering the identity of the owner. However, if the finder did know the identity of the pre-loss owner or had a reasonable means of discovering his or her identity, the finder's appropriation of the property would make him guilty of larceny on the criminal side and unlawful conversion on the civil side. More recently, some jurisdictions have obligated finders of lost property to turn it over to the police as part of a regime that assigns title of the found object to the finder if it has not been reclaimed by the pre-loss owner within a specified, reasonable period of time.

"Abandoned property" is property that has been discarded or voluntarily forsaken by its pre-abandonment owner (perhaps because that party concluded that the cost of repossessing it was greater than its value to him). Owners of abandoned property know of the existence of the property at the time of abandonment and usually know its location as well. Pre-abandonment owners of property lose title when they abandon the property, and, with one important exception, finders of abandoned property obtain title to it. The exception is "treasure trove," which escheats to the state when found (though in many jurisdictions the finder is entitled to some percentage of its market value).[47]

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47. *See* BARLOW BURKE, PERSONAL PROPERTY IN A NUTSHELL 24-32 (3d ed. 2003); WALTER B. RAUSHENBUSH, THE LAW OF PERSONAL PROPERTY 150-61 (3d ed. 1975).

Landes and Posner do not make any explicit statement about the majority U.S. rule on "abandoned property." All they say is that "the rule in England and in a minority of U.S. states is that abandoned property escheats to the state subject to a salvage claim by the finder."[48] For current purposes, the relevant issue is not so much whether they are right about the positive-U.S.-law issue but the relative allocative efficiency of a rule assigning title to the finder of found abandoned property and a rule assigning title for all found abandoned property (not just treasure-trove) to the State but entitling the finder to a certain percentage of its market value. In broad terms, the rule assigning title to the finder will be more allocatively efficient if the following total is positive: (1) the allocative benefits the rule generates (A) by obviating the State's expending resources to identify instances in which abandoned property has been found, to prove that abandoned property has been found, to take possession of the found abandoned property, to determine the reward to which the finder is entitled, and to devise the financing of the preceding activities and (B) by obviating the finders' expending resources to conceal their finds and to participate in the proceedings that the alternative rule in question would entail *minus* (2) the allocative cost the rule generates because (A) the alternative rule in question would generate a fiscal gain for the State in that the private transaction cost it would have to incur to engage in the activities listed in (1)(A) above are lower than the difference between the private value to the State of the found goods the State would obtain under the alternative rule and the payments it would make to finders under the alternative rule and (B) (if I assume for simplicity that the rule adopted would not affect other government expenditures or the government's fiscal deficit) the alternative choices the State would make to offset the associated fiscal loss will be allocatively costly in that they will generate allocative transaction costs and cause misallocation by distorting the incentives of affected taxpayers and government-service/product buyers *plus* (3) the allocative-efficiency gains that the rule in question would generate relative to the specified alternative (if I assume that the rule-choice will not affect the resources the government devotes to finding abandoned property) by

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48. *See Landes & Posner*, *supra* note 4, at 106.

providing potential salvors with additional incentives to make background and/or foreground abandoned-property-search expenditures (though it is conceivable that the rule will cause allocative inefficiency by increasing such potential-finder expenditures since no potential finder will take account of the fact that its additional expenditures will reduce the amount of abandoned property that other potential finders will be able to "find" by making given relevant expenditures and since other Pareto imperfections may deflate the private cost of attempting to find abandoned property).

The second issue of this type I want to discuss is the third-best allocative efficiency of the legal rule that those who attempt marine rescues have a legal entitlement to compensation from the potential rescuees whose lives or property they tried to rescue only if their rescue attempt was successful. Landes and Posner argue that this rule seems likely to be third-best allocatively efficient for two reasons. First, because even when one takes into consideration the tendency of this rule to generate allocative transaction costs by making it necessary to adjudicate whether a particular rescue attempt was successful, the rule will tend to reduce the allocative transaction costs generated by litigation (by reducing the number of claims that are brought).[49] Second, because the rule will also tend to increase allocative efficiency by increasing the effort salvors make and the skill they manifest when devoting time to a rescue attempt.[50] In fact, the "no cure/no pay" rule will also tend to increase allocative efficiency in a third way: given that (1) (even with the information that potential rescuees will provide) triers-of-fact will often not be able to identify those unsuccessful rescue attempts that were ex ante allocatively inefficient and (2) the awards that would be TBLE for courts to make to those who made unsuccessful marine-rescue attempts (if they did grant awards to such

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49. *Id.* at 104 & n.46.

50. *Id.* at 104. Landes and Posner's articulation of this point is poor: "If payment were not conditional on success, the rescuer would have a greater incentive to reduce his effort and energy for a given quantity of rescue inputs." *Id.* This formulation is deficient because, from the perspective of allocative efficiency, the amount of inputs a salvor devotes to a rescue attempt (the allocative cost of that attempt) depends not just on the number of man hours devoted to the attempt and the identity of the rescue attempters but also on how hard they work at executing the rescue attempt.

parties) would more than cover the variable cost of their unsuccessful rescue attempt, the relevant legal rule will tend to increase allocative efficiency by deterring salvors from making rescue attempts that were ex ante allocatively inefficient. All things considered, then, I suspect that the "no-cure/no-pay rule" is third-best allocatively efficient.[51]

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51. The Harvard Note makes three counterarguments to this conclusion that I do not think can bear scrutiny. First, it argues that the relevant rule increases the allocative transaction costs that marine-peril-related litigation generates by making it necessary for triers-of-fact in successful-rescue cases of this kind to calculate what it refers to as "the risk premium" that must be paid to salvors "to compensate salvors fully for attempts that came to naught." Harvard Note, *supra* note 19, at 1912. However, regardless of whether rewards are made only to successful salvors or to all actors who made marine-rescue attempts, the TBLE compensation-award formula would require relevant triers-of-fact to make such determinations—to discover, inter alia, the total amount of variable and fixed rescue-attempt costs that were incurred by the members of the actual set of operating salvors and would be incurred by the members of the allocatively efficient set of operating salvors as well as the amount of salvage these two sets of salvors would rescue and the environmental allocative losses these two sets of salvors would prevent or cause. Second, the Harvard Note argues that the rule in question may misallocate resources by inducing potential marine rescuers to make rescue attempts that are ex ante allocatively inefficient by inflating the private benefits of acts that increase the probability that they will be successful. *Id.* In fact, although marine-salvage law may produce this effect, the component of the law that will do so is not the no-cure/no-pay rule but rather the fact that the ex ante weighted-average-expected or certainty-equivalent value of the actual and TBLE compensation award is higher than the variable cost of any rescue attempt that is made. Third, the Harvard Note argues that the no-cure/no-pay rule tends to decrease allocative efficiency by deflating the ex ante profitability of rescue attempts to casual salvors. *Id.* at 1912-13. In fact, although the rule does tend to deter risk-averse salvors of any type from making rescue attempts by increasing the risk costs any such attempt would impose on them and may on this account deter casual salvors more than professional and semi-professional salvors (who have a larger portfolio of rescue attempts and, therefore, have to incur lower risk costs to attempt any given rescue), that fact does not imply that the rule will misallocate resources on this account: risk costs are allocative costs and, *ceteris paribus*, if their presence critically affects the profitability of a rescue attempt, it will critically affect the allocative efficiency of that rescue attempt. Of course, *ceteris paribus*, the no-cure/no-pay rule may misallocate resources by increasing the sum of the risk costs borne by all parties it affects. However, there is no reason to assume that the rule will have such an effect: although it will increase the risk costs that rescue-attempters bear, it will simultaneously decrease the risk costs that potential rescuees bear (by eliminating the possibility that they will not only have to bear the marine loss that eventuated but also have to compensate rescue-attempters whose rescue efforts failed).

The third non-C-formula component of marine-peril law whose allocative efficiency should be discussed is the law's failure to impose a duty on potential rescuers in any category to make rescue attempts they should have perceived to be ex ante allocatively efficient. I will first analyze the third-best allocative efficiency of imposing a duty to make all rescue attempts that the potential rescuer should have perceived to be ex ante allocatively efficient that is not combined with any program for rewarding those who make the rescue-attempts—for example, with any program of direct government awards, with any admiralty-law rule entitling marine rescuers to secure compensation from the rescuees, or with any law-of-restitution rule entitling marine rescuers to secure compensation in "unjust enrichment" suits or in quantum meruit. In such a world, the imposition of such a duty to rescue would tend to increase allocative efficiency by decreasing the misallocation that potential rescuers generate by failing to make rescue attempts that they were in position to execute and that they should have perceived to be ex ante allocatively efficient, but would misallocate resources or generate allocative costs (1) by deterring allocatively efficient investments in marine-salvage capacity by deflating the profits that the actors on whom this duty might fall could earn by putting themselves in a position to effectuate allocatively efficient rescues (by investing in salvage ships, salvage equipment, salvage personnel, salvage-personnel training, and salvage-deployment); (2) by deflating the profitability to potential rescuees of the various types of marine-loss-avoidance moves they could make; (3) possibly by inducing potential rescuers to make rescue attempts that were ex ante allocatively inefficient when the product of (the probability that they would mistakenly be found liable for not making the attempt in question) and (the penalty that would be imposed on them if they were found guilty or liable for failing to make the attempt in question) *was higher than* the private cost to them of making the relevant rescue attempt; and (4) by generating various implementation allocative transaction costs and implementation-financing allocative costs.

