

# THE APPEALS PROCESS AS A MEANS OF ERROR CORRECTION

STEVEN SHAVELL\*

## ABSTRACT

The appeals process—whereby a litigant disappointed with the decision of a first-order tribunal can seek reconsideration before a higher tribunal—is a widely observed feature of adjudication. What rationale can be offered for incorporation of an appeals process in a system of adjudication? The justification analyzed here concerns error correction: the appeals process allows society to harness information that litigants have about erroneous decisions and thereby to reduce the incidence of mistake at low cost (because the appeals tribunal convenes only in a subset of cases). This argument explains why the appeals process may be superior to the alternative of enhancing the quality of the trial process. The argument also explains why disappointed litigants are given the right to instigate appeals (instead of the higher tribunal having the right to reconsider trial outcomes). The article also discusses other justifications for the appeals process, including lawmaking.

**T**HE appeals process—the process whereby a litigant disappointed with the decision of a first-order tribunal can seek reconsideration before a higher tribunal—is a widely observed feature of adjudication. In virtually all legal systems today, there exists a fairly general right of appeal of trial court decisions.<sup>1</sup> Outside the domain of the courts, moreover, we see

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<sup>1</sup> In an authoritative monograph on appeal, it is stated that “[a]ll developed legal systems recognize various forms of attacks on judicial decisions.” See Peter E. Herzog & Delmar Karlen, *Attacks on Judicial Decisions*, ch. 8 in *16 Civil Procedure* 69 (Mauro Cappelletti ed. 1982, in the *International Encyclopedia of Comparative Law*). See also the collection of chapters in *Civil Appeal Procedures Worldwide* (Charles Platto ed. 1992). Under Islamic law, however, the use of appeals appears to be sharply limited; see Martin Shapiro, *Courts: A Comparative and Political Analysis* 194–222 (1981).

frequent use of appeals. Administrative agencies commonly utilize appeals mechanisms, as do, often, employers, religious bodies, commercial trade associations, professional sports leagues, and many other organizations.<sup>2</sup>

What rationale can be offered for incorporation of an appeals process in a system of adjudication? This question is, of course, a fundamental intellectual one about the design of adjudication, and it also has potential practical importance in view of the magnitude of the resources that society devotes to the appeals process.<sup>3</sup> In answering the question, one must

<sup>2</sup> With regard to appeals in administrative agencies, see Jerry L. Mashaw *et al.*, *Social Security Hearings and Appeals* (1978); Jerry L. Mashaw, *Bureaucratic Justice* (1983); and Charles H. Koch, Jr. & David A. Koplow, *The Fourth Bite at the Apple: A Study of the Operation and Utility of the Social Security Administration's Appeals Council*, 17 Fla. St. U. L. Rev. 199 (1990); see Jacob Mertens, Jr., 13 *The Law of Federal Income Taxation* §§ 49B.45–53 (1994), on the Internal Revenue Service; see Leon Wildes, *Anticipated Revisions to the Immigration Act of 1990*, in *Practicing Law Institute Litigation and Administrative Practice Course Handbook Series, Litigation* (PLI Order No. H4-5117) (1991), on the Immigration and Naturalization Service; and see John J. Farley III, *The New Kid on the Block of Veterans' Law*, *The United States Court of Veterans Appeals*, 38 Fed. Bar News & J. 488 (1991); and Barton F. Stichman, *The Impact of the Veterans' Judicial Review Act on the Federal Circuit*, 41 Am. U. L. Rev. 855 (1992), on the Veterans Administration. Also, see D. Reiner Martens & Karina MacMahon, *Germany*, in Platto ed., *supra* note 1, at 169, 171–73, on appeals in administrative agencies in a civil-law country, Germany.

With respect to appeals mechanisms established by employers, see, for example, William G. Scott, *The Management of Conflict* (1965), ch. 3. For a description of the appeals process in religious bodies, see, for instance, Nolan B. Harmon, *The Organization of the Methodist Church* (2d ed. 1962), ch. 19, on the Methodist Church; William P. Thompson ed., *Presbyterian Law for Presbytery and Synod* 179–80 (1977), on the Presbyterian Church; and *The Code of Canon Law, A Text and Commentary 1000–1002* (James A. Coriden, Thomas J. Green, & Donald E. Heintschel eds. 1985), on the Catholic Church. For instances of appeals mechanisms in trade associations, see, for example, *Cocoa Merchants' Association of America, Inc., By-Laws, Revised* (October 29, 1993), *Council of Better Business Bureaus, Inc., Procedures*, National Advertising Division, Children's Advertising Review Unit & National Advertising Review Board (November 1, 1993); or National Institute of Oilseed Products, *Trading Rules* (Revised 1993). On appeal in sports organizations, see, for example, Frank J. Remington, *NCAA Rule Enforcement Procedures*, ch. 12 in 2 *Law of Professional and Amateur Sports* (Gary A. Uberstine ed. 1994), on the National Collegiate Athletic Association; Paul C. Weiler & Gary R. Roberts, *Cases, Materials and Problems on Sports and the Law* 667 (1993), on the Ladies' Professional Golf Association and, at pp. 669–70, on the Men's International Professional Tennis Council.

<sup>3</sup> An indication of the cost of the appeals process is the frequency of appeal. In our federal system, about 16 percent of cases were appealed in 1992; this was the ratio of appeals filed to civil and criminal cases terminated between March 1992 and March 1993, as reported in Administrative Office of the United States Courts, *Federal Judicial Workload Statistics* 10, 19, 34 (1993). Illustrative statistics for other countries are these: In France, approximately 42 percent of cases brought before the major courts (*tribuneaux de grande instance*) were appealed in 1990; see Robert W. Byrd & Marion Barbier, *France*, in Platto ed., *supra* note 1, at 163. In Germany, about 16 percent of cases brought before the regional courts (*Landgerichte*) were appealed in 1991; see Metzler-Poeschel, *Statistisches Jahrbuch 1993 für die Bundesrepublik Deutschland* (1993). In Japan, the likelihood of appeal was

explain, among other things, why society (or an organization) may find the appeals process superior to the alternative of enhancing the quality of the trial process. Society enjoys the option, after all, of investing in more skilled trial court judges, of increasing the number of judges who hear each case, of lengthening trial proceedings to allow for more evidence and argument to be considered, and the like. Second, one must say why, if society does decide to employ a tribunal that supersedes the trial courts, it should wish to grant to disappointed litigants the right to instigate action by the higher tribunal—rather than, say, to permit the higher tribunal to reconsider trial outcomes on its own initiative or on a random basis.

The social justification for the appeals process to be investigated here concerns correction of error.<sup>4</sup> This is not to deny the importance of other possible purposes of the appeals process, notably, of lawmaking,<sup>5</sup> and these will be mentioned later, but it will be clarifying to restrict attention to the goal of error correction in the principal part of the analysis to follow.

The kernel of the argument to be developed is that if litigants possess information about the occurrence of error and appeals courts can frequently verify it, litigants may be led to bring appeals when errors are likely to have been made but not otherwise. (This outcome may be fostered by imposition of fees for bringing appeals, so as to discourage appeal when decisions were likely to have been correct.) Under these circumstances, not only may the appeals process result in error correction, it may also do so cheaply, for the legal system will be burdened with reconsidering only the subset of cases in which errors were more probably made. This may render society's investment in the appeals process economical by comparison to its improving the accuracy of the trial process—an approach that, by its nature, would require extra

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about 10 percent from district courts in 1989; see Yoshihiko Fuchibe, Japan, in Platto ed., *supra* note 1, at 43, 44. These figures do not reflect the possibility that a party may reach a settlement in lieu of carrying forward with an appeal; the cost of coming to such settlements represents a hidden expense of the appeals system.

<sup>4</sup> After I analyze a model of adjudication (to be noted), I will briefly discuss the notion of error, and we will see that the qualitative nature of the conclusions does not depend for the most part on the particular assumptions that are made about the clarity of errors or about their subject matter (in the formal model, errors can be interpreted equally as concerning facts or as concerning law). Nevertheless, the reader may find it convenient in considering the analysis to keep in mind examples of fairly clear types of error, such as mistaken applications of reasonably well articulated legal rules.

<sup>5</sup> In point of fact, lawmaking can be conceived as a type of error correction, and it will be fruitful to examine this view below; see Section V.

expenditure in every case. The appeals process, in other words, may allow society to harness information that litigants have about erroneous decisions and thereby to reduce the incidence of mistake at low cost.

To make these ideas precise, a simple, stylized model of adjudication is considered informally in Section I, and a series of extensions of the basic model are discussed in Section II. These extensions allow, among other elements, for a comparison of the appeals process with random reconsideration of trial court decisions by higher courts, for the imperfect ability of litigants to detect trial court error, for multiple levels of appeal, for the appeals process to improve the performance of trial court judges because of their desire to avoid reversal, for settlement between litigants before appeal, for various kinds of heterogeneity among litigants, and for the appeals court to make use of inferences from the fact that an appeal was brought. In Sections III and IV, the basic model and its extensions are studied formally.<sup>6</sup>

In Section V, the assumptions and the analysis of the model are interpreted. Here the topics addressed include the conception of error, why it is that error may not be corrected at trial, whether statistics on reversal provide good evidence about error correction, the consistency of the scope of appeal with the theory of error correction, lawmaking versus error correction, and the major exception to the use of the appeals process—binding arbitration.

Finally, in Section VI, the conclusion of the article, purposes of appeal apart from error correction are reviewed.

<sup>6</sup> The contribution made by the analysis of the model is twofold. First, it supplies us with a precise account, in the world of a model, of the manner in which the appeals process can correct error. Second, the analysis poses and answers the question of the social rationale for the appeals process as a means of error correction.

Previous writing on appeals takes it largely for granted that the appeals process may sometimes serve the error correction goal, and the writing tends to presume, not to inquire into, the social desirability of the appeals process. See, for example, Paul D. Carrington, Daniel J. Meador, & Maurice Rosenberg, *Justice on Appeal* 2–4 (1976); Herzog & Karlen, *supra* note 1, at 4–5; Robert A. Leflar, *Internal Operating Procedures of Appellate Courts* 1–12 (1976); and Roscoe Pound, *Appellate Procedure in Civil Cases* 3–6 (1941). Occasionally, however, one does see skeptical questions raised about the rationale of the appeals process; see, for instance, Harlon Leigh Dalton, *Taking the Right to Appeal (More or Less) Seriously*, 95 *Yale L. J.* 62, 73–86 (1985); Judith Resnik, *Tiers*, 57 *S. Cal. L. Rev.* 837, 855 (1984); Gordon Tullock, *The Logic of the Law* 202–4 (2d ed. 1987); and Irving Wilner, *Civil Appeals: Are They Useful in the Administration of Justice?* 56 *Geo. L. J.* 417, 418 (1968). The law and economics literature does not include any articles on appeals, to my knowledge, but Richard A. Posner's *Economic Analysis of Law* (4th ed. 1992) text, at 584–87, contains a section on the subject (emphasizing the question whether appeals should be allowed during the course of a trial or only when it is complete).

## I. THE BASIC MODEL: INFORMAL ANALYSIS

Let us begin by considering a stylized model that (a) allows litigants to recognize when error occurs at trial, (b) permits the state to choose whether to establish an appeals court, and (c) recognizes that the costs and accuracy of adjudication at both the trial court level and the appeals court level are to a degree subject to state control. As is always the case with theoretical models, the reader is asked here to suspend his or her reservations about its simplicity. The purpose of the exercise of analyzing a model is to gain a certain species of insight; one's understanding of a model can be rounded out by considering, as I will, extensions to it and issues going beyond it.