Although, therefore, one cannot determine the allocative efficiency of imposing a duty to rescue in the absence of any provision for rewarding those who make allocatively efficient rescue attempts, I would guess that in such a legal environment it would be allocatively efficient to impose such a duty. However, that conclusion (1) depends

on certain pessimistic assumptions about a potential salvor's willingness to make rescue attempts that would not be profitable, (2) would be strengthened if, by performing an expressive function, the imposition of such a duty would increase the inclination of our society's members and participants to serve as Good Samaritans when it would be allocatively efficient for them to do so, (3) would be strongest when the potential rescuer was a casual salvor, intermediately strong when he was a semi-professional salvor, and weakest when he was a professional salvor since the marine-salvage-investment-decision misallocation that would be generated by the imposition of such a duty with no provision for compensation would be greatest when the potential rescuer was a professional marine salvor, etc. Indeed, for this reason, absent a provision for compensation, it might be third-best allocatively efficient to impose such a duty only on casual potential salvors or only on casual and semi-professional potential salvors.

Of course, in our actual world, a decision to impose a duty to make ex ante allocatively efficient rescue attempts on actors who should know that they are in a position to make such rescue attempts will be made in a legal environment in which successful marine salvors in the relevant category will normally be legally entitled to obtain compensation from the owners of the property and lives they rescued. In this legal environment, the imposition of such a duty to rescue should not cause salvage-operation-investment-decision misallocation or potential-rescuee avoidance-decision misallocation. Admittedly, in such a legal environment, the imposition of such a duty to rescue might cause misallocation by inducing potential salvors who fear that triers-of-fact may incorrectly find that a rescue-attempt option that they reject was allocatively efficient to make allocatively inefficient rescue attempts—in particular, it will do so if the combination of the award for making a successful rescue attempt and the penalty for failing to attempt the rescue in question critically inflate the profitability of making the rescue attempt. However, I suspect that, in such a legal environment, the imposition of such a duty to rescue might well tend to increase allocative efficiency more by increasing the profitability of making allocatively efficient rescue attempts that admiralty law and practice would not otherwise have rendered profitable and by increasing the inclination of potential salvors to make such rescue attempts even when they would not be profitable than it would decrease allocative efficiency by

inducing potential salvors to make allocatively inefficient rescue attempts, by generating the allocative transaction costs of processing the State's civil and criminal claims against potential salvors who rejected rescue opportunities, and by generating the allocative transaction costs and other sorts of allocative losses of financing the associated duty-creation and duty-enforcement activities.

The fourth non-C-formula component of marine-salvage law whose allocative efficiency should be discussed is the set of rules for dividing salvage awards (1) between the owners of the salving ship on the one hand and her personnel (master, officers, and ordinary seamen) on the other and (2) among the individual officers and crew. At least five points or sets of related points are worth noting in this context.

First, the salvage award division could affect at least three sets of marine-peril-related decisions and three related types of marine-peril-related misallocation: (1) decisions about whether to make a rescue attempt and associated attempt/no-attempt misallocation, (2) decisions about the attributes of any rescue attempt actually made and the misallocation generated by such choices, and (3) salvage-operation-investment decisions and misallocation.

Second, some of the effects of court-ordered award-divisions on the various types of choices and misallocations just listed will be substantially reduced by the impact that such divisions have on the conventional-wage terms to which the owner of the salvage ship and the ship's personnel (the officers and ordinary seamen who work on his ship) agree. *Ceteris paribus*, if potential salvors and their employees believe that the employees or some subset of the employees will be given \$X in salvage awards, the conventional wages paid to the salvor's employees or the relevant subset of those employees will be reduced by \$X— that is, *ceteris paribus*, the fact that salvor crews are given salvage awards will not affect their total wage package, which will be determined by the supply of and demand for the type of labor they can perform. Of course, the relevant *ceteris* are not all *paribus*. Thus, court-ordered award-divisions will affect the total-wage-related risk costs that salvage-operation investors and the crews of ships that attempt marine rescues bear (an allocative-efficiency effect). Moreover, because the fact that court-ordered salvage-award divisions will affect other employment-contract terms will not eliminate their impact on the immediate rescue-related incentives of decisions of ship owners, officers, and

crews (because the effect such court decisions have on the short-run profits these parties can earn by making particular rescue-attempt decisions will not be completely offset by related changes in their future labor contracts), court-ordered salvage-award divisions will affect (1) the nature of the rescue attempts that are made (both a positive-economic and an economic-efficiency effect) by altering the incentives that crew members have to work harder and more skillfully when attempting marine rescues and to risk injury or death when making such attempts and, relatedly, both (2) the number of rescue attempts that given ships are used to execute and (3) the total amount of marine-salvage-operation investments that are made by altering the profits that a ship owner can earn by using his ship to rescue some or all of a given body of salvage (two positive-economic effects that have allocative-efficiency consequences).

The third set of comments I want to make on the admiralty courts' award-division practices relate to their impact on rescue-attempt/no-rescue-attempt decisions and misallocation. Assuming that (1) admiralty-law award divisions override any division specified in the labor contract between the salvage-ship owner and his employees[52] or that the applicable employment contracts do

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52. I have not been able to ascertain whether admiralty courts are willing to override the division of a salvage award that is specified in an employment contract or collective-bargaining agreement between the owner of a salvage ship and its officers and crew. I have found no case directly on point, and the information I have gleaned from experts and from treatises favor different conclusions. *See supra* note 39. On the one hand, labor-law experts assume that admiralty courts would not be willing to override employment contracts or *a fortiori* collective-bargaining agreements because those agreements when made are supposed to comprehensively control employer-employee relations. This position is supported by the fact that, with the exception of one jurisdiction, American jurisdictions have consistently held that collective-bargaining agreement "maintenance and cure" (accommodation and medical-care) provisions trump the admirality court's decision when the injured crew member can show that the actual hospital and medical fees he has to pay exceed the *per diem* sums specified in the collective-bargaining agreement. For the majority American position, see, for example, Baldassaro v. United States, 64 F.3d 206, 212-13 (5th Cir. 1995). *But see* Barnes v. Andover Co., 900 F.2d 630, 644 (3d Cir. 1990) (basing award of maintenance on costs actually incurred). On the other hand, (1) wages-and-hours legislation and safety legislation does sometimes override the terms of collective-bargaining agreements, (2) admiralty-law experts tell me that the disposition of admiralty-court judges to secure the

not cover this issue, (2) the decision to make a rescue attempt is made by the ship owner or by someone whose choice is determined by the ship owner's interest, (3) the value the court attributes to salved property and lives equals their allocative value, (4) the rescue attempt either will not affect the allocative environmental losses the marine peril generates or, if it does, the total award reflects any related allocative benefits the rescue attempt generates and the ship owner is liable for any environmental losses the rescue attempt generates and his liability is not externalized through insurance coverage or bankruptcy options, and (5) the private variable cost of the rescue attempt equals its allocative counterpart, the law-specified division between owners and crew will eliminate attempt/no-attempt misallocation if the share of the award the law gives to the ship owner equals his share of the total private variable cost of the rescue attempt[53] to him and his

interests of seamen, *see* GILMORE & BLACK, *supra* note 39, at 567, would incline them to conclude that judicial awards that exceed the sum to which their employment contract would entitle them can override the employment contract, and (3) 46 U.S.C. §10317 (2006) ("[A] stipulation by which a seaman consents to abandon a right to wages if the vessel is lost, or to abandon a right the seaman may have or obtain in the nature of salvage, is void") entitles the crew to an award that exceeds the amount specified in their employment contract or the sum they agree to accept post-rescue. *See* GILMORE & BLACK, *supra* note 39, at 567.