In the model, risk-neutral litigants are presumed to go to trial, the outcomes of which are either correct or incorrect. Incorrect outcomes result in social harm. For our purposes, it is not necessary to stipulate what constitutes the social harm, notably, whether it is due to undesirable incentive effects or to wrongfully punishing the innocent or failing to punish the guilty.

The state chooses the level of legal resources to devote to trial courts. As was suggested, by investing greater resources in trial court adjudication, such as by hiring judges of higher calibre or by lengthening the time available for consideration of cases, the state can raise the likelihood of correct outcomes.<sup>7</sup>

The state also chooses whether to establish appeals courts. As with trial courts, the state can raise the accuracy of appeals court decisions by committing greater resources to these courts. The accuracy of the appeals courts is described by the probability of reversal given trial court error and the probability of reversal given correct trial court decisions.<sup>8</sup> Greater accuracy corresponds to higher levels of the former reversal probability and lower levels of the latter. For convenience, I will restrict attention to situations where investment in appeals court accuracy is sufficient to make the reversal probability given error exceed that given correct decisions.<sup>9</sup>

If the state does elect to establish appeals courts, a disappointed litigant

<sup>7</sup> The state controls not only the legal resources that it spends on trial but also, to a substantial extent, the resources that litigants expend; it controls the latter through its choice of evidentiary and procedural rules (concerning, for example, discovery).

<sup>8</sup> We do not distinguish in the model between different types of reversal, such as that resulting in remand to trial courts versus that resulting in altered final outcomes.

<sup>9</sup> It is readily demonstrated that if this is not true, the appeals process would not be worthwhile using.

may bring an appeal if he chooses. Litigants are assumed to know for certain whether a trial court decision is correct or incorrect.<sup>10</sup> To bring an appeal, the litigant must pay his private legal costs. In addition, the litigant may have to pay a fee or possibly will receive a subsidy. Thus, the total cost to a litigant for bringing an appeal is his private cost plus a potential fee or minus a subsidy.<sup>11</sup>

The state's objective is minimization of total social costs: the sum of the social costs of adjudication—the costs of trial together with the expected costs of appeal, if appeals are allowed<sup>12</sup>—plus the social harm from erroneous decisions.

Consider first the best that the state can do if it does not allow appeals. In this situation, the state's problem is just to select the level of trial court accuracy so as to minimize trial costs plus expected harm from error. The optimal level of accuracy will be dictated by the effectiveness of legal resources in promoting accuracy and by the magnitude of harm from error. (It may be observed that, in a formal sense, the state's problem is identical to that of choosing the optimal level of precautions in the usual model of accidents; the level of precautions to prevent accidents in that model corresponds here to the level of investment in the accuracy of trial courts to prevent errors.)

Now suppose that the state establishes an appeals court, and, provisionally, take its accuracy as a given. A disappointed litigant's expected gross return from an appeal will be higher if an error occurred than if it did not, because the reversal probability is greater under the former circumstance than under the latter. For example, if the reversal probability following a mistake is 80 percent but is only 30 percent following a correct decision, then if a litigant's gain from reversal would be \$100,000, the expected gross return from an appeal would be \$80,000 after a mistake but only \$30,000 otherwise.

Accordingly, there may be *separation* of disappointed litigants, wherein those who are the victims of error find it worthwhile to bring appeals and those who are not do not find it worthwhile to bring appeals.

<sup>10</sup> I defer until Section V consideration of the important question why trial court error might not be corrected at trial, even though I assume that litigants can detect trial court error; and I defer until Section IID treatment of the assumption that litigants might be uncertain whether a trial court error occurred.

<sup>11</sup> I discuss later the case where the state does not employ, or imperfectly employs, fees or subsidies; see Sections IIB and IIH.

<sup>12</sup> These social costs of adjudication should be understood to include the time lost and the expenses for legal services incurred by litigants, as well as the expense of operating the judicial system borne by the public.

There will be separation if the private cost of an appeal is less than the expected return given mistake but exceeds the expected return given correct decisions. In the example just mentioned, there will be separation if the cost of an appeal is, say, \$50,000, as this is less than \$80,000, meaning that there will be appeals after mistakes, but it exceeds \$30,000, meaning that there will not be appeals after correct decisions.

If separation of disappointed litigants would not occur naturally due to the private costs of appeal, the state can ensure that separation occurs by selecting an appropriate fee or subsidy.<sup>13</sup> If appeals would be made even after correct decisions, because the private cost of an appeal is lower than the expected return, the state can impose a fee to achieve separation. Appeals would be made in the example even after correct decisions if the private cost of an appeal were \$10,000, for this is less than the \$30,000 expected return from an appeal. Hence, if a fee of, for instance, \$40,000 were imposed, the total cost of making an appeal would become \$50,000, and appeals after correct decisions would be discouraged (but appeals after mistakes would still be brought, as the return from them is \$80,000).

Conversely, if appeals would not be made even after mistakes, because the private cost of an appeal is higher than the expected return from appeal, the state can grant a subsidy to induce separation. In the example, appeals would not be made after mistakes if the private cost of an appeal were \$100,000 because this exceeds \$80,000. If, however, a subsidy of, say, \$50,000 were employed, appeals would be made after mistakes (but not after correct decisions).

Note that for the state to choose a fee or subsidy to achieve separation of disappointed litigants, it needs to know what the relevant parameters are, namely, the private cost of appeal and the reversal probabilities.

It is clear that the state would want to achieve separation when it has an appeals process. On the one hand, if litigants do not bring appeals, the appeals process can hardly achieve good. On the other, if litigants bring appeals even when correct decisions are made, society incurs needless costs in the appeals process and also, to its detriment, finds that a certain number of these decisions are reversed.

Knowing that separation of disappointed litigants is desirable and that

<sup>13</sup> It will be clear that the state could also ensure separation of disappointed litigants by selecting an appropriate penalty for losing an appeal or an extra reward for winning an appeal. The use of penalties for losing in (trial court) litigation in order to separate parties according to their chances of prevailing is studied in A. Mitchell Polinsky & Daniel L. Rubinfeld, *Sanctioning Frivolous Suits: An Economic Analysis*, 82 *Geo. L. J.* 397 (1993).

the state can, if need be, accomplish separation through an appropriate fee or subsidy scheme, we can easily determine whether the appeals process will be socially helpful. If the appeals process is not used, then when an error is made, the associated social harm will definitely be suffered. But if the appeals process is utilized, an error will result in an appeal, so that the social costs incurred will instead be those of the appeal and the expected harm due only to the possible failure to reverse error. It follows that the appeals process will be desirable if and only if the social harm from certain error exceeds the social cost of an appeal plus the expected harm from failure to reverse error, that is, the probability of failing to reverse error multiplied by the harm from error.<sup>14</sup> If the social harm from error is \$500,000, the social costs of an appeal are \$150,000, and the probability of reversal of error is 80 percent, then the appeals process will be advantageous because it will reduce the certain harm from error of \$500,000 to  $\$150,000 + (20 \text{ percent}) \times \$500,000$  or \$250,000. In general, the appeals process is more likely to be socially desirable the lower the cost of the appeals process, the greater the chance of reversing error, and the greater the social harm from error. In particular, and other things being equal, the appeals process will be desirable if the social harm exceeds a threshold and will not be desirable if the harm lies below the threshold.

To this point, I have taken the cost and accuracy of the appeals process as given, as well as those of the trial process, but as the reader knows, these are variable. What can be said about their optimal choice? With regard to the appeals process, it is socially desirable to invest in accuracy as long as the increase in costs is outweighed by the increase in the expected gain, that is, the increase in the probability of reversal of error multiplied by the social harm from error.

With regard to the trial process, it is socially advantageous to invest in accuracy as long as the increase in costs is outweighed by the increase in the expected gain from a lower probability of error. But the social harm from error at trial, it should be emphasized, is *less* than the harm flowing from a sure error. The social harm from error at trial is instead measured by what follows trial court error, namely, the cost of the appeals process plus the expected harm from failure to reverse error; this amount is less than the sure harm from error. Hence, the optimal invest-

<sup>14</sup> More precisely, the appeals process is desirable if there exists *some* level of investment in, and associated accuracy of, the appeals process such that its cost plus the expected harm from failing to reverse error is less than the harm from error. In our present discussion, we have been treating the cost of the appeals process and its accuracy as fixed.

ment in, and accuracy of, the trial process is less than it would be if there were no appeals process and no opportunity to correct errors.

Let me summarize the conclusions about the basic model. (a) The appeals process is socially useful when there is a level of investment in the appeals process such that the cost of an appeal plus the expected harm from failing to reverse error is less than the certain harm from error, the latter being what would be suffered in the absence of the appeals process. (b) When the appeals process is optimally employed, disappointed litigants who were the victims of error bring appeals, and those who were not do not bring appeals; this separation may come about automatically, but if not, it can be induced through the use of fees or subsidies. (c) The optimal accuracy of the trial court is lower when the appeals process is utilized than when trial courts alone are relied on, and there is no second chance to correct errors.

Before proceeding to consideration of extensions to the basic model, an aspect of the optimality of the appeals process that was not necessary to make explicit in the discussion so far is important to mention: that increasing the accuracy of trial courts is not a general substitute for use of the appeals process. There are two explanations of this point. First, no matter how accurate trial courts are, it is still desirable to correct the errors that do occur at trial, and this is what is accomplished by the appeals process; increasing trial court accuracy reduces the frequency with which the appeals process is needed but not its desirability when errors are made.<sup>15</sup> Second, and as mentioned in the introduction, investing an additional dollar in trial court accuracy to reduce errors means that the dollar cost is incurred in every case, whereas investing a dollar in the appeals process means that the dollar cost is incurred only with the probability that an error is made. This implies that there is an underlying advantage to investment in accuracy in the appeals process rather than in the trial process.<sup>16</sup>

<sup>15</sup> Indeed, the condition under which the appeals process is desirable and its optimal character are independent of the nature of the trial process. (This is evident from eqq. [7] and [8] of Section III.)

<sup>16</sup> For example, suppose that, presently, the probability of error at trial is 30 percent and that it can be reduced by 5 percent through an additional expenditure of \$10,000 per trial. Alternatively, suppose that the probability of error could be reduced by 5 percent during appeal by spending \$10,000 to increase the reversal probability given error. The expected cost of this alternative would be only (30 percent)  $\times$  \$10,000, or \$3,000, for the frequency of appeal would be 30 percent. Of course, if the expenditure of the \$10,000 during trial were sufficiently more effective in reducing error relative to that during the appeals process (say, if the expenditure at trial reduced error by much more than 5 percent and the expenditure during appeals reduced error by much less than 5 percent), it would be worthwhile making the expenditure during trial.

## II. EXTENSIONS TO THE BASIC MODEL: INFORMAL ANALYSIS

I now examine a variety of ways in which the model just analyzed can be extended. I will consider these extensions singly for simplicity, although I will make occasional comments on joint effects.