53. The ship owner's share of these costs will depend on the percentage of these costs constituted by (1) the weighted-average ship-and-equipment costs the rescue attempt should be expected to generate (by wearing out these assets, by damaging them, or by causing them to be lost), (2) the opportunity cost of diverting these assets to the rescue attempt in question (the alternative activities [including speedier delivery] in which the ship could have engaged had it not been used to execute the rescue attempt) that the ship owner would bear because the rescue attempt prevented him from supplying the towing services his ship could otherwise have supplied or because he was obligated to compensate the owners of the cargo he was carrying and his passengers for the costs any related delay in their arrival at their destination imposed on them (and he was not insured for this contingency) or would lose profits in the future because the delays that resulted from the rescue attempt damaged his reputation for reliability, (3) the weighted-average costs the rescue attempt should be expected to generate by causing cargo (passengers) to be damaged (injured or inconvenienced) or lost (killed)—costs for which he was liable and not insured or judgment-proof (or whose generation would cost him future profits by damaging his reputation), and (4) the weighted-average-expected costs the rescue attempt would impose on his ship's officers and crew by making their labor more costly to them (injury and death aside) or by injuring and killing

ship's crew. Of course, if the preceding conditions are not fulfilled, the conclusion in question will not be correct (unless the various departures from the conditions in question fortuitously cancel each other out in relation to this issue). Thus, if (1) the total salvage award is lower than the allocative value of the property and lives saved and environmental damages prevented and/or (2) the private total variable cost of the rescue attempt is higher than its allocative counterpart (with the relevant percentage distortion being the same for the private variable costs incurred by the ship owner and the ship's crew), the share of the award that the ship owner will have to be given for the profitability of the rescue attempt to him to be undistorted will be higher than the share he would bear of the total private variable cost of the rescue attempt. In the other direction, if (1) the total salvage award is higher than the allocative value of the property and lives saved and environmental allocative losses prevented[54] and/or (2) the private variable cost of the rescue to the ship owner is lower than its allocative counterpart, the share of the award the ship owner will have to be given for the profitability of the rescue attempt to him to be undistorted will be lower than the share he would bear of the total private variable cost of the rescue attempt.

According to Gilmore and Black, in the United States, the ordinary admiralty-law division between ship owner and crew *circa* 1975 was two-thirds to the ship owner and one-third to the ship's crew.[55] According to *Kennedy's Civil*

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them to the extent that he was liable for these costs and not insured or judgment-proof for them or to the extent that the generation of these costs would increase his future costs by raising the wages he had to pay personnel or the insurance premiums he had to pay.

54. Since the private value of property to its owners may exceed its allocative value, the possibility that the award is higher than the allocative value of the property and lives saved and environmental allocation losses prevented is not ruled out by the admiralty-law rule that salvage awards for rescued property cannot exceed the value of the property to its owner(s). *See* GILMORE & BLACK, *supra* note 39, at 563 (arguing that the award can never be greater than the value of the salved property).

55. *Id.* at 566. Colleagues who are experts in admiralty law and practice have told me that, in their view, these numbers also reflect current judicial practice. Gilmore and Black indicate that "[i]f a few salvage arbitrations reported in American Maritime Cases are representative, the arbitrators appear to give a

Salvage, which Gilmore and Black cite on this point, "'ordinary apportionment' in England, since late in the 19th century, has been three-fourths to the owner and one-fourth to the officers and crew."[56]

I simply do not have the data needed to determine whether either of these divisions would eliminate rescue-attempt/no-rescue-attempt-decision misallocation. Since there is no reason to believe that the relevant facts differ appropriately in the two countries, it is less likely that both countries' award-division practices eliminate such misallocation than that either country's practices do so.

The fourth set of comments I wish to make about the admiralty courts' award-division practices relate to their impact on rescue-attempt-quality decisions and misallocation. Assuming that (1) the admiralty-law division of the total salvage-award controls, (2) the private cost to individual salvage-ship crew members of working harder, working more carefully or skillfully, or taking a greater risk of being injured or killed equals its allocative counterpart, and (3) the relevant individual officers and ordinary seamen would not have to pay any taxes on the awards they received, the division of the award between ship owners and personnel and among personnel will induce the salvage-ship's individual officers and ordinary seamen to make allocatively efficient decisions as to how hard and skillfully to work and to what risks to take when carrying out a rescue attempt if they result not only in the total award to the ship's crew's increasing dollar for dollar with their allocative product but also in each individual actor's award's increasing dollar for dollar with the amount by which his efforts increased the allocative value of the property and lives that were saved and the environmental damage prevented. Unfortunately, from the perspective of this section's organization, this conclusion implies that I cannot discuss the impact of the division of the award on the allocative efficiency of the ship's personnel's laboring decisions without taking account of the size of the total award made to the ship's owner and crew combined, since that total will affect the total award received by all crew members combined and by each individual officer and

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larger proportion of the award to the owners than do the courts." *Id.* at 566 n.102.

56. *Id.* at 567 & n.103.

ordinary seaman. In any event, the preceding conclusion implies that, to the extent that the private cost to each relevant crew member of being injured or killed is lower than the allocative cost (because [1] he does not fully internalize the non-material loss his friends and family suffer when he is injured or killed, [2] the associated medical expenses are subsidized by insurance payments or government transfers, [3] the non-wage costs of his being disabled are partially offset by private and government disability insurance, unemployment insurance, and welfare transfers, and [4] the wage cost of his being disabled or killed is deflated by the taxes he would have paid on the gross income he lost[57] and/or various other Pareto imperfections that caused his gross wage to be lower than his allocative product), the award that a crew member must expect to be given for his effort and risk-taking incentives to be undistorted will increase with his effort and risk-taking by less than his extra effort and risk-taking increase his contribution to the allocative value of the property and lives saved and environmental damage prevented. The preceding analysis also implies that, to the extent that the private cost to the actor of being injured or killed is higher than the allocative cost (because the relevant Pareto imperfections inflate the wages his injury or death prevent him from earning), and, to the extent that taxes reduce the after-tax award he receives below the gross sum he is awarded, the gross award the relevant individual officers and ordinary seamen would have to anticipate securing for their effort and risk-taking incentives to be undistorted would have to increase with increases in their efforts and risk-taking by more than such increased efforts and risk-taking increased the allocative benefits their rescue-attempt labor generated.

This discussion should provide a basis for assessing the impact of the way in which marine-salvage law divides the total compensation it awards between salvage-ship owners and crew and among salvage-ship crew members on the amount of misallocation salvage-ship officers and ordinary

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57. Such awards are treated as ordinary earned income. It appears that some salvor officers and crew members engage in tax fraud by setting up foreign corporations for which they nominally work and arranging for any salvage awards they secure to be paid to those corporations. I have no empirical information about the extent to which salvage-ship personnel engage in such behavior or the likelihood that they would believe at the time of the rescue attempt that their efforts to escape taxation in this way would be successful.

seamen generate because of the way in which they design or execute rescue attempts. Because admiralty-law experts have told me that Gilmore and Black's account of the relevant positive law was very accurate when written in 1975 and has become more accurate as courts have self-consciously chosen to conform their decisions to Gilmore and Black's account of judicial practice, I will assume that Gilmore and Black's description of the living law is correct.

Three aspects of Gilmore and Black's description of the courts' award-practices are relevant in the current context. First, Gilmore and Black state that the total award made to a salving ship's owner and crew combined is directly related to the value of the property and lives saved, the promptness of the rescue attempt, and the skill and bravery that the rescue personnel showed but is inversely related to the damage the rescue attempt caused negligently and the amount by which the rescue attempt reduced the (private) cost-effectiveness of the rescue attempts of others by unnecessarily interfering with them.[58] Although from the perspective of allocative efficiency this practice involves a kind of double-counting (in that speed, skill, and bravery increase the award both directly and indirectly by increasing the value of property and lives saved), it does suggest that the total awards to ship owner and crew combined, hence, the award to the ship's crew as a group, and, hence, the award to individual ship officers and ordinary seamen do vary in the allocatively efficient direction with the allocative efficiency of each individual crew member's conduct. Two additional points are relevant at this juncture. First, the preceding account provides no basis for concluding that—even if it would be accurate to assume that individual crew members would make the laboring choices that would maximize the equivalent-dollar interest of the owner and crew of the ship combined—the quantitative relationship between the total sum awarded and the allocative product of the choices the ship's crew made would eliminate any distortion in each individual crew member's work incentives. Second, bravery and courage and, hence, rewarding bravery and courage may be more allocatively efficient than one might suppose. Although in our society potential rescuers do not have a moral (or legal) obligation to make choices that would

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58. GILMORE & BLACK, *supra* note 39, at 554-62.

subject them to a significant risk of death or substantial bodily injury, that fact does not reflect a judgment that choices to incur such risks would be allocatively inefficient. Bravery is often allocatively efficient: the ex-ante allocative cost of a potential rescuer's attempting a rescue that exposes him or her to a significant risk of substantial bodily harm or death may be lower than the allocative benefits of the rescue attempt if the attempt is sufficiently likely to save the lives of many people. Moreover, to the extent that that the private cost of bravery is deflated less by private insurance and government transfers than the private value of any awards paid for bravery is deflated by taxation, it may be allocatively efficient to make the award given for brave conduct exceed that conduct's allocative product.