### A. *Random Selection of Cases by a Higher Tribunal*

It is instructive to compare random selection of cases for inspection by a higher tribunal to the appeals process. Random selection is inferior to the appeals process of the basic model for two reasons. First, cases erroneously decided at trial will be selected for inspection only by chance, whereas they all would be appealed and possibly corrected under the appeals process. Second, a fraction of the cases that are correctly decided at trial will be selected for inspection; this wastes resources and also sometimes results in reversals, introducing error. By contrast, under the appeals process, correctly decided cases would not be appealed. The problems with random selection arise because it does not take advantage of the knowledge that litigants possess about the occurrence of error at trial.

### B. *Absence of Fees or Subsidies*

If for some reason it is assumed that the state does not employ fees or subsidies to accomplish separation of disappointed litigants,<sup>17</sup> the social value of the appeals process tends to be diminished but may well still be positive. In the basic model, recall, either the absence of fees and subsidies has no effect on separation and the utility of the appeals process—when the private costs of appeal alone naturally induce separation—or else the absence of fees and subsidies has an extreme effect on the utility of the appeals process—when the private costs of appeal are low enough that everyone appeals or high enough that no one does. However, in extensions of the basic model allowing for heterogeneity (see Section IIH below) in, among other elements, the cost of bringing appeals, although the absence of fees or subsidies will generally be disadvantageous, it will not result in everyone bringing appeals (there will be some individuals for whom private costs exceeded the expected return from appeal), nor will it result in no one bringing appeals (there will be some individuals for whom private costs fall below the expected return from appeal).

<sup>17</sup> In fact, use of state-imposed fees for the purpose of separating disappointed litigants is limited; see Section V.

### *C. Multiple Levels of Appeal*

The basic model can be extended in a straightforward manner, whereby the state chooses the number of levels of appeal, the resources and accuracy of the process at each level, and fees or subsidies at different levels. The conclusions about this extended model are natural generalizations of those for the basic model. To illustrate, allowing a second level of appeal will be socially desirable if, for some investment in the accuracy of the second-level process, the cost of the second-level appeal plus the expected harm from failure to reverse error at that level is less than the certain harm that would be incurred if second level appeals were not allowed.<sup>18</sup> Further, if second-level appeals are optimal to permit, fees or subsidies will be employed if necessary to induce separation of litigants disappointed with the outcome of the initial appeal; that is, litigants will make second-level appeals if and only if the first-level appeals court failed to reverse trial court error. Similarly, it will be desirable to establish a third level of appeals if, for some investment in accuracy at that level, the cost of a third level of appeal plus the expected harm from failure to reverse is less than the harm from error, and so on for subsequent levels of appeal. Additionally, under certain conditions, the optimal level of investment in, and the accuracy of, appeals courts increases with their level. This reflects the point that the higher the level of appeal, the fewer the number of opportunities that remain to correct error, so the more valuable is accuracy.

It may be asked how the possible optimality of many levels of appeal can be related to the common intuition that only a single level of appeal is appropriate for purposes of error correction. The intuition may be based on the assumption that if the first-level appeals court was not able to see error, it is quite unlikely that a second-level appeals court could ascertain error, because it would not enjoy knowledge or be able to employ techniques that were unavailable to the first-level appeals court. This assumption means that the probability of failure to reverse error at the second level of appeal is high and thus tends to make satisfaction of the condition for optimality of second-level appeals less likely.<sup>19</sup>

<sup>18</sup> Calculation of the expected harm from failure to reverse an error involves a complication if it is optimal for there to be levels of appeal beyond the second. Namely, the consequence of failure to reverse error at the second level is not that the harm from error will be suffered but rather that one or more further appeals, with attendant costs and the possibility of error, will be made.

<sup>19</sup> The common intuition against the wisdom of multiple levels of appeal for the purpose of error correction may also be rooted in a perception that when higher-level appeals are permitted, there will be a large number of them brought. But this, of course, need not be true; in an optimally functioning system, higher-level appeals are brought only if no previous appeals court corrected trial court error.

#### *D. Imperfect Litigant Information about Error*

Whereas in the basic model, it was assumed that litigants could detect trial court error with certainty, litigants may instead have only imperfect, probabilistic information about the occurrence of error. This, however, does not alter the qualitative nature of the conclusions; the main features of the analysis carry over in a straightforward way. In particular, if there is an appeals process, litigants will bring appeals, or be led to do so, if and only if they believe that the likelihood is high that errors occurred, rather than if and only if they know that errors occurred. The social value of the appeals process, though, will be reduced, and for two reasons: some trial court errors will not seem to be such and will not result in appeals, and some correct trial court decisions will be viewed as probable errors and will be appealed and possibly reversed. The problems, in other words, will be similar to those that apply when there is random testing of trial court decisions by a higher tribunal. Indeed, when litigants have no information about the occurrence of error, the appeals process devolves into one essentially identical to random testing.

#### *E. Litigant Prediction of Appeals Court Outcomes versus Knowledge of Trial Court Error*

A possibility not yet discussed is that a litigant may be able to predict whether an appeals court will reverse the trial court decision, as opposed to whether the trial court erred. For example, a litigant may know from past experience or other evidence how the appeals court is likely to reason.

When litigants can predict what appeals courts will do, the appeals system may become either less valuable or more valuable than it is in the basic model, because of two competing effects. First, when a correct trial court decision is made but would be reversed by the appeals court, a disappointed litigant who can predict that outcome will bring an appeal. This is undesirable both because of the expense of the appeal and because it means a correct decision will be reversed. By contrast, in the basic model, when litigants know when errors are made but cannot directly predict appeals court behavior, litigants will not bring appeals when trial court decisions are correct. Second, when trial court errors are made but would not be reversed, litigants who can predict appeals court behavior will not bring appeals, achieving a saving over the situation in the basic model, where litigants would bring appeals. Either of the two effects could be the more important in principle.

#### *F. Judges' Incentives to Avoid Reversal*

The likelihood of error at trial was presumed in the basic model to depend only on the resources devoted by the state to the trial process,

whereas judges' efforts also influence the chance of error at trial. If we take this factor into account, we can see that the appeals process may lead indirectly to an increase in trial court accuracy. Specifically, judges may fear reversal because it may result in harm to their reputation, their salaries, or the likelihood of their promotion.<sup>20</sup> If for such reasons judges want to avoid reversal, the appeals process may spur judges to expend effort toward greater accuracy at trial.<sup>21</sup> More precisely, this tendency should exist to the extent that the appeals process fosters error correction, by channeling erroneously decided but not correctly decided cases to the appeals court. If this is not so, if litigants are unable to identify trial court error, then random selection of cases for reconsideration by a higher court would provide judges just as good a stimulus toward accuracy at trial as the appeals process. Thus, provision of incentives to judges to decide cases better cannot be said to be a *raison d'être* of the appeals process; it is instead a function of the appeals process that stands on the shoulders of error correction.

### *G. Settlement before Appeal*

I presumed in the basic model that a litigant who brought an appeal would proceed with it. But if the parties recognize when errors occur and agree on the probability of reversal, they should prefer settlement to appeal in order to avoid the costs of the latter process.<sup>22</sup>

How does the possibility of settlement affect the analysis and conclusions? First, it should be noted that for disappointed litigants to be able to extract settlements if and only if trial court errors were made, disappointed litigants should have a credible threat to bring appeals if and only if errors were made. Thus, it may be necessary for the state to set fees

<sup>20</sup> Articles dealing with the incentives of judges include Mark A. Cohen, *The Motives of Judges: Empirical Evidence from Antitrust Sentencing*, 12 *Int'l Rev. L. & Econ.* 13 (1992); Robert D. Cooter, *The Objectives of Private and Public Judges*, 41 *Pub. Choice* 107 (1983); Richard S. Higgins & Paul H. Rubin, *Judicial Discretion*, 9 *J. Legal Stud.* 129 (1980); Thomas J. Miceli & Metin M. Cosgel, *Reputation and Judicial Decision-making*, 23 *J. Econ. Behav. & Org.* 31 (1994); and Richard A. Posner, *What Do Judges and Justices Maximize? (the Same Thing Everybody Else Does)*, 3 *Sup. Ct. Econ. Rev.* 1 (1993).

<sup>21</sup> This will be socially desirable as long as judges' desire to avoid reversal is not too great. But, as Judge Frank Easterbrook pointed out to me, judges' incentives might be such as to induce them to take excessive care at trial, notably, by spending more time than warranted on proceedings.

<sup>22</sup> Of course, for a variety of reasons, the parties may not settle even if they agree on the probability of reversal. Among these reasons are that the parties may have different opinions about the magnitude of damages, or one side may wrongly believe the other will not go through with an appeal (perhaps because it overestimates the expense of so doing). In addition, the parties may not agree on the probability of reversal or may not be given a truthful assessment of it by their lawyers, who may have a financial interest in proceeding to appeal.

or subsidies as described in the basic model to separate disappointed litigants who suffered from error from those who did not.

Second, because the costs of settlement are lower than the costs of the appeals process, the social utility of the appeals process and the circumstances under which it is worthwhile establishing should be enhanced, other things being equal.

But third, are other things equal? When an error is made and, rather than being appealed and possibly reversed, it leads to a settlement, is the social harm from error mitigated? The answer is still yes when the social harm from error is alleviated primarily by the right parties having to make payments or escaping having to make payments, for amounts paid in settlement should reflect the expected liability from appeal. The answer is problematic, however, when the social harm from error will be alleviated only through correction of error of which the public is aware. In this event, settlement, or at least settlement which the parties are allowed to keep private, may not substantially avert the harm flowing from the trial court error.<sup>23</sup>

In sum, the savings due to settlement before appeal tend to increase the social desirability of the appeals process, and settlements tend to ameliorate the social harm from error, but how so is a somewhat complicated matter. Hence, it appears that the possibility of settlement alters the quantitative but not the qualitative significance of the appeals process.

#### *H. Heterogeneity among Litigants*

To this point, I have not discussed the implications of heterogeneity among litigants regarding, among other elements, the costs they face in bringing appeals, their willingness to bear risk, or their perceptions of the likelihood of trial court error or of obtaining reversals. Such heterogeneity means that the decisions of litigants whether to bring appeals will depend on factors different from the actual occurrence of errors at trial and thus will generally reduce the value of the appeals process. Consider, for example, variability in the costs of bringing an appeal, assuming that any fees or subsidies cannot be individualized (because it would be difficult or expensive for the state to determine a particular person's costs of bringing an appeal and tailor the fee or subsidy to these costs). Then separation of disappointed litigants will be imperfect: some of those who bring appeals will do so because they face relatively low litigation costs, not because they are

<sup>23</sup> Parties are often able to keep settlement terms private and even to erase all record of their prior litigation. This is described, and its social wisdom questioned, in Jill E. Fisch, *Rewriting History: The Propriety of Eradicating Prior Decisional Law through Settlement and Vacatur*, 76 *Cornell L. Rev.* 589 (1991).

the victims of error; and some of those who do not bring appeals will be discouraged by their relatively high litigation costs, even though they are the victims of error. Individuals in the former group waste judicial resources by bringing appeals and may obtain reversals of correct decisions; those in the latter group also reduce the social value of the appeals process because they do not allow it the opportunity to correct error. Other types of heterogeneity similarly reduce the social value of the appeals process.

### *I. Inference from the Fact an Appeal Is Brought*

What would be the result were appeals courts to draw inferences from the fact that litigants bring appeals? Would this be a good thing?