The second component of Gilmore and Black's account of salvage-award practice that is relevant in the current context is their more refined description of the factors that influence the percentage of the total award made to the owner and crew of a ship making a successful marine-rescue attempt that is allocated to the crew:

> In high order salvage, where the individual salvors, under dangerous conditions, show skill, resourcefulness and courage, the crew's share will be upped. In low order salvage, which is just enough more than simple towage to qualify at all and where the crew has done little, the owner will get a larger than usual share.[59]

Once more, this implies that admiralty-law practice will tend to decrease rescue-attempt-quality misallocation by making the awards to individual actors increase with the allocative product of their conduct. Obviously, unless the awards are properly individuated, an individual's choice that would increase his allocative product by $X would not increase his individual award by $X even if it would increase by $X the award his ship's officers and ordinary seamen combined obtained.[60]

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59. *Id.* at 566.

60. Admittedly, the tendency of any such disparity to cause misallocative laboring choices to be made will be smaller to the extent that (1) individual officers and crew members are motivated by the equivalent-dollar interest of the ship personnel group as a whole and/or (2) the decision of a given officer or crew member to act allocatively efficiently encourages other ship personnel to make

The third component of Gilmore and Black's account of salvage-award practice that is relevant in the current context relates to the individuation of salvor-crew awards. I will initially assume that all award-individuation is done by the courts. (In fact, as I have already indicated, although the courts are authorized to allocate the award not only among salvage-ship owners, officers, and seaman but to individual officers and individual seamen, they rarely grant individual awards.) I will then discuss the significance of the fact reported to me by experts that ship owners and ship masters often control the awards that their ship's individual officers and individual ordinary seamen receive.

Gilmore and Black offer the following description of admiralty-court award-individuation:

> "Basic" awards to the crew are usually made according to rank or monthly pay; the master and senior officers receive substantially more than ordinary seamen. These awards are made to all crew members of the salving ship, whether or not they personally took part in the rescue work. Additional awards are then frequently made to individuals who played conspicuous roles: to those who boarded a derelict ship, helped to extinguish fires, or navigated her to port. Ingenuity as well as personal bravery may justify an additional award, as in the case of an officer, who by noticing that, contrary to the charts, tides were higher at night than during the day, contributed the idea that made it possible to refloat a stranded ship after several daytime attempts had failed.[61]

I have three comments to make about the impact of such an individuation scheme on rescue-attempt-quality misallocation. First, if the total award to the crew equaled the crew's allocative product, the practice of giving non-participants the "basic" award would be misallocative even if across all of a ship's rescues the practice had no impact on individual crew members' compensation-shares. At least, this conclusion will be justified unless each choice by each individual crew member was motivated by a desire to maximize the equivalent-dollar gain to the crew as a whole rather than to the individual crew member. Second, if contrary to my expectation, the differences in the basic salvage awards that the individual members of different

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allocatively-efficient choices (that would not be individually profitable for them but for their tendency to encourage others to make such choices).

61. GILMORE & BLACK, *supra* note 39, at 567.

categories of salvage-ship crew receive do affect their relative total compensation, I would be unable to judge whether the practice of giving substantially higher "basic" awards to individual officers than to individual seamen would be allocatively efficient—that is, would induce ship owners to hire an allocatively efficient combination of officers and ordinary seamen. More specifically, on the above assumption, this practice would be allocatively efficient if and only if the basic award difference was the difference in the ordinary allocative products of individual workers in the two categories. However, if, as I suspect, differences in the weighted-average amounts of salvage awards that a ship's average officer and average seamen will expect to obtain do not affect differences in their total weighted-average-expected wage-packages, this component of the courts' award-division practice will affect allocative efficiency only by changing the amount of "total-wage-package" risk costs the ship's crew members bear. Third, the reported "additional award" practices of the courts all individuate individual crew members' awards in the direction that would be allocatively efficient, though I do not have the data necessary to assess whether the magnitude of the individual "additional awards" given are allocatively efficient.

I now want to make four comments on the likely allocative efficiency of any award-individuation executed by salvage-ship masters or captains. First, if, as I expect, the owner of the salvage ship and the crew know that the crew will obtain master-awarded compensation, the conventional-wage component of the crew's compensation will be adjusted to reflect that fact and the impact of the master-made awards on anything of interest will be substantially diminished. Second, for the same reasons that the following conclusion applied to court-made awards to crew members, the interdependence of salvage-award payments to crew members and the conventional wages they receive will not totally eliminate the positive economic effects or allocative-efficiency effects of the master-made awards. Third, if ship masters seek to individuate salvage awards in the way that would promote the ship owner's interest (because they feel obligated to do so and/or because they realize that it is in their long-run career interests to do so), they will individuate the relevant awards in the way that is most allocatively efficient if (1) the law eliminates any distortion in the profits the salvage-ship owner makes or (2) any distortion in the profits of the marine-salvage business that

the law does not eliminate does not critically affect the profitability of the most profitable individuation scheme (relative to some less profitable alternative). Although the first of these two conditions is unlikely to be fulfilled, I see no reason to believe that the second is not fulfilled. Fourth, the probability that the master will divide crew salvage-awards in the way that is in his employer's as opposed to his own short-run interest will be highest if he is the master of a salvage ship, next highest if he is the master of a tugboat that is somewhat adapted to perform salvage operations, and lowest if he is the captain of a non-salvage passenger ship or freighter. This contestable conclusion rests on the assumption that, although employers always want to hire executives who make choices that are in the employer's interest, they will be less likely to investigate and be less likely to be disturbed by one-off choices or resolutions of issues that do not often arise than recurrent choices that play a significant role in the profit-performance of their business.

The fifth and final set of comments I want to make about admiralty law's award-division practices relate to their impact on salvage-investment decisions and salvage-investment misallocation. Four comments are in order. First, once more, the net effect of any such divisions the courts make on the profitability of salvage operations and hence salvage-operation investments will be substantially reduced by their impact on the conventional wages that ship officers and ordinary seamen are paid. Second, such award - divisions can increase or decrease the profits that a salvage -operation investment will generate by changing risk costs and altering individual-rescue-attempt quality and profitability. Third, to the extent that such divisions increase or decrease individual-rescue-attempt profitability, they will tend to increase or decrease salvage-operation investment. Fourth, although this point would have to be qualified in a large number of ways that should by now be obvious, any such award-division's impact on the quantity of marine-salvage-operation investment is not likely to affect the misallocation that such investment-decisions generate because the change in investment profitability is caused by effects that simultaneously change the allocative efficiency of marine-salvage investments in the same direction and presumptively to the same or a similar extent.

The final non-C-award component of marine-salvage law on which I wish to comment is its rule for dividing any

marine-peril-related loss among the owners of the property and lives that were imperiled. The applicable current doctrine requires the owners of imperiled property to make ex post payments to each other in a manner that would equalize the proportion of the value of the property that was imperiled that each ends up losing—that is, that equalize among owners of imperiled property the ratio of (the sum of the private value of the property each lost and the positive or negative payments he made) to (the private value to him of the property that was originally imperiled). I want to make four comments about this doctrine. First, it should be emphasized that the doctrine in question (the so-called "general-average principle") does not require payments to be made to or by potential victims whose lives were at risk but who owned no imperiled property and excludes from consideration the value of lives originally imperiled and lives lost when calculating the cross-payments that owners of imperiled property have to make to each other. Second, to the extent that (1) decisions about the focus of rescue attempts (whether they are directed at saving lives or saving property) are controlled by the ship owner or by someone who is guided by the ship owner's interest, (2) the ship owner will not have to bear the cost of lives lost (is not formally liable for such losses or is insured or judgment-proof against having to pay damages for such losses), and (3) the salvor's monetary incentives (the C-award formula) and personal non-monetary preferences will not induce him to take all allocatively efficient steps to rescue any imperiled lives, this exclusion of the private value of the lives that were imperiled and the private value of the lives that were lost from the victim-cross-payment calculation will misallocate resources by causing too few resources to be allocated to saving lives and too many to saving property for any given rescue-attempt expenditure. Third, the implementation of the general-average principle would prevent the misallocation that the owner of the imperiled ship might otherwise find profitable by accepting offers of rescue-attempt variants whose attractiveness to him critically depended on his placing a higher value on saving a dollar of his own property or other property for whose loss he would personally have to pay than on saving a dollar's worth of someone else's property for whose loss he would not have to pay if the following conditions were fulfilled: namely, if (1) the general-average principle were applied accurately, either (2)(A) the private value of all pieces of relevant imperiled property and the private cost of salving

all categories of imperiled property were either undistorted or distorted in the same direction by the same percentage or (B) the private value of different categories of imperiled property were distorted in different directions and/or by different percentages, the private cost of rescuing different categories of imperiled property were distorted in different directions and/or by different percentages, but either the sign and magnitude of the distortion in the private value of each category of imperiled property equaled the sign and magnitude of the distortion in the private cost of rescuing that category of imperiled property or the following ratio were the same for each category of imperiled property—the ratio of (the distortion in the private value of the property in question *minus* the distortion in the private cost of rescuing the property in question) to (the private cost of rescuing the property in question), and (3) both the ship owner's decision-maker and the salvor made no relevant mistakes.