In the basic model, because litigants bring appeals if and only if errors are made at trial, an appeals court can infer that everyone who comes before it ought to obtain a reversal. But I implicitly assumed that appeals courts do not use this knowledge; rather, they use whatever are their usual rules of decision, and they fail to reverse with some positive frequency.

Yet if appeals courts were to reverse all decisions, on the basis of their inference that all appellants are the victims of error, then disappointed litigants who are not the victims of error clearly would have an incentive to bring appeals, for they could obtain sure reversals. Thus, the separation of disappointed litigants would unravel, and the utility of the appeals process in error correction would be diminished. This suggests what can be demonstrated more generally, that it is socially desirable for the appeals court not to use inferences from the fact that appeals are brought in its decision making.

How can the appeals court refrain from using its inferential knowledge? It can follow legal procedures which prevent that.<sup>24</sup> Restricting evidence considered on appeal to the trial record would meet this criterion.

### III. THE BASIC MODEL: FORMAL ANALYSIS

The assumptions are essentially as described in Section I. Risk-neutral litigants go to trial, and there are two possible judicial outcomes: a correct outcome and an incorrect one. The likelihoods of error at trial or on appeal depend on expenditures chosen by the state, and errors result in social harm. Specifically, define the following:

<sup>24</sup> In fact, it appears that it would be regarded as unseemly or incorrect for an appeals court decision to use inferential knowledge from the fact that an appeal was made. However, there is no doctrine of which I am aware that forbids this.

- $x$  = expenditures per trial,  $x \geq 0$ ;<sup>25</sup>  
 $p(x)$  = probability of error at trial;  $0 < p(x) < 1$ ,  $p'(x) < 0$ ,  $p''(x) > 0$ ;  
 $y$  = expenditures per appeal;  $y \geq \bar{y} > 0$ ;  
 $q(y)$  = probability that an error at trial is reversed if there is an appeal;  
 $0 < q(y) < 1$ ,  $q'(y) > 0$ ,  $q''(y) < 0$ ;  
 $r(y)$  = probability that a correct decision at trial is reversed if there is  
an appeal;  $0 < r(y) < 1$ ,  $r'(y) < 0$ ,  $r''(y) > 0$ ; and  
 $h$  = social harm due to an error.<sup>26</sup>

Suppose that if expenditures per appeal equal or exceed the minimal level  $\bar{y} > 0$ , trial court mistakes are more likely to be reversed on appeal than correct trial court decisions,

$$q(y) > r(y). \quad (1)$$

This assumption is made because it will be obvious that the appeals process cannot be desirable if (1) is not satisfied.<sup>27</sup> Assume in addition that litigants know when errors are made at trial. Finally, assume that the social objective is to minimize total social costs: expenditures on adjudication at trial and for appeals, plus expected harm from error.

Consider first the situation supposing that there is no appeals process. In this case, social costs are

$$x + p(x)h. \quad (2)$$

Denote the optimal  $x$  by  $x^*(h)$ . It is readily seen that  $x^*(h) = 0$  for all  $h$  less than or equal to some threshold<sup>28</sup> and that for larger  $h$ ,  $x^*(h)$  is positive and is determined by

$$p'(x)h = -1, \quad (3)$$

in which case  $x^*(h)$  is increasing in  $h$ .<sup>29</sup>

Now assume that there is an appeals process, that a disappointed liti-

<sup>25</sup> These expenditures (and those on the appeals process) are assumed to incorporate both litigants' costs and the state's.

<sup>26</sup> As I indicated before, it is not necessary to specify the source of the social harm. Also, it is not necessary to distinguish between the social harm due to errors against plaintiffs and that due to errors against defendants.

<sup>27</sup> Also, the assumption that  $\bar{y}$  is positive is realistic: a positive expenditure on the appeals process is needed to ensure that reversals are more likely when errors were made than when they were not. In the absence of the assumption, the appeals process would always be desirable; see note 35 *infra*.

<sup>28</sup> The derivative of (2) is  $1 + p'(x)h$ . If  $1 + p'(0)h > 0$ , social costs rise if  $x$  is increased above 0. Thus, the threshold  $h$  below which  $x^*(h) = 0$  is  $h = -1/p'(0)$ .

<sup>29</sup> Implicit differentiation of (3) with respect to  $h$  gives  $p''(x)x^*(h)h + p'(x) = 0$ , so that  $x^{*'}(h) = -p'(x)/[hp''(x)] > 0$ .

gant would benefit from winning an appeal, that he must spend a positive amount to bring an appeal, and that the state can impose an additional fee or give a subsidy for bringing an appeal. Let

- $g$  = gain to a litigant from winning an appeal,<sup>30</sup>
- $a$  = cost to a litigant of making an appeal,<sup>31</sup> and
- $b$  = state-imposed fee or subsidy (corresponding to a negative  $b$ ) for making an appeal.

If there is no mistake at trial, a disappointed litigant will not make an appeal if<sup>32</sup>

$$r(y)g \leq a + b. \quad (4)$$

If there is a mistake at trial, a disappointed litigant will make an appeal if

$$a + b < q(y)g. \quad (5)$$

Clearly,  $b$  can be chosen so that both (4) and (5) hold if  $r(y)g < q(y)g$ , but this is implied by (1). Hence, the state can set  $b$  so that appeals are brought if and only if there is a trial court mistake.<sup>33</sup>

To determine the optimal nature of an appeals process, observe first that it cannot be socially desirable for appeals to be brought after a correct decision at trial, for that involves an expenditure  $y$  and a risk of reversal on appeal. Hence, if the appeals process is used by the state, the state can and should set  $b$  so that disappointed litigants are separated. If that is done, social costs will be

$$x + p(x)[y + (1 - q(y))h], \quad (6)$$

<sup>30</sup> The gain from winning an appeal (for the trial court plaintiff or the defendant) will be a change in a finding of liability or in the amount of damages given liability. This gain will generally be different from the social harm due to legal error. For example, the social harm associated with error-related dilution of deterrence in the standard model of accidents will not equal the loss from an accident, even though this would be the gain from winning an appeal about liability. (Suppose, for instance, that there is just one level of care, that it is optimal for injurers to exercise care, and that they will do so under strict liability even though there is some chance of erroneously holding an injurer liable for more than the harm he actually caused. Then there is no dilution of deterrence and no social harm associated with error, but the gain to a defendant from correcting error would be positive, equal to the difference between the perceived harm and the true harm.)

<sup>31</sup> Recall that this cost is included in  $y$ .

<sup>32</sup> When the cost of an appeal equals the expected gain from it, assume for concreteness that a disappointed litigant will not make an appeal.

<sup>33</sup> This will not be true if the costs of appeals and gains from winning are heterogeneous, as is discussed in Section IV.

for  $1 - q(y)$  is the probability of mistakenly failing to reverse a trial court error on appeal. Comparison of (6) with (2),  $x + p(x)h$ , social costs in the absence of appeals, implies that a necessary and sufficient condition for the appeals process to be socially desirable is<sup>34</sup>

$$\min_{y \geq \bar{y}} y + (1 - q(y))h < h. \quad (7)$$

Equivalently, there must be a  $y \geq \bar{y}$  such that  $y < q(y)h$ ; the cost of an appeal must be less than the resulting expected reduction in harm from error. Condition (7) will hold for all  $h$  exceeding a positive critical threshold denoted  $h^0$ .<sup>35</sup> If the appeals process is socially desirable, denote the optimal  $y$  by  $y^*$  or  $y^*(h)$ . If  $y^*$  is an interior solution, it is determined by

$$q'(y)h = 1, \quad (8)$$

and it is easily seen that for all  $h$  sufficiently large,  $y^*(h)$  will be determined by (8). For such  $h$ ,  $y^*(h)$  is increasing in  $h$ ; the greater the social harm due to legal error, the more that ought to be spent making appeals more accurate.<sup>36</sup>

Notice that  $y^*$  is independent of  $p(x)$ . This makes sense because the optimal appeals process is designed to reduce trial court errors once they are appealed; it therefore does not matter to the optimal investment in the accuracy of the appeals court how frequently trial court errors arise.

Given  $y^*$ ,  $x$  is chosen to minimize

$$x + p(x)[y^* + (1 - q(y^*))h]. \quad (9)$$

If  $x$  is an interior solution,  $x$  must satisfy

$$p'(x)[y^* + (1 - q(y^*))h] = -1. \quad (10)$$

<sup>34</sup> To prove necessity, note that if the appeals process is socially desirable, there exist some  $x'$  and  $y'$  such that (6) is less than (2) for any  $x$  and in particular for  $x'$ . But if  $x' + p(x')[y' + (1 - q(y'))h] < x' + p(x')h$ , we know that  $y' + (1 - q(y'))h < h$ , which implies (7).

To prove sufficiency, assume that (7) holds for some  $y$ , say,  $y'$ . Then it is clear that for any  $x$ , (6) must be less than (2), so in particular this must be true for  $x^*$ .

<sup>35</sup> That  $h^0$  exists and is positive follows from three facts. First, for  $h$  sufficiently small, (7) does not hold. (For instance, if  $h < \bar{y}$ , [7] does not hold.) Second, the derivative of the left side of (7) with respect to  $h$  is  $1 - q(y) < 1$ . Third, for  $h$  sufficiently large, (7) does hold. (This is evident because, for example,  $\bar{y} < q(\bar{y})h$  if  $h$  is sufficiently large.)

Note that if it had been assumed that  $\bar{y} = 0$ , the appeals process would be desirable for any  $h$ , no matter how small. In particular, if  $\bar{y} = 0$  and  $q(0) > r(0)$ , appeals would always be desirable, for then even if nothing is spent on appeals, litigants can be induced to bring appeals if and only if errors are made at trial; thus  $0 + (1 - q(0))h = (1 - q(0))h < h$ , so (7) would hold.

<sup>36</sup> Implicit differentiation of (8) with respect to  $h$  gives  $q''(y)y^*(h)h + q'(y) = 0$ , so that  $y^{**}(h) = -q'(y)/[hq''(y)] > 0$ .

Because the term in brackets is less than  $h$  (by [7]), the optimal  $x$ , denoted  $x^{**}(h)$ , must be less than  $x^*(h)$  when  $x^*(h)$  is positive. (The explanation is, as noted earlier, that because the social cost of a trial court error is lower when the appeals process is used, it is not socially worthwhile spending as much to prevent trial court errors.)

The results obtained for the basic model may be summarized as follows.

PROPOSITION 1. Assume that litigants know when trial courts err and that the state can, if necessary, set fees or subsidies for making appeals. Then

*a)* the appeals process will be socially desirable if and only if (7) holds; that is, for some level of expenditures  $y$  per appeal,  $y$  is less than the resulting expected reduction in harm due to error,  $q(y)h$ .

*b)* It follows that the appeals process will be socially desirable if and only if  $h$  is larger than a positive threshold  $h^0$ .

Furthermore, if the appeals process is socially desirable,

*c)* disappointed litigants will be separated: they will bring appeals if and only if trial courts err. Such separation may require the state to set appropriate fees or subsidies for appeals.

*d)* Expenditures on appeals will minimize the sum of expenditures on appeals and the expected harm from failing to correct trial court errors.

*e)* Expenditures on trial courts will minimize the sum of expenditures on trials and the expected harm from errors, taking into account that errors will be appealed. Hence, trial court expenditure  $x^{**}(h)$  (and thus trial court accuracy) will be lower than its level  $x^*(h)$  in the absence of the appeals process (assuming that  $x^*(h)$  is positive).