Fourth, although the conditions listed in the immediately preceding sentence may not be fulfilled, with one important exception that will be explored immediately below, it would almost certainly be third-best allocatively efficient to proceed on the assumption that the conditions in question were fulfilled. I should add that the exception in question does not undermine the conclusion that if the general-average principle were altered to take the value of imperiled and lost lives into account in an accurate way, its implementation would prevent the misallocation that would otherwise result from ship owners' favoring rescue attempts that, from the perspective of allocative efficiency, were "biased" toward saving the ship owner's property and property whose owners the ship owner would personally have to compensate for any related loss they sustained.

Fifth, there is some reason to believe that the actual implementation of the general-average principle causes exactly the opposite kind of rescue-attempt-type misallocation to the one with which the preceding two comments were concerned—namely, causes the ship owner to accept offers of rescue-attempt variants that are less allocatively efficient than available variants that would have been more likely to prevent damage to his own property. For this outcome to be generated, the following conditions must be fulfilled: (1) the combination of the damage to the ship owner's property that a particular rescue attempt could prevent and the repair that damage would occasion would increase the value of the ship owner's

property, (2) either in theory or in practice the admiralty courts' general-average calculations ignore or undervalue the ship owner's gain, and (3) in part because the ship owner will not be charged for that gain, the amount of the related repair costs the ship owner would bear (because on their account he would have to make higher transfer-payments to other victims or would receive lower transfer-payments from other victims) is lower than the amount by which the preventable-damage/repair combination would increase the value of his property. The first two of these conditions require some elucidation.

Even if one excludes the possibility that the ship owner may succeed in attributing to the perilous event pre-existing damage with which it had absolutely nothing to do if he succeeds in deterring a rescue attempt that would have prevented that type of damage had it not already been present, the preventable-damage/repair combination can increase the value of the ship owner's property or his profits (transfer-payment consequences aside) in two sets of circumstances: (1) when the damage exacerbates a condition the ship owner would have had repaired in any event and the additional damage the peril inflicts does not reduce the value of his repaired property by as much as the cost he would otherwise have incurred to repair the pre-existing damage or (2) when, regardless of whether the preventable damage would have affected something that was already damaged or worn out, the repaired property would be superior to the pre-peril property. The second condition is that in practice, and perhaps even in theory, the general-average principle will not charge the ship owner for any gain the preventable-damage/repair combination in question would confer on him (salvage-law-required transfer-payment consequences aside). Although the experts with whom I have discussed this issue agree that, in principle, ship owners should be charged with any such gains they secure, they are not sure whether admiralty-law judges would take these gains into account if they knew that they had been generated and are certain that in many instances the other marine-peril victims will not be able to prove that the ship owner had secured such gains. In part, the latter conclusion reflects the objective difficulty of establishing the pre-existing condition and comparing the value of the repaired property with that of undamaged, unrepaired property. But it also reflects an institutional feature of salvage-law practice: judges rely on ship owner-selected adjustors for estimates of the value of the property

that was imperiled, the value of the property that was lost, the extent of any unrepaired or unrepairable damage that was done, and the extent to which the value of the property that was repaired was lower or, presumably, higher than the value it had prior to being damaged in the incident that gave rise to the litigation. Although the ship owners' choices are constrained by requirements that they pick someone from a list of qualified adjustors, I am sufficiently cynical to believe that ship owners will be able to select adjustors who will not tell the court that the repaired property had pre-existing damage or wear (for example, that the new hull was thicker than the worn-down hull that was damaged in the incident in question) or will underestimate the repair costs the ship owner would have had to incur in any event or the amount by which the value of the repaired property exceeded the pre-incident value of the property in question.

Sixth, and finally, although I am fairly certain that it is not third-best allocatively efficient for courts to rely on ship-owner-selected adjustors in marine-salvage cases, I do suspect that if the courts in question selected such adjustors themselves using criteria that reduced the probability that the adjustors selected would have an incentive to favor the ship owners and were more cognizant of the possibility that ship owners might have, from the perspective of allocative efficiency, a bias against rescue attempts that might prevent certain types of damage to their property, a version of the general-average principle that applied to potential victims whose lives had been endangered but who had no imperiled property and took account of the value of lives imperiled and lost when calculating the transfer-payments that all potential victims had to make or were entitled to receive would be third-best allocatively efficient.

I will now analyze the second-best and third-best allocative efficiency of the courts' approach to how much a marine rescuee should be required to pay a successful rescuer who has not been able to negotiate a binding price for his services.[62] In carrying out these analyses, I will

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62. To ease the exposition, I will assume that either (1) the awards actually made are divided in an allocatively efficient manner among the payees and payors—that is, among rescue-ship owners, individual officers, and individual ordinary seamen on the payee side and among owners of imperiled ships, owners of imperiled cargo, and owners of imperiled lives on the payor side—or (2) that any allocative inefficiency generated by the divisions in question will not affect the approach to calculating the total award or the magnitude of the

ignore the very real possibility that, despite the courts' and many legal scholars' claims to the contrary, not only are court-ordered marine-salvage awards not controlled by any formula or protocol, they are not even guided in any coherent way by the factors the courts claim determine their award-decisions. In other words, this section assumes that Gilmore and Black are wrong when they conclude that trial judges set marine-salvage awards by "pull[ing] an arbitrary figure out of the air."[63] More specifically, the analysis' assumptions about the content of the positive law of marine salvage are based on the 1958 treatise *Kennedy's Civil Salvage*.[64] I have made this choice for three reasons: (1) because experts I have consulted think that this treatise was accurate at the time it was written, most importantly (2) because Landes and Posner relied on this treatise[65] and I want to criticize the argument they made for the allocative efficiency of the positive law as they saw it, and (3) because many experts have told me that with some exceptions that are easy to take account of—for example, the fact that, today, salvors are far more likely to be liable for the environmental damage they cause than they were in 1958[66]—the Kennedy-treatise continues to reflect reality.

According to Kennedy's 1958 treatise, courts determine the compensation award in marine-salvage cases by considering the following factors:

A. As regards the salved property:

(1) The degree of danger, if any, to human life.

(2) The degree of danger to the property.

(3) The value of the property salved.

B. As regards the salvors:

(1) The degree of danger, if any, to human life.

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total award in individual cases that is allocatively efficient. Both these assumptions are unrealistic.

63. GILMORE & BLACK, *supra* note 39, at 563.

64. KENNEDY, *supra* note 41.

65. *Landes & Posner, supra* note 4, at 101-02.

66. *See* Brough, *supra* note 10, at 100-04.

(2) The salvors' (a) classification [that is, in my terms— professional, semi-professional, casual], (b) skill and (c) conduct.

(3) The degree of danger, if any, to property employed in the salvage service and its value.

(4) The (a) time occupied and (b) work done in the performance of the salvage service.

(5) Responsibilities incurred in the performance of the salvage service such, e.g., as . . . liability to passengers or freighters through deviation and delay.

(6) Loss or expense incurred in the performance of the salvage service, such, e.g., as . . ., loss of profitable trade, repair of damage caused to ship, boats, or gear, fuel consumed, etc.[67]

This basic account needs to be supplemented in at least eight ways. First, at least in the United States, awards are not given to so-called "pure life" salvors—that is, to salvors who have rescued lives but no property. Second, the value attributed to lives saved and injuries sustained is far lower than their allocative value. Third, although item B(2)(c)— salvor conduct—does cover individual-salvor decisions to execute a rescue-attempt variant that unjustifiably (allocatively inefficiently?) interferes more with the success of other rescue attempts than an alternative rescue-attempt variant he could have executed, item B(2)(c) appears not to cover the possibility that, from the perspective of allocative efficiency, too many rescue attempts were made in the case in question—though, as the next comment indicates, the courts may take account of this possibility when adjusting the award they make in response to their calculation of items A(1) and A(2) in the above list. Fourth, there is some reason to believe that courts define factors A(1) and A(2) in the above list—the degree of danger to life and property—to take into consideration not only the probability that the salvage in question would be "saved" by Mother Nature or by the "self-rescue" efforts of the imperiled ship if no one else made a rescue attempt but also the probability that the salvage would have been rescued by another salvor had the successful salvor in question not made a rescue attempt. Although, as we shall see, such a practice would have problematic effects on marine-salvage-operation-investment

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67. *See* KENNEDY, *supra* note 41, at 174.

decisions, it would make the award a successful salvor receives depend on whether the full set of rescue attempts to which his effort belonged was allocatively efficient. Fifth, although item B(2)(a)—the type of salvor involved in a particular case—does suggest that the courts take account of differences in the amount of fixed costs of salving that different types of salvors have incurred, and other items in the list—all items in set B except item B(2)(a)—suggest that the courts take account of the variable cost of successful rescue attempts, nothing in the list suggests that the courts take account of the other facts that will influence the ratio of the successful salvor's salvage-operation investment to his total variable cost of salving or the percentage by which the awards he receives when his rescue attempts are successful must exceed the variable cost he incurred to execute his successful rescue attempts for him to cover his salvage-operation fixed costs—namely, (if the calculation is made on a ship-by-ship basis) the number of rescue attempts he will use the ship in question to make and the percentage of those rescue attempts that will be successful. Sixth, nothing in the list suggests that the courts consider whether the current level of salvage-operation investment is allocatively efficient.[68] Seventh, the list of salvor attributes the courts consider does not contain the value of any cargo the salvor ship was carrying and the probability that it would be lost or damaged to any given extent, which are factors that will influence the allocative variable cost of the rescue attempt and its private variable cost (to the extent that the salvor owns the cargo, will personally have to compensate its owner for any cargo that is lost or damaged, or will have to pay higher insurance premiums or incur other "costs" if he goes bankrupt because of his inability to compensate owners of lost or damaged cargo to whom he was liable).[69] Eighth, as another leading treatise on marine salvage recognized, in practice, the factors under heading A are by far the most important determinants of the awards that are made, and "the time and labor expended by the salvors in rendering the salvage service"—factor B(4)—and

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68. This omission parallels the court's failure to assess for negligence a business' decision to stay in business at all or to produce the amount of output it chose to produce—that is, to review for negligence an injurer's activity-level choices.

69. The author of the Harvard Note pointed out this deficiency. Harvard Note, *supra* note 19, at 1915.

"the value of the property employed . . . in rendering the service and the danger to which such property was exposed"—factor B(3)—are the least important.[70]

I will now analyze the second-best and third-best allocative efficiency of the approach the courts have taken to determining the protocol they should use to calculate the total award to make to individual successful marine salvors and the protocol they are reported to have followed when making such decisions in individual cases. My initial comments will assume that the courts could execute or commission all relevant theoretical and empirical analyses perfectly and costlessly. I will then consider the possibility that, although the above approach and protocol would clearly be allocatively inefficient if the above second-best-allocative-efficiency-analysis assumptions were accurate, they might be third-best allocatively efficient, given the inevitable cost and probable inaccuracy of the theoretical and empirical work the court could do or contract out.

On the second-best-allocative-efficiency-analysis assumption that the courts could execute all relevant theoretical and empirical analyses perfectly and costlessly, there are at least twelve categories of reasons to doubt that the approach the courts have used to calculate marine-salvage awards is second-best allocatively efficient. The first two relate to more general features of the courts' treatment of this issue. The last ten relate to specific features of the protocol that the 1958 treatise *Kennedy's Civil Salvage* claims the courts follow.

First, to my knowledge, no court has ever said that its total-salvage-award decision[71] was designed to minimize allocative inefficiency.[72] Admittedly, such courts have sometimes explained their decisions in terms of

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70. NORRIS, *supra* note 39, §§ 244-73.

71. Or its decisions about the way in which award-payments should be divided among payors on the one hand and payees on the other.

72. I take no position in this Article on whether the judicial resolution of various award-issues that would be most allocatively efficient would be the resolution required by our relevant moral-rights commitments, would be legally correct, or would be most desirable, rights-considerations aside. For accounts of these issues and a discussion of the relationship between the allocative efficiency of a choice and its justness, legality, and desirability (rights and legal considerations aside), see MARKOVITS, *supra* note 13, at 377-401; Markovits, *supra* note 3; Markovits, *supra* note 38.

consequences whose effectuation might be associated with increases in allocative efficiency. However, the correlation in question is far from clear, and the judges seem to value the consequences to which they refer for reasons other than their connection to allocative efficiency. Thus, when courts justify their salvage awards by citing their tendency to encourage maritime commerce by reducing its hazards, it is not clear that they have "increasing allocative efficiency by encouraging maritime commerce" in mind.[73] When courts justify their marine-salvage awards on the ground that they reward Ggood Samaritans, it is not clear that the judges want to encourage Good Samaritanism if and only if it is allocatively efficient: to the contrary, they seem to be motivated by a distributive "preference" for rewarding Good Samaritans regardless of whether the Good Samaritan conduct in the instant case was allocatively efficient.[74] In fact, even when the courts in question make reference to "goals" whose attainment seems likely to be allocatively efficient, other things being equal—for example, preventing unjust enrichment,[75] deterring the theft of unguarded property,[76] and preventing "the waste" that bilateral monopoly may cause in rescue situations in which time is of the essence[77]—the judges' interest seem to be in the distributive desirability of securing these results (for example, of preventing "exploitation" in bilateral-monopoly situations) rather than in the allocative efficiency of doing so. Admittedly, for some purposes, including those of Landes and Posner, the important question is not why judges resolve issues allocatively efficiently (if they do) but whether they resolve cases allocatively efficiently. For these purposes, the critical issue is whether the marine-salvage-award protocol the courts used is (third-best) allocatively efficient. However, the fact that the courts have never indicated that they were trying to minimize allocative inefficiency and have made some statements that suggest that they were not trying to achieve this goal clearly bears

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73. *See* Harvard Note, *supra* note 19, at 1898 & n.13.

74. *See id.* at 1898 & n.16.

75. *Id.* at 1898 & n.14.

76. *Id.* at 1898 & n.15.

77. *Id.* at 1898 & n.17.

on whether their approach was third-best, much less second-best, allocatively efficient.

Second, although admiralty courts never discussed the way in which they chose the protocol to follow when calculating marine-salvage awards, nothing suggests that they proceeded in either of the ways that I have argued would be second-best allocatively efficient to approach this issue, which include:

(1) listing the various types of allocative costs marine peril can generate, delineating the various ways in which marine-salvage awards can affect each of these types of allocative costs, determining the magnitude of each such type of cost that would result if any given marine-salvage-award protocol were followed, and identifying the protocol whose use would minimize the sum of such costs or

(2) listing the various types of marine-peril-related avoidance-decision misallocation, allocative transaction costs, marine-peril-related-policy public-financing (non-transaction-cost) misallocation, and allocative risk costs that can be generated, delineating the various ways in which marine-salvage awards can affect the amount of each such type of misallocation or allocative cost that is generated, determining the magnitude of each such type of misallocation or allocative cost that would be generated if any given such protocol were followed, and identifying the protocol that would minimize the sum of such misallocation and allocative costs.

Thus, no court has ever tried to determine the award formula that would eliminate each particular type of marine-loss-avoidance-decision misallocation that might be generated, noticed that the formula that would eliminate one such type of misallocation would not eliminate the other types of marine-loss-avoidance-decision misallocation that could be generated, tried to determine the factors that would influence the amount of marine-loss-avoidance-decision misallocation of each relevant type that would be generated if the awards deviated in either direction by various amounts from the awards that would eliminate that type of misallocation, attempted to determine the amount of misallocation of each relevant type that would be generated if a given set of awards were made (if a given award-calculation protocol were followed), or attempted to identify the set of awards (the award-calculation protocol) that would minimize the sum of the marine-loss-avoidance-decision misallocation that was generated (or the sum of

such misallocation, marine-peril-related allocative transaction costs, marine-peril-related risk costs, and marine-peril-related public-finance-generated misallocation).

Third, no court has ever articulated the formula by which it calculates the award it makes in individual cases. Even if the courts had supplied the list of factors that the 1958 treatise *Kennedy's Civil Salvage* and other scholarly works claim influence judicial decisions and even if in addition that list covered all the factors courts take into account when calculating marine-salvage awards, such a list would not constitute a formula—that is, would not allow potential marine salvors and potential marine rescuees to predict accurately the awards that will be made. I can imagine conditions under which it would be second-best allocatively efficient for courts to provide less rather than more guidance to these parties about the court's future decisions—for example, when the awards that are second-best allocatively efficient are higher than the awards that would minimize the misallocation that potential rescuees generate but lower than the awards that would minimize the misallocation that potential rescuers generate and potential rescuees will underestimate the awards that the court will make and potential rescuers will overestimate those awards. However, I suspect that the conditions for this result will rarely obtain. In general, even if (counterfactually) the courts were basing their marine-salvage awards on a formula that was second-best allocatively efficient, their failure to delineate the formula they were using would be allocatively inefficient.

Fourth, although the list of factors that allegedly influence the marine-salvage awards courts make contains many items that do relate to considerations that affect the award that would minimize particular types of marine-peril-related misallocation (for example, the amount of misallocation generated by marine-salvage-operation-investment decisions), they do so only crudely. For example, although the salvor's classification (professional, semi-professional, casual) does relate to the fixed costs of salvage-operation investment that the salvor's salving operating profits must cover, it is a far-from-accurate surrogate for such fixed-cost data.