#### IV. EXTENSIONS TO THE BASIC MODEL: FORMAL ANALYSIS

##### *A. Random Selection of Cases by a Higher Tribunal*

To better appreciate the importance of a central feature of the appeals process—initiation of higher court reconsideration by disappointed litigants—it is informative to consider random testing of cases for higher court reconsideration. Suppose that trial court decisions are reconsidered with probability  $\pi$ . Then social costs are

$$x + p(x)\pi[y + (1 - q(y))h] + p(x)(1 - \pi)h \\ + (1 - p(x))\pi[y + r(y)h]. \quad (11)$$

The second term in (11) is associated with trial court errors that are reconsidered, the third term with trial court errors that are not reconsidered, and the fourth term with correct trial court decisions that are

reconsidered. Let us first compare use of trial courts alone to random testing.

PROPOSITION 2A. Use of trial courts alone is socially superior to random testing if and only if use of trial courts alone is superior to reconsideration of *all* trial court decisions.

The natural interpretation of this proposition is that random testing is not socially advantageous: one presumes that any element of adjudication that is worthwhile undertaking in an expected sense in all cases will already have been incorporated in the trial procedure itself; hence, elements of adjudication involved in reconsiderations of cases are precisely those which are not socially worthwhile undertaking in all cases and, thus, by the proposition, not worthwhile undertaking on a random basis.

The proof of the proposition is motivated by the observation that randomly selecting cases to test is equivalent to restricting attention to this subset of cases and testing all of them. The proof is as follows. Use of trial courts alone is superior to random testing if and only if, for any  $x$  and  $y$ ,

$$\begin{aligned} & x^*(h) + p(x^*(h))h \\ < x + p(x)\pi[y + (1 - q(y))h] + p(x)(1 - \pi)h + (1 - p(x))\pi[y + r(y)h]. \end{aligned} \tag{12}$$

Use of trial courts alone is superior to reconsideration of all cases if and only if, for any  $x$  and  $y$ ,

$$\begin{aligned} & x^*(h) + p(x^*(h))h \\ < x + y + p(x)(1 - q(y))h + (1 - p(x))r(y)h. \end{aligned} \tag{13}$$

Now the following identity holds:

$$\begin{aligned} & x + p(x)\pi[y + (1 - q(y))h] + p(x)(1 - \pi)h + (1 - p(x))\pi[y + r(y)h] \\ &= \pi[x + y + p(x)(1 - q(y))h + (1 - p(x))r(y)h] + (1 - \pi)[x + p(x)h]. \end{aligned} \tag{14}$$

If (12) holds, then from (14) we have

$$\begin{aligned} & \pi[x + y + p(x)(1 - q(y))h + (1 - p(x))r(y)h] + (1 - \pi)[x + p(x)h] \\ & > x^*(h) + p(x^*(h))h. \end{aligned}$$

This means that

$$\begin{aligned} & \pi[x + y + p(x)(1 - q(y))h + (1 - p(x))r(y)h] \\ & > x^*(h) + p(x^*(h))h - (1 - \pi)[x + p(x)h] \\ & \geq x^*(h) + p(x^*(h))h - (1 - \pi)[x^*(h) + p(x^*(h))h] \\ & = \pi[x^*(h) + p(x^*(h))h], \end{aligned}$$

which is equivalent to (13). Conversely, if (13) is true, then the left side of (14) exceeds

$$\begin{aligned} & \pi[x^*(h) + p(x^*(h))h] + (1 - \pi)[x + p(x)h] \\ & \geq \pi[x^*(h) + p(x^*(h))h] + (1 - \pi)[x^*(h) + p(x^*(h))h] \\ & = x^*(h) + p(x^*(h))h, \end{aligned}$$

which is (12).

The next proposition addresses the unlikely case when random testing would be superior to use of trial courts alone.

**PROPOSITION 2B.** If random testing is superior to use of trial courts alone, the appeals process is superior to random testing.

This conclusion is explained by the facts that under random testing trial court errors are not always reconsidered and correct trial court decisions are sometimes reconsidered, whereas under the appeals process trial court errors are always reconsidered and correct decisions are never reconsidered.

To prove the proposition, observe that if random testing is superior to use of trial courts alone, then (12) does not hold, which is to say, for some  $x$  and  $y$ ,

$$\begin{aligned} x + p(x)\pi[y + (1 - q(y))h] + p(x)(1 - \pi)h + (1 - p(x))\pi[y + r(y)h] \\ \leq x^*(h) + p(x^*(h))h \leq x + p(x)h. \end{aligned} \tag{15}$$

Subtracting  $x$  from the left and right sides of (15), it follows that  $p(x)\pi[y + (1 - q(y))h] + p(x)(1 - \pi)h < p(x)h$ , which implies that  $y + (1 - q(y))h < h$ . But if this is true, then the appeals process (with the same  $x$  and  $y$ ) must be superior to random testing because the difference between (11) and (6) is

$$p(x)(1 - \pi)[h - (y + (1 - q(y))h)] + (1 - p(x))\pi[y + r(y)h] > 0. \tag{16}$$

### *B. Absence of Fees or Subsidies*

If the state does not employ fees or subsidies for making appeals, that is, if  $b = 0$ , there will be separation of disappointed litigants if and only if  $r(y)g \leq a < q(y)g$ . Separation is a necessary condition for the appeals process to be socially desirable, supposing as I shall henceforth that it is not desirable for appeals always to be made ([13] holds).

To determine when separation of disappointed litigants is possible, let  $q' = \lim q(y)$  as  $y \rightarrow \infty$ , and define  $r'$  similarly. Then it is clear that separation is possible if and only if

$$r'g < a < q'g. \quad (17)$$

Note, then, that (17) will not hold, and separation will not be possible, if  $a$  is too low (all will bring appeals) or too high (none will bring appeals) or if  $g$  is too low (none will bring appeals) or too high (all will bring appeals). When (17) holds, there exists a  $y^0$  such that separation occurs if and only if  $y$  is at least  $y^0$ . Accordingly, it is evident from the discussion preceding (7) that a necessary and sufficient condition for the appeals process to be socially desirable is

$$\min_{y \geq \max(\bar{y}, y^0)} y + (1 - q(y))h < h. \quad (7')$$

If (7') holds and the optimal  $y^*(h)$  is an interior solution, it is determined by (8) and is thus the same as in the basic model; otherwise,  $y^*(h) = y^0$  and exceeds its value before. In any case, if the appeals process is desirable,  $x^{**}(h)$  is again less than  $x^*(h)$  when both are interior solutions. It also follows that if separation is possible, the appeals process will be desirable for all  $h$  above a critical threshold. In summary, we have

**PROPOSITION 3.** Assume as in Proposition 1 that litigants know when trial courts err, but suppose that the state does not employ fees or subsidies for making appeals. Then

*a)* a necessary condition for the appeals process to be socially desirable is that separation of disappointed litigants be possible; that is, (17) holds.

*b)* When separation is possible, the description of when the appeals process is socially desirable is qualitatively similar to that in Proposition 1: the appeals process is desirable if and only if (7') holds; and Propositions 1*b*, *d*, and *e* hold.

It should be noted that the appeals process reduces social costs by a smaller amount and is socially desirable less often than when fees and subsidies are employed, for a higher  $y$  (namely,  $y^0$ ) may be needed to induce separation of disappointed litigants.

### C. Multiple Levels of Appeal

Suppose here that instead of there being only one possible level of appeal, there are  $N$  possible levels;<sup>37</sup> otherwise, maintain the assumptions

<sup>37</sup> The assumption that there are at most  $N$  levels of appeal is a convenience; in principle, there are always further possible levels of appeal. See the remarks at the end of this subsection on the case of potentially unlimited levels of appeal.

of the basic model. Specifically, let  $y_i$  be the expenditure on a level  $i$  appeal, where  $y_i \geq \bar{y}_i > 0$ ; let  $q_i(y_i)$  be the probability that an error at the previous level of adjudication is corrected by the level  $i$  appeals court; let  $r_i(y_i)$  be the probability that a correct decision at the previous level of adjudication is mistakenly reversed by the level  $i$  appeals court.<sup>38</sup> (Thus,  $y$ ,  $q$ , and  $r$  in the basic model would be denoted  $y_1$ ,  $q_1$ , and  $r_1$  here.) Suppose that  $r_i(y_i) < q_i(y_i)$ ; that is, the probability of reversal of a correct decision is less than that of an erroneous decision. Let  $a_i$  be the cost to a litigant of making a level  $i$  appeal and  $b_i$  the state-imposed fee or subsidy for a level  $i$  appeal. The social problem is to choose trial expenditures  $x$ , a permissible number  $j$  of levels of appeal, where  $j \leq N$ , and corresponding  $b_i$  and  $y_i$  so as to minimize expected social costs, that is, expected expenditures on adjudication at trial and at all levels of appeal, plus expected harm from error.

If the appeals process is permissible at any level, it will be socially desirable for an appeal to be brought at that level if and only if a mistake was made at the previous level of adjudication. Further, this can always be accomplished, as explained in the basic model, if the state selects appropriate fees or subsidies  $b_i$  for making appeals. Hence, if the appeals process has  $j$  permissible levels of appeal and is optimally designed, social costs will be

$$\begin{aligned}
 &x + p(x) \left\{ y_1 + (1 - q_1(y_1))y_2 + \dots + \left[ \prod_{i=1}^{j-1} (1 - q_i(y_i)) \right] y_j \right\} \\
 &\quad + p(x) \left[ \prod_{i=1}^j (1 - q_i(y_i)) \right] h.
 \end{aligned} \tag{18}$$

The term with braces is expected expenditures on appeals, where note that there is a level  $i$  appeal if and only if errors were made at all levels before  $i$ . The last term is expected harm from error, which occurs if and only if errors are made at every level of appeal through  $j$ . To determine the optimal number of permissible levels of appeal, one could, for each possible  $j$ , minimize (18) over  $x$  and the  $y_i$ , choose the  $j$  for which the minimized sum is lowest, and compare this minimized sum to the minimized sum if there are no appeals.

Another method for determining the optimal appeals process is to use

<sup>38</sup> I implicitly assume that  $q_i$  and  $r_i$  are not functions of decisions made prior to the immediately previous level of adjudication.

the principle of dynamic programming.<sup>39</sup> In particular, if it is optimal for level  $i$  appeals to be permissible, then we must have

$$\min_{y_i \geq \bar{y}_i} y_i + (1 - q_i(y_i))c_i < h, \quad (19)$$

where  $c_i$  is the value of the optimal continuation if an error is made in the level  $i$  appeal. That is,  $c_i$  equals minimized expected social costs incurred after an error is made in the level  $i$  appeal. The reason that (19) holds is that the left side of (19) is social costs if a level  $i$  appeal is made after an error at the previous level, and for the appeal to be optimal, these costs must be lower than the harm  $h$  associated with not permitting the appeal. It follows that *the optimal permissible number of levels of appeal is  $j$  if and only if (19) holds for  $i = 1, \dots, j$  and (19) does not hold for  $j + 1$ .*<sup>40</sup>

Using this characterization, we can describe a straightforward procedure for determining the optimal number  $j$  of permissible levels of appeal. First, to see if the optimal number  $j$  is  $N$ , set  $j = N$ . Then  $c_j$  must be  $h$ , for if there is an error at the  $j$ th appeal, the last level, the optimal continuation is by assumption to incur the error cost  $h$ . Hence, (19) becomes  $\min_{y_j \geq \bar{y}_j} y_j + (1 - q_j(y_j))h < h$ . If (19) does not hold at  $j$ , we reject the hypothesis that  $j = N$ . If (19) does hold, then we have  $c_{j-1} = \min_{y_{j-1} \geq \bar{y}_{j-1}} y_{j-1} + (1 - q_{j-1}(y_{j-1}))h$ , which allows us to check (19) at  $j - 1$ . If (19) does not hold at  $j - 1$ , we reject the hypothesis that  $j = N$ . But if (19) does hold at  $j - 1$ , we have  $c_{j-2} = \min_{y_{j-2} \geq \bar{y}_{j-2}} y_{j-2} + (1 - q_{j-2}(y_{j-2}))h$ , so that we can check (19) at  $j - 2$ . We continue this process either until, for some  $i < j$ , we reject the hypothesis that  $j = N$ , or until we confirm the hypothesis by showing that (19) holds for all  $i < j$ . If we reject the hypothesis that  $j = N$ , we next examine the hypothesis that  $j = N - 1$ , using the same method.<sup>41</sup> We will then either find that  $j = N - 1$  or reject this hypothesis, in which case we will consider  $j = N - 2$ , and so on. By this method, we will find the optimal number  $j$  of permissible levels of appeal, or else we will find that not allowing appeals is optimal. It should be noted that when a positive number of permissible levels of appeal is optimal, the method that has been described also gives us the optimal  $y_i$ ,  $i = 1, \dots, j$ , for minimization of the left side of (19) determines  $y_i$ . A point of interest that follows from (19) is that for any level of appeal  $i$  before the last, the amount spent  $y_i$  and accuracy will be lower than if  $i$

<sup>39</sup> See, for example, Stuart E. Dreyfus, *Dynamic Programming and the Calculus of Variations* (1965), ch. 7.

<sup>40</sup> If  $j = N$ , then the latter condition is moot.

<sup>41</sup> That is, since  $c_j = h$ , (19) again becomes  $\min y_j + (1 - q_j(y_j))h < h$ , and we proceed as before.

were the last permissible level of appeal:<sup>42</sup> this follows since the  $y_i$  that minimizes  $y_i + (1 - q_i(y_i))c_i$  is decreasing in  $c_i$ , and since  $c_i < h$  for  $i < j$ .<sup>43</sup>

Condition (19) can also be employed to demonstrate certain other facts about the optimal number of permissible levels of appeal. First, if  $h$  is sufficiently low, it will not be optimal for there to be any permissible appeals. To show this, note that if the optimal permissible number  $j$  is positive, then  $\min_{y_j \geq \bar{y}_j} y_j + (1 - q_j(y_j))h < h$ . This cannot hold if  $h < \bar{y}_j$ . Hence, if  $h$  is less than  $\bar{y}_i$  for all  $i$ , then no level of appeal can be the last, so that no permissible appeals must be optimal. Second, certainly if  $h$  exceeds  $h^*$ , some positive permissible number of appeals is optimal, for this is the condition that the first level of appeals is optimal, and it may be that a positive number of permissible appeals is optimal even if the first level alone is not. Third, if  $h$  is sufficiently large, the maximum number  $N$  of permissible levels of appeal will be optimal. In particular, if  $h > \bar{y}_i/q_i(\bar{y}_i)$  for all  $i$ , then  $N$  appeals will be optimal. For if the optimal number of appeals is  $j < N$ , then since (19) will not hold at  $j + 1$ , we must have  $\min_{y_{j+1} \geq \bar{y}_{j+1}} y_{j+1} + (1 - q_{j+1}(y_{j+1}))h \geq h$ ; yet that cannot be true since  $h > \bar{y}_i/q_i(\bar{y}_i)$  holds for  $j + 1$ , which implies that  $\bar{y}_{j+1} + (1 - q_{j+1}(\bar{y}_{j+1}))h < h$ .

What has been shown is summarized in the next proposition.

**PROPOSITION 4.** Assume, as in Proposition 1, that litigants know when trial courts err and that the state can set fees or subsidies for making appeals, but suppose that the state can allow multiple levels of appeal. Then

a) not allowing any appeals will be socially desirable if the harm from error  $h$  is less than  $\min_i \bar{y}_i$ ; a positive number of permissible levels of appeal will be optimal if  $h$  exceeds a threshold that is generally lower than  $h^*$ , and the maximum number  $N$  of permissible levels of appeal will be optimal if  $h$  exceeds  $\max_i \bar{y}_i/q_i(\bar{y}_i)$ .

b) A straightforward recursive procedure (using [19]) determines the optimal number of permissible levels of appeal and optimal expenditures at each level.

c) For each permissible level of appeal, the state will set fees or subsidies so that disappointed litigants will be separated: they will make an appeal if and only if an error was made at the immediately prior level of adjudication.

<sup>42</sup> This is a generalization of Proposition 1e.

<sup>43</sup> That  $c_i < h$  for  $i < j$  follows from the fact that for such  $i$ ,  $c_i = \min_{y_{i+1}} y_{i+1} + (1 - q_{i+1}(y_{i+1}))c_{i+1}$ , which, by (19), must be less than  $h$ .

d) Expenditures at each permissible level of adjudication other than the last will be lower than if that level of adjudication were the last.

It is interesting to consider briefly the special case where the error probability functions are identical for all  $i$ ; that is,  $q_i(y) = q(y)$  for all  $i$ . In this case, expenditures  $y_i$  and the accuracy of an appeal rise with the level of appeal. To demonstrate this, note that  $c_i < c_{i+1}$  for all  $i \leq j - 1$ .<sup>44</sup> From (19), we know that  $y_i$  is the  $y$  that minimizes  $y + (1 - q(y))c$ , where  $c = c_i$ ; and because the  $y$  minimizing  $y + (1 - q(y))c$  is increasing in  $c$ ,<sup>45</sup> we conclude that  $y_i < y_{i+1}$ . The sense behind this point is that other things being equal (that is, the technology of the appeals process), greater expenditure per appeal is optimal the fewer appeals that remain for correcting error.

Finally, it should be remarked that were we to relax the assumption that there is a maximum number  $N$  of levels of appeal, unlimited permissible levels of appeal might become socially desirable. Suppose, for instance, that  $q_i = q(y)$  for all  $i$ , and that  $h > \bar{y}/q(\bar{y})$ . Then we know (by essentially the argument given immediately before Proposition 4) that allowing an additional level of appeal would always be beneficial.

#### D. Imperfect Litigant Information about Error

To examine the effect of imperfect recognition of legal errors, assume as in the basic model that there is a single level of appeals possible, but suppose that litigants may fail to recognize trial court errors and may also believe that correct trial court decisions are mistaken. Specifically, let  $s$  be the conditional probability that a litigant thinks a trial court error occurred given that it actually occurred, let  $t$  be the conditional probability that a litigant believes a trial court error occurred given that the trial court decision was actually correct, and suppose that  $s > t$ —true errors are more likely to be seen as such than correct decisions are to be seen as errors.<sup>46</sup>

<sup>44</sup> We use backward induction. For the last level of appeal,  $c_j = h$ , and, from (19),  $c_{j-1} = \min y_{j-1} + (1 - q(y_{j-1}))c_j < h = c_j$ , so that  $c_{j-1} < c_j$ . The backward induction hypothesis is that  $c_{i+1} < c_{i+2}$ , and we want to show that  $c_i < c_{i+1}$ . But  $c_i = \min y_i + (1 - q(y_i))c_{i+1}$ , and  $c_{i+1} = \min y_{i+1} + (1 - q(y_{i+1}))c_{i+2}$ , so that the induction hypothesis and the fact that the function  $\min y + (1 - q(y))c$  is increasing in  $c$  imply the result.

<sup>45</sup> The first-order condition for a minimum of  $y + (1 - q(y))c$  is  $1 - q'(y)c = 0$ . Implicitly differentiating with respect to  $c$ , we obtain  $y'(c) = -q'(y)/q''(y)c > 0$ .

<sup>46</sup> To amplify slightly, suppose that a (Bayesian) litigant will observe one of two signals, E (for error) or C (for correct). If an error actually occurs, the probability that he will observe E is  $s$ , and if a correct decision is actually made, the probability that he will observe E is  $t$ . The litigant knows that when he observes E, he does not know whether or not an error truly occurred, but I will still describe him as "thinking" or "believing" that error occurred.

To interpret the assumption that  $s > t$ , define  $\alpha$  to be the conditional probability that an error actually occurred given that a litigant thinks an error occurred; thus<sup>47</sup>

$$\alpha = ps/[ps + (1 - p)t]. \quad (20)$$

It is readily verified that the assumption that  $s > t$  is equivalent to  $\alpha > p$ , that when litigants think an error was made, it is more likely that there was an error than the unconditional probability  $p$  of error. Also, define  $\beta$  to be the conditional probability that an error occurred given that a litigant thinks there was no error; hence

$$\beta = p(1 - s)/[p(1 - s) + (1 - p)(1 - t)]. \quad (21)$$

The assumption that  $s > t$  is equivalent as well to the assumption that  $\alpha > \beta$ .

Now consider the question whether the appeals process is socially desirable. For this to be so, litigants must be induced to bring appeals only if they believe mistakes have occurred, for we will assume that it is not socially desirable for appeals always to be brought ([12] holds). Litigants can be led to bring appeals if and only if they think mistakes have occurred if the state selects  $b$  appropriately. In particular, if a litigant thinks an error occurred, the probability of winning a reversal will be  $\alpha q + (1 - \alpha)r$ , and if he does not think a mistake was made, the probability of winning a reversal will be  $\beta q + (1 - \beta)r$ .<sup>48</sup> The former probability exceeds the latter, since  $\alpha > \beta$  and  $q > r$ . Hence, as in the basic model, the state can choose  $b$  so as to induce litigants to bring appeals if and only if they think a mistake was made at trial.

Assuming, then, that appeals are brought when and only when litigants think mistakes were made, the social problem is

$$\begin{aligned} \min_{x \geq \bar{x}, y \geq \bar{y}} & x + p(x)s[y + (1 - q(y))h] + p(x)(1 - s)h \\ & + (1 - p(x))t[y + r(y)h]. \end{aligned} \quad (22)$$

Observe that the second term in (22) is expected costs associated with appeals following trial court mistakes, the third term is expected harm due to mistakes that are not appealed (because they are not recognized as mistakes), and the fourth term is expected costs associated with appeals following correct trial court decisions.

<sup>47</sup> In this subsection, the argument  $x$  in  $p$  will sometimes be omitted for convenience (and similarly for the argument  $y$  in  $q$  and in  $r$  below).

<sup>48</sup> Litigants can calculate these probabilities since the parameters of the model are assumed to be common knowledge.