Fifth, even when the list of factors contains some components of a figure that is relevant to the calculation of the second-best-allocatively-efficient award, it omits other

components of the figure in question. Thus, although the list contains most components of the private variable cost of rescue attempts, it omits the weighted-average-expected amount of variable costs a rescue attempt will impose on the attempter by increasing the probability that cargo he is carrying will be lost or damaged. Similarly, although the list contains many components of the private and allocative benefits that a rescue attempt should be expected to generate ex ante, it omits the weighted-average-expected value of the lives that may be saved in pure-life-salvage situations.

Sixth, even when the list includes a relevant factor, the courts may mis-measure the factor in question. Thus, the general view is that courts undervalue lives saved and at risk and injuries prevented or sustained.

Seventh, the list omits a number of determinants of the positive economic consequences of the awards made that an allocatively efficient protocol would take into account. For example, the list does not include the allocative efficiency of the current level of salvor investment or the number of rescue attempts the successful salvor will make with the salvage ship in question and the percentage of those attempts that will be successful (which one would have to know in addition to his fixed costs and the private variable cost of the successful rescue attempt to determine the percentage by which the average award he receives when successful must exceed the average private variable cost of his successful rescue attempts for him to earn a normal rate of return on his current salvage-operation investments).

Eighth, the list does not reference many determinants of the allocative efficiency of the positive economic consequences of the use of a particular award-protocol. For example, it ignores the allocative efficiency of the current level of salvor investments (which will depend on the allocative cost of successive salvor investments and their impact on the allocative-efficiency gains that actual rescue attempts generate, once the relevant investments are made, the allocative efficiency of the avoidance-move rejections they induce potential rescuees to make, and the allocative efficiency of the rescue-attempt offers they induce potential rescuees to reject [by raising the salvage-awards courts will make]).

Ninth, as I have already indicated, the list seems not to reflect the possibility that the awards made may cause misallocation by inducing an allocatively inefficient number

of rescue attempts or inducing potential rescuees to reject offers to execute allocatively efficient rescue attempts.

Tenth, the list clearly does not cover the allocative efficiency of the pre-incident (background) avoidance-decisions of the rescuee.

Eleventh, although the list does cover the externalities a rescue attempt would otherwise generate by interfering unnecessarily with other rescue attempts made on the same body of salvage and various international conventions and privately developed governance structures have internalized to salvors much of the environmental consequences of their actions that admiralty law failed to internalize,[78] the list clearly does not make reference to most of the various Pareto imperfections that will individually and collectively distort the private value of the property and lives saved, the private fixed salvage-operation costs of the salvor, the private variable cost of rescue attempts, and the private cost of most types of potential-rescuee avoidance-moves.

Twelfth, although I assume that the judges have indicated the direction in which their awards will be affected by variations in the parameters the list contains, the judges have not indicated the amounts by which the awards they announce will be affected by given variations in each such parameter, and (even if there is reason to believe that the courts have varied their awards in the right direction with changes in the parameters in question) there is no reason to believe that they have varied their awards to the right extent in response to changes in these parameters.

Of course, the preceding demonstration that the courts' reported approach to setting marine-salvage awards is not second-best allocatively efficient does not establish its third-best allocative inefficiency—that is, the courts' reported approach might be allocatively efficient, given the inevitable cost and probable inaccuracy of the various theoretical and empirical analyses that would be components of the second-best-allocatively-efficient approach. Indeed, I have already admitted that both in the short run and possibly in the longer run it would probably be third-best allocatively efficient for courts to ignore some factors that a second-best-allocatively-efficient analysis would take into account. However, I see absolutely no reason to believe that all the

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78. See Brough, *supra* note 10, at 111.

features of the courts' approach that I have just pointed out would be deficiencies from the perspective of second-best-allocative-efficiency analysis would be strengths from the perspective of third-best-allocative-efficiency analysis. There is no reason to believe that muddling through is the third-best-allocatively-efficient approach to picking a salvage award, that the various features of the courts' list that are deficiencies from a second-best perspective are individually unimportant or substantially cancel each other out, or (most generally) that the cost of making the list used conform more closely to its second-best-allocatively-efficient counterpart would be prohibitive from the perspective of allocative efficiency.

I began this Article by explaining why—even if the courts made third-best-allocatively-efficient marine-salvage awards—their efforts would not be as allocatively efficient as the most-allocatively-efficient set of marine-peril-related policies the State could adopt. This section has shown that the courts' performance in this area is almost certainly far more misallocative than it had to be.

VII. A Critique Both of Landes and Posner's Conclusion That the "Judge-Made" Law of Marine Salvage Displays "Impressive Congruence With" Their General "Economic Efficiency of Judge-Made Law" Hypothesis and of the Type of Argument They Made to Support This Conclusion

As I indicated in the Introduction, in a classic article, William Landes and Richard Posner argue that what they refer to as "judge-made" marine-salvage law "is consistent with" and displays "impressive congruence with" their hypothesis that "the rules of the judge-made law are best explained as efforts—however unwitting—to bring about [economically-]efficient results."[79] Even if one ignores the differences between the claim that economic efficiency can *predict* the content of "judge-made" law and the claim that economic efficiency can *explain* "judge-made" law,[80] it seems

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79. *See Landes & Posner*, *supra* note 4 at 102, 128.

80. The latter claim implies (1) that the economically efficient resolution of that issue is the correct resolution of that issue as a matter of law or (2) that, for some personal reason, judges are motivated to reach economically efficient

to me that Section Six refutes Landes and Posner's conclusion, regardless of how generously (that is, weakly) one interprets the critical expressions "is consistent with" and displays "impressive congruence with."

However, as important as it is to refute the general economic efficiency of "judge-made" law position to which Landes and Posner and many other Law & Economics scholars subscribe, it is equally important to criticize the kind of argument that Landes and Posner and others use to support this position. The argument that Landes and Posner use to justify their conclusion that "judge-made" marine-salvage law is allocatively efficient has much in common with the kind of storytelling through which they and other scholars who believe in the allocative efficiency of "judge-made" law in general try to establish the allocative efficiency of legal doctrines and their application in general. I will close this section and article by describing and criticizing the type of argument that Landes and Posner make in their marine-salvage piece and explaining its relationship to the general class of arguments that they and

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conclusions or that, for some institutional reason, judges are led to reach economically efficient conclusions. Although I agree that the internal-to-law correct resolution of some legal issues is the most-economically efficient resolution of those issues courts could devise, I do not think that this is true for all, or even most, legal issues. In part, this conclusion reflects my belief that the economically efficient resolution of many moral-rights-related legal-rights issues is not the just resolution of those issues and, in part, my belief that much statutory law that is not designed to effectuate moral rights is also not allocatively efficient. *See* MARKOVITS, *supra* note 13; Markovits, *supra* note 3; Markovits, *supra* note 38. In addition, I do not think that judges believe either (1) that the economically efficient resolution of all legal rights issues is the just or internal-to-law correct resolution of those issues or (2) that they will best be able to further their judicial or non-judicial careers by making economically efficient decisions. Landes and Posner's inclusion of the expression "however unwitting" suggests that they do not disagree with this last point. *See Landes & Posner*, *supra* note 4, at 128. Finally, although I agree that there may be some tendency for litigants who would benefit from the economically efficient resolution of legal-rights issues to spend more money arguing for such an outcome than litigants who would benefit from the economically inefficient resolution of that issue would spend arguing for their preferred resolution of the issue in question (since the former litigants have more equivalent-dollars to gain than the latter have to lose from the adoption of an economically efficient decision-standard), I doubt that any such difference is a sufficiently important determinant of the content of judge-made law for that content to be explicable in this way.

others use to establish the allocative efficiency of other "judge-made" doctrines and their application.

Basically, Landes and Posner proceed by (1) listing the factors that the courts have taken into consideration when making marine-salvage awards, (2) explaining that those factors do affect the award that would be allocatively efficient in a given case or would play a role in the most-allocatively-efficient formula that courts could use to calculate marine-salvage awards because they affect the impact that the award(s) would have on the allocative efficiency of the particular types of private decisions they would affect, (3) arguing that the courts vary the awards they make in the allocatively efficient direction in response to variations in the magnitude of the factors they consider, and (4) offering arguments for the allocative efficiency of courts' ignoring certain factors that would otherwise have been allocatively efficient for them to take into account.[81]

The implausibility of many of these latter arguments aside, this type of argument has the following deficiencies:

(1) its analysis of the allocative-efficiency-relevance of the factors the courts consider is undercut by its failure to take account of the full range of choices whose substance and allocative efficiency the factors in question and marine-salvage awards affect;

(2) its analysis of the impact of the factors the courts consider on the substance and allocative efficiency of the choices it recognizes those factors affect is undercut by its failure to recognize the interdependence of many of the choices in question;

(3) its analysis of the impact of marine-salvage awards on the allocative efficiency of the choices it recognizes those awards will affect (and hence its analysis of the allocative efficiency of particular marine-salvage awards or of particular formulas for calculating such awards) is undermined by its failure to take account of the fact that