Let us demonstrate that the appeals process will be socially advantageous less often than in the basic model. If the appeals process is socially desirable for some  $x$  and  $y$ , (22) must be less than  $x + p(x)h$ . This clearly implies that  $p(x)s[y + (1 - q(y))h] + p(x)(1 - s)h < p(x)h$ , which implies that  $s[y + (1 - q(y))h] + (1 - s)h < h$ . But this implies that  $[y + (1 - q(y))h] < h$ , which means that the appeals process is socially desirable in the basic model (see [7]). Also, if  $h$  slightly exceeds  $h^*$ , then the appeals process will be barely desirable in the basic model; in this case (7) will barely hold. Now (22), social costs with appeals, minus  $x + p(x)h$ , social costs with trials alone, equals

$$ps\{[y + (1 - q(y))h] - h\} + (1 - p)t(y + r(y))h. \quad (23)$$

The term in braces will be small when (7) barely holds, but the second term is positive; hence the appeals process cannot be optimal for  $h$  in a neighborhood in  $h^*$ . We have therefore shown that the set of  $h$  for which the appeals process is desirable is smaller than that in the basic model.

It is also apparent that when the appeals process is socially desirable here, social costs are higher than in the basic model; social costs at the optimum are higher here the higher is  $t$  and the lower is  $s$ .<sup>49</sup>

We therefore have

**PROPOSITION 5.** Assume, as in Proposition 1, that the state can set fees or subsidies for making appeals, but suppose that litigants have only imperfect information about the correctness of trial court decisions. Then

a) the appeals process will be socially desirable less often than in the basic model.

b) If the appeals process is socially desirable, the state will set fees or subsidies for bringing appeals such that litigants will bring appeals if and only if they believe that trial court errors occurred. Because of litigants' imperfect information about errors, some errors will not lead to appeals, and some correct trial court decisions will result in appeals.

In contrast to the situation in the basic model, the appeals process here may not be useful no matter how high the harm  $h$  due to error is. This is clear because (23) may be negative for all  $h$  (for the second term may dominate the first). That is, the costs associated with appeals when trial court decisions are correct may always outweigh the benefits associated with appeals when trial court decisions are in error.

Finally, let us remark on the possible value of allowing appeals courts

<sup>49</sup> Expression (22) is clearly increasing in  $t$ . The derivative of (22) with respect to  $s$  is  $p(x)[(y + (1 - q(y))h) - h]$ , which is negative since  $y + (1 - q(y)) < h$  must be true. Thus, (22) rises when  $s$  falls.

discretion in hearing appeals, that is, permitting them to refuse to hear appeals. This practice might be socially desirable if the appeals courts can cheaply determine which appealed cases are relatively likely to have been correctly decided by trial courts and winnow them out. In effect, that would reduce  $t$  and thereby raise the advantage of the appeals process.

*E. Litigant Prediction of Appeal Outcomes versus Knowledge of Trial Court Error*

Suppose here that litigants can perfectly predict what the outcome of an appeal will be. (It will be irrelevant whether they also have knowledge of error at trial.) In this case, if there is an appeals system, appeals will be brought if and only if there would be a reversal, assuming that the private cost  $a$  plus a possible subsidy  $-b$  is less than the gain  $g$ . In particular, appeals will be brought whether or not an error is made, as long as an appeal will result in a reversal. Hence, social costs will be

$$x + p(x)[q(y)y + (1 - q(y))h] + (1 - p(x))r(y)[y + h]. \quad (24)$$

Note that the second term is associated with errors at trial, and the third with correct decisions at trial.

It is informative to compare this with social costs in the basic model. Subtracting (6) from the above, we obtain

$$(1 - p(x))r(y)[y + h] - p(x)(1 - q(y))y. \quad (25)$$

Hence, costs will be higher than in the basic model if the first term outweighs the second; the first term is the expected cost associated with appeal and reversal of correct decisions, and the second is the savings from not appealing errors when they would not be reversed (in the basic model, recall, all errors result in appeal). Accordingly, costs will tend to be higher than in the basic model, other things being equal, the greater the probability of correct decisions at trial and the greater the chance of their being reversed, and costs will tend to be lower than in the basic model the greater the chance of error at trial and the greater the chance of errors not being reversed.

To compare the appeals system to a regime without appeals, subtract  $x + p(x)h$  from (24), to obtain

$$[p(x)q(y) + (1 - p(x))r(y)]y + (1 - p(x))r(y)h - p(x)q(y)h. \quad (26)$$

The first two terms, the cost of appeals and the harm due to reversals of correct trial court decisions, make the appeals process unattractive; the

third term, the harm avoided due to reversal of error, works in favor of the appeals process. The appeals process will be socially desirable when there exist  $x$  and  $y$  such that (25) is less than  $x^* + p(x^*)h$ , and there is no simple characterization (analogous to [7]) of when this will be true. Note that the appeals process may not be socially desirable when it would have been desirable in the basic model, and conversely, it may be desirable when it would not have been in the basic model.<sup>50</sup> If the appeals process is desirable, the condition determining the optimal  $y$  is

$$\begin{aligned} p(x)[q'(y)(h - y)] + (1 - p(x))[-r'(y)(y + h)] \\ = p(x)q(y) + (1 - p(x))r(y). \end{aligned} \quad (27)$$

The left side is the marginal expected net savings from increasing  $y$ ; the right side is the marginal expected cost due to spending an additional dollar on appeals. The condition determining the optimal  $x$  is

$$-p'(x)[q(y)y + (1 - q(y))h - r(y)(y + h)] = 1. \quad (28)$$

The left side is the marginal expected net benefit due to a lower chance of error, and the right side is the marginal cost.

The foregoing analysis could of course be carried through assuming that litigants have imperfect ability to predict appeals court outcomes.<sup>51</sup>

#### *F. Judges' Incentives to Avoid Reversal*

Now we will consider how the appeals process may create incentives toward trial court accuracy by inducing trial court judges who do not want to be reversed on appeal to devote more effort to obtaining correct decisions than they would in the absence of the appeals process.

To study this issue, assume that the situation is as in the basic model, except that the likelihood of trial court error is determined not only by state expenditures  $x$  but also by a judge's effort  $e$ , which is not observable; that is, the probability of error is  $p(x, e)$ , where  $p$  is decreasing and convex in its arguments. Let a judge be paid a gross wage  $w$  and suffer a disutility  $z$  if he is reversed on appeal.<sup>52</sup> The net wage of a judge equals

<sup>50</sup> This is evident (I omit details) from the fact that the appeals process under present assumptions may be superior to, or inferior to, that in the basic model, as discussed in the last paragraph.

<sup>51</sup> This could be done along the lines in the previous section. For example, it might be assumed that litigants observe one of two signals, R (for reversal) or A (for affirmance), where the likelihood of R given that there will be a reversal is higher than the likelihood of R given that there will not be a reversal.

<sup>52</sup> This disutility might be associated with a loss of reputation and will be taken as given for simplicity, even though in a more detailed model the state could influence the effect of reversal (by reducing the judge's salary or promotion possibilities).

his gross wage  $w$  minus his effort  $e$  minus the disutility  $z$  if he is reversed. Assume that judges' expected net wage must equal  $w^*$ , their alternative opportunity (otherwise they could not be attracted to the judiciary). Let social costs be harm from error, direct expenditures on adjudication (that is,  $x$  and  $y$ ), and judges' gross wage  $w$ .<sup>53</sup>

In the absence of an appeals system, judges have no motive to choose positive effort, as they will never be reversed.<sup>54</sup> The likelihood of error is therefore  $p(x, 0)$ . Also, judges' expected net wage is simply their gross wage  $w$ , so that  $w = w^*$ . Social costs are thus

$$x + w^* + p(x, 0)h, \quad (29)$$

and the optimal  $x$  minimizes this expression.

If there is an appeals process, then, as in the basic model, it is always possible to induce litigants to bring appeals if and only if errors are made at trial, and this is optimal. A trial court judge's problem is thus

$$\max_e w - e - p(x, e)q(y)z, \quad (30)$$

because  $p(x, e)q(y)$  is the likelihood of reversal. It must also be true that

$$w - e - p(x, e)q(y)z = w^*. \quad (31)$$

These two conditions determine  $e$  and  $w$  given  $x$  and  $y$ . The social problem is to minimize

$$x + w + p(x, e)[y + (1 - q(y))h] \quad (32)$$

over  $x$  and  $y$ , where  $e$  and  $w$  are understood to be functions of  $x$  and  $y$ . As a consequence, the optimal  $x$  and  $y$  are determined differently from in the basic model. Of particular interest is the optimal  $y$ , because appeals court accuracy affects trial court effort. To understand the determination of  $y$ , observe that  $e$  and  $w$  are increasing in  $y$  (greater accuracy in the appeals court means that trial court errors are more likely to be reversed, which induces greater effort at trial, and this must be compensated for by a higher wage).<sup>55</sup> Hence, unlike in the basic model, the optimal  $y$  does

<sup>53</sup> Instead of treating  $w$  as the social cost associated with use of a judge, we could take that social cost to be  $w^*$ —the forgone production due to hiring a judge—plus the disutility a judge suffers, namely,  $e$  plus expected disutility from reversal. This latter definition of the social cost associated with use of a judge is equivalent to the first, for  $w^*$  must equal  $w$  minus  $e$  minus the expected disutility from reversal.

<sup>54</sup> If it were assumed that judges would exercise positive effort even when they do not fear reversal (perhaps from a feeling of social responsibility), the qualitative nature of the conclusions obviously would not change. The only difference would be that use of the appeals process would be socially desirable less often.

<sup>55</sup> It is clear from (30) that  $e$  is increasing in  $y$  and is independent of  $w$ . Also, since the value of (30) is decreasing in  $y$ , it follows from (31) that  $w$  is increasing in  $y$ .

not minimize  $y + (1 - q(y))h$  and is not determined by (8),  $q'(y)h = 1$ . Instead, the first-order condition for the optimal  $y$  is<sup>56</sup>

$$w_y + p_e e_y [y + (1 - q)h] + p[1 - q'(y)h] = 0, \quad (33)$$

which implies that

$$q'(y)h = 1 + w_y/p + p_e e_y [y + (1 - q)h]/p. \quad (34)$$

The second and third terms on the right in (34) are not present in (8). The second term reflects the effect of  $y$  on the wage; it is positive and thus tends to lower the optimal  $y$  from its level in the basic model. The third term reflects the effect of  $y$  on trial court effort and thus on expected harm from error; it is negative and therefore tends to raise the optimal  $y$  from its level in the basic model.

Several further remarks are worth making. First, if litigants possess only imperfect information about trial court errors, the incentive effect of the appeals process on a trial court judge's effort is attenuated. Specifically, under the appeals process, a trial court judge's problem becomes

$$\max_e w - e - [p(x, e)sq(y)z + (1 - p(x, e))tr(y)z], \quad (35)$$

and the first-order condition for his choice of  $e$  becomes

$$p_e[sq - tr]z = -1 \quad (36)$$

rather than  $p_e qz = -1$  (see [30]). Hence, other things being equal,  $e$  will not be as high as when litigants possess perfect information about errors. The explanation is that when litigant information is imperfect, the payoff to a judge for raising  $e$  and reducing the true number of errors is lower for two reasons:  $s < 1$ , so that when errors are made, that does not always result in an appeal and a possible reversal, and  $t > 0$ , so that when errors are not made, there is still a chance of an appeal and a reversal.

Second, suppose that litigants have no information about trial court outcomes; that is, suppose that  $s = t$ . Then if appeals are made only when people think mistakes have been made, (35) is equivalent to a judge's problem under random testing of trial outcomes with probability  $\pi = s = t$ . Thus, the use of the appeals process, rather than random testing, to improve incentives can only be helpful if litigants have information about trial outcomes.