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81. Thus, Landes and Posner argue that the American courts' practice of counting the value of lives saved when property as well as lives have been rescued but not providing compensation for "pure life" salvors may be allocatively efficient because—although allocative efficiency will be furthered by giving potential rescuers appropriate incentives to save lives as well as property when both are imperiled—altruism may secure allocative efficiency when only lives are in danger. *See Landes & Posner*, *supra* note 4, at 104-05, 105 n.48.

the courts have ignored many of the determinants of the award that would be most allocatively efficient for them to make—inter alia, the full range of Pareto imperfections that individually and in combination distort the profitability of the choices the awards affect and/or cause individual choosers to make choices that are not in their individual interest;

(4) its analysis of the allocative-efficiency-relevance of particular factors is undermined by its failure to take account of the fact that awards that eliminate (or reduce) the misallocation generated by one or more types of decisions may increase the misallocation generated by one or more other types of decisions;

(5) its analysis of the allocative efficiency of judicially-prescribed salvage awards is limited by its failure to consider whether the courts have made the awards they issue vary to the allocatively efficient extent in response to given changes in the value of the factors they consider (by focusing exclusively on whether the courts vary the awards they make in response to changes in the value of relevant parameters in the allocatively efficient direction); and

(6) for some purposes, the type of conclusion that this type of argument can generate does not provide the information that is required—even if the courts made the awards that were the most-allocatively-efficient awards they could prescribe, such awards, standing alone, would not constitute the most-allocatively-efficient response the State could make to the possibility of marine peril.

I should add that Landes and Posner (and others who make the kind of argument they make in the article this piece criticizes) never acknowledge the possibility, much less the reality, that the most-allocatively-efficient response that courts can make to some problem does not by itself constitute the most-allocatively-efficient response the State can make to that problem.

Admittedly, some of the deficiencies of the argument I just criticized will not appear when the judicial decisions under scrutiny are binary rather than continuous—for example, when the issue is (1) whether a particular defendant is strictly liable or liable only for the consequences of his negligence or (2) was a particular defendant's conduct negligent as opposed to (3) how large an award (how much damages) should a particular defendant have to pay? However, other deficiencies of the Landes-

Posner marine-salvage-award argument are equally salient
when the judicial decisions whose supposed allocative
efficiency is being established are binary. For example, in a
previous article, I showed that Landes and Posner's
argument for the allocative efficiency of the (alleged)
common-law practice of holding members of an industry
strictly liable during the industry's infancy but liable only if
found negligent when the industry has matured was flawed,
inter alia, by its failure to consider the full range of
allocatively inefficient decisions that businesses could make
that would not in practice be assessed for negligence and
the large number of Pareto imperfections other than
accident-or-pollution-loss externalities not internalized by
legal-liability rules that could distort the profitability of the
choices in question (and whose magnitude would, in
different cases, increase and decrease as the industry in
question matured).[82] Somewhat less complicatedly but
equally tellingly, Bob Rabin pointed out that Posner's
conclusion that a trolley company had not behaved
negligently in a case in which a plaintiff was electrocuted
when a long wire he was carrying came into contact with
uninsulated overhead trolley wires beneath an overpass was
critically affected by Posner's failure to consider the possible
negligence of the railroad's failure to post warnings on both
sides of all such overpasses—that is, the failure to consider
the possibility that even if the trolley company's decision to
place their necessarily-uninsulated wires overhead rather
than in the ground was not negligent, their failure to post
warnings may have been negligent.[83]

In my judgment, the common law is not in general
allocatively efficient and should not in general be

82. Richard S. Markovits, *The Allocative Efficiency of Shifting from a
"Negligence" System to a "Strict-Liability" Regime in Our Highly-Pareto-
Imperfect Economy: A Partial and Preliminary Third-Best-Allocative-Efficiency
Analysis*, 73 CHI.-KENT L. REV. 11, 123-32 (1998).

83. Robert L. Rabin, *The Historical Development of the Fault Principle: A
Reinterpretation*, 15 GA. L. REV. 925, 955 (1981). Posner's argument was that—
given the low probability of this kind of loss and the high cost of placing
underground the wire that caused it (which had to be uninsulated to supply
electricity to the trolley)—the trolley company's decision to use overhead wires
was not negligent because the cost of placing the wires underground was higher
than the reduction in weighted-average-expected accident losses placing them
there would generate. *See* William A. Landes & Richard M. Posner, *The Positive
Economic Theory of Tort Law*, 15 GA. L. REV. 851, 893-94 (1981).

allocatively efficient. Law & Economics scholars, who at least supposedly are experts in executing allocative-efficiency analyses,[84] think otherwise in part, because like almost everyone (including me), they would like their expertise to have more value rather than less (for example, to put them in a position to determine the internally-correct answer to legal-rights questions). Despite their inability to explain why judges should make choices that are allocatively efficient,[85] many Law & Economics scholars continue to insist on the allocative efficiency of what they term "judge-made law" and to back up this conclusion with bad arguments that have many or all of the deficiencies of the argument that Landes and Posner make for the allocative efficiency of marine-salvage-award law. I chose to close this article with this more general critique (1) because the efforts of these Law & Economics scholars have an impact on the perceptions of other legal scholars and on legal pedagogy and (2) because the problematic character of this work has implications both for the role that economists should play in the policy-making process and for decisions that university administrations should make on interdisciplinary appointments and programs involving economics.

CONCLUSION

This Article (1) delineates the different kinds of allocative costs that marine-peril contingencies can generate and the different kinds of marine-peril-related decisions that can generate allocative inefficiency (marine-salvage-operation investment decisions, decisions about

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84. The word "supposedly" reflects my belief that the economic-efficiency analyses that most Law & Economics scholars execute are vitiated (1) by their failure to consider the impact that the policies they are analyzing have on many of the types of resource misallocation those policies will affect and (2) by their failure to respond appropriately to The General Theory of Second Best. For a general critique of Law & Economics scholarship, see RICHARD S. MARKOVITS, TRUTH OR ECONOMICS: ON THE DEFINITION, PREDICTION, AND RELEVANCE OF ECONOMIC EFFICIENCY (2008).

85. Note the "however unwitting" language in *Landes & Posner. See Landes & Posner, supra* note 4 at 128. For a critique of the various arguments economists make to explain why judges should be expected to make allocatively efficient decisions, see Richard S. Markovits, *Legal Analysis and the Economic Analysis of Allocative Efficiency*, 8 HOFSTRA L. REV. 811, 848-72 (1980).

whether to offer to attempt or to actually attempt marine rescues, decisions about the character of the marine-rescue attempts that are made, decisions by potential rescuees to accept or reject offers of marine-rescue attempts, and decisions by potential rescuees to make or reject various marine-peril-avoidance moves);

(2) defines the formal meaning of "the most-allocatively-efficient response a State can make to marine-peril contingencies";

(3) explains why, standing alone, judge-prescribed marine-rescuee-to-rescuer-compensation awards cannot minimize the allocative costs that marine peril generates (the misallocation and allocative transaction and risk costs that marine-peril-related decisions generate);

(4) discusses the interdependence of the various types of marine-peril-related decisions that can be made;

(5) defines the second-best-allocatively-efficient and the third-best-allocatively-efficient approach to deciding particular issues and the second-best-allocatively-efficient and third-best-allocatively-efficient resolution of a particular issue;

(6) executes a partial and preliminary second-best analysis of the factors that determine the impact of any marine-salvage-award formula both on each of the types of marine-peril-related misallocation such awards can affect and on the total amount of marine-peril-related misallocation that the use of any given marine-salvage-award formula will generate;

(7) speculates on the differences between the marine-salvor-compensation formula that is second-best allocatively efficient and the formula that is third-best allocatively efficient;

(8) provides an account of the protocol the courts allegedly use to determine the compensation they order defendant marine rescuees to pay plaintiff marine rescuers who have not been able to negotiate a binding price for their services;

(9) analyzes the second-best and third-best allocative efficiency of that protocol—that is, delineates the respects in which that protocol is definitely not second-best allocatively efficient and explains why it is extraordinarily unlikely to be third-best allocatively efficient;

(10) points out that the preceding analysis refutes Landes and Posner's claim that the law of marine salvage "is consistent with" and displays "impressive congruence with" their hypothesis that "the rules of the judge-made law are best explained as efforts—however unwitting—to bring about [economically-]efficient results";[86]

(11) delineates the structural deficiencies of the type of argument with which Landes and Posner attempt to establish their conclusion that marine-salvage law is allocatively efficient;

(12) asserts that Law & Economics scholars who believe that "judge-made" law in general is allocatively efficient often attempt to justify this conclusion with the same type of argument that Landes and Posner made about marine-salvage law; and

(13) explains why it is important not only to refute the conclusion that "judge-made law" is allocatively efficient but to demonstrate the inadequacy of the type of argument with which scholars who believe that "judge-made law" is allocatively efficient attempt to bolster this position.

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86. *Landes & Posner, supra* note 4, at 102, 128.