Third, if one reconsiders the possibility of multiple levels of appeal,

<sup>56</sup> The arguments of  $p$  and other functions here (and elsewhere below) are omitted for simplicity, and subscripts of  $p$  and  $e$  indicate partial derivatives.

then allowing appeals at any level would have the advantage of improving judges' incentives for accuracy at all earlier levels of appeal (not just at trial).

### *G. Settlement before Appeal*

Suppose that we allow for the possibility of settlement prior to appeal, and assume that the cost of settlement is  $z(y) > 0$ , where  $z(y) < y$  and  $z$  is increasing in  $y$ . That is, settlement involves positive cost, but less than that of an appeal, and settlement cost is higher the higher would be the cost of an appeal. The motivation for the last assumption is that the complexity of the appeals process should be reflected in settlement negotiations.

In the basic model, there will always be settlement after a trial in which there is an error, if it is assumed that both litigants know of errors and the disappointed litigant would be willing to bring an appeal. However, this would not alter the analysis and conclusions from the basic model in an essential way. In brief, for disappointed litigants to be separated, fees or subsidies must be employed in the manner discussed earlier, for error must result in the willingness of those who suffer from error to bring an appeal—otherwise they cannot obtain a settlement—and for the unwillingness of other litigants to make an appeal. The condition under which the appeals process is worth undertaking, and the optimal amount to spend on the appeals process, will involve the cost of settlement  $z(y)$  rather than  $y$ , for  $z(y)$  will be the actual social cost associated with the appeals process. This will tend to make the appeals process more attractive socially, as it will be effectively cheaper. However, the social harm from error may not be reduced through settlement in the same way as it would be from appeal, as was discussed in Section IIG.

There will not always be settlement prior to appeal if there is asymmetric information between the litigants. In that case, the effective cost of the appeals process would be a mix between the cost of settlement and the cost of an appeal.

### *H. Heterogeneity among Litigants*

If the assumption that litigants have the same cost of bringing an appeal is relaxed and the state cannot observe each individual's cost, perfect separation of litigants through use of fees or subsidies cannot be accomplished. In general, given the optimal use of uniform fees and subsidies, some of those bringing appeals would not be the victims of error (but rather would be those for whom the cost of appeal is relatively low), and some of those not bringing appeals would be victims of error (but rather

would be those for whom the cost of appeal is relatively high). This reduced ability to separate disappointed litigants would lower the social value of the appeals process. A similar outcome would follow from other kinds of heterogeneity among litigants, such as about their perception of the occurrence of mistake or about their chances of prevailing in an appeal.

### *I. Inference from the Fact an Appeal Is Brought*

In the basic model, it was implicitly assumed that the appeals court did not make use of inferences it could draw from the fact that a litigant brought an appeal. Specifically, it was assumed that there was a probability of reversal, conditional on error, that was in general less than 1 (its precise value being determined by expenditures  $y$  on the appeals process).

When, however, there is separation of disappointed litigants, the appeals court can infer that all who bring appeals are true victims of error and thus should really obtain a reversal. This does not imply, though, that the appeals court should use its inferential knowledge. Were it to reverse in all appeals, then all disappointed litigants would be led to bring appeals—the separation of disappointed litigants would unravel.

For this reason, it is apparent that it is not socially desirable for the appeals court to use its inferential knowledge. To amplify (the argument to be given is conventional), let  $t$  denote the observable evidence at appeal (notably, that in the trial record). Then the decision rules that are available to an appeals court that does not use inferences are the class of all functions from the set of possible  $t$  to the set of appeals outcomes. Now suppose that an appeals court announces a rule  $f$  but, on account of inferences it draws, alters the rule to some other rule  $f'$  (in the example from the last paragraph,  $f'$  is the rule that grants all appeals). Then the rule in effect becomes  $f'$ , because the natural assumption is that litigants know the rule actually in use. But an appeals court that does not use inferences can always choose  $f'$ . Thus, the use of inferences cannot expand the class of decision rules available to an appeals court, and it generally constrains the class of decision rules and thus is socially undesirable.

Accordingly, it is best for the rules of procedure to specify that such information should not be considered in judging an appeal.

## V. DISCUSSION

Let us now consider various issues bearing on the interpretation of the theory advanced above, the consistency or inconsistency of the theory

with the actual use of the appeals process, and the possible utility of the theory as a guide for policy.

*The Conception of Error.* In the analysis, the notion of error was left unspecified. What types of error can occur? Errors may be factual in nature, and they may also occur in the determination of the applicable legal rule or in its use in combination with the found facts. The latter types of error are conceptually clear when the law is well articulated, but often the law will not be specified in a relevant aspect and must be amplified. If the reader takes the view that there exists a correct definition of the social good, then error consists in failing to extend the law in accord with this definition. Otherwise, error is not a well-defined concept.

*Imperfect Ability of Litigants to Recognize Error and the Applicability of the Model.* Although in most of the analysis, litigants were assumed to be able to ascertain error for sure, it is evident that the appeals process may well be valuable when litigant knowledge of error is imperfect. In that case, as the reader will recall from Section IID, the appeals process may still tend to foster error correction because it will result in the channeling to the appeals court of cases that are more likely than the average case to have been erroneously decided, to the degree that litigant perception of error reflects the true occurrence of error. The possible utility of the appeals process when litigant knowledge of error is imperfect is important because, of course, in fact litigant knowledge of error is likely to be surrounded by some degree of ambiguity, perhaps substantial. (In part, this is because many plain errors will be corrected at trial, so that remaining errors will tend to be nonobvious; see below.)

However, litigant uncertainty about error does diminish the social value of the appeals process: some errors will go unnoticed and thus not be appealed; and some correct decisions will be misconstrued and be appealed, resulting in a waste of judicial resources and possible reversals. (Moreover, the reasons that make litigants uncertain whether error occurred may also make appeals courts uncertain about the occurrence of error; the latter too will lower the social value of the appeals process.) If litigant uncertainty is sufficiently important, the appeals process will not be socially worthwhile.

*Why Does Trial Court Error Occur, and Why Is It Not Corrected at Trial?* Whereas the occurrence of error was taken for granted in the analysis, it does call for some explanation, as is suggested by two questions. If an error is noticed by a litigant, how is it that a trial court initially commits the error—is it assumed that litigants are more knowledgeable or intelligent than trial courts? And why would a litigant who notices an error not point it out at trial and have it corrected then and there?

The answer to the latter question at least is apparent if the errors are

not obvious. By their very character, it is understandable that less-than-obvious errors may be made by courts and will not necessarily be corrected by them if asserted by litigants at trial.

What can be said, however, about the two questions in relation to fairly clear mistakes? First, one presumes that trial courts will occasionally make even fairly clear mistakes owing to a variety of factors: the inexperience of some judges, the pressure of time, and the fact that the courts are responsible for applying a vast body of law.

Second, although it is true that when courts do make fairly clear mistakes, these will often be pointed out by litigants at trial and corrected there, that will not always be the outcome. On the one hand, a litigant may not have a chance to assert an error at trial: the error may be made in the court's decision itself—when it is too late to make an objection. On the other hand, an error that is asserted at trial may not be corrected there despite the fact that it would be seen on reflection as a clear mistake; to appreciate that an error has occurred may require deliberation that the press of trial does not allow. After trial, however, the losing litigant has both the time and a strong incentive to review his objections to single out those with merit.<sup>57</sup> Observe as well that the posttrial opportunity of litigants to inspect the record provides us a reason why litigants may discover trial court errors even though their general legal expertise may be inferior to the courts.

In all, then, it does not seem implausible that a residue of even fairly obvious-in-retrospect errors are not corrected at trial and are noticed by litigants. And there is no problem in explaining the occurrence of less-than-clear errors.

*Evidence of Error Correction.* Do statistics on reversal rates supply us with indirect evidence about error correction? One might expect the reversal rate to be relatively high if the appeals process does result in error correction. This is the outcome in the simple model, for there appeals are brought only when errors are made, so the reversal rate is that which applies when errors were truly made, which is higher than that when decisions were correct.

For a variety of reasons, however, statistics on reversal may actually tell us very little in themselves. First, settlement prior to appeal (see Section IIG) will tend to resolve cases that would have been most likely to be reversed. Hence, cases that are not settled and reach appeal are atypical and are quite possibly reversed less often than the representative case among the class of cases that are settled or appealed. Second, a

<sup>57</sup> Note that during trial, not knowing whether he will be disappointed by the outcome, a litigant's incentive to discover error is lower.

substantial reversal rate can occur without error correction: it could be due to sheer arbitrariness, to appeals court sympathy for litigants, or simply to the ability of litigants to predict whether appeals courts would reverse (see Section IIE). Third, a low reversal rate can be consistent with error correction, for it may be privately and socially rational for appeals to be made when the chance of reversal is low if the gain from reversal would be sufficiently high.

Accordingly, to measure the degree to which the appeals process is correcting error, direct evidence pertaining to the reason for reversal appears to be necessary. Perhaps experts could review a sample of cases that resulted in appeals and produce data on the fraction of reversals that they can reasonably agree are due to error correction. The experts could do the same for cases for which appeal was initiated but which settled. Another useful statistic that experts could furnish is the frequency of mistake in cases that were not appealed or for which the threat of appeal and settlement did not occur. The frequency of mistake in these cases should be lower than that in the complementary cases if the appeals process results in some degree of separation of disappointed litigants.

*Lawmaking.* It was suggested in the first paragraph of this section that the extension of legal rules, namely, lawmaking, may be considered to be a species of error correction, where the errors are mistaken interpretations of law. Before seeing what light may be shed on lawmaking by viewing it as a type of error correction, let us observe that lawmaking is evidently a substantial function of the appeals process, not only in common-law countries but also in the amplification of the civil code in civil-law countries.<sup>58</sup> How significant lawmaking is relative to error correction (in the usual sense) is difficult to say, but, for our purposes, this issue need not be pursued.<sup>59</sup> In any event, the significance of lawmaking differs according to the level of appeal. At the second level of appeal, the lawmaking function is more important than at the first level in most

<sup>58</sup> For discussion of the lawmaking function of appeals worldwide, see Herzog & Karlen, *supra* note 1, at 5, and chs. 4 & 5.

<sup>59</sup> One indication of the importance, or lack thereof, of lawmaking is the frequency of publication of appeals court decisions, especially of those resulting in reversals. If a decision effects a change in law that others are supposed to abide by, they must know about it. By contrast, if the decision merely corrects a mistake but does not result in a change in law, there is not a similar need for it to be published. A substantial fraction of appeals court decisions are unpublished; for example, in the federal courts, about 50 percent of first-level appeals are unpublished, including over 20 percent of decisions to reverse, vacate, or deny. See Donna Stienstra, *Unpublished Dispositions: Problems of Access and Use in the Courts of Appeals* (1985); and Sue Davis & Donald R. Songer, *The Changing Role of the United States Courts of Appeals: The Flow of Litigation Revisited*, 13 *Just. Sys. J.* 323 (1988-89). Also, see note 61 *infra* on the Social Security Administration.

judicial systems.<sup>60</sup> Indeed, lawmaking is in some adjudicative systems virtually the exclusive function of appeals at the second level (as at the Supreme Court in the United States), and in some systems error correction is essentially the only function of appeals at the initial level (as at the Social Security Administration).<sup>61</sup>

Turning now to the notion of lawmaking as a species of error correction, the theory advanced in the present article suggests that the appeals process should be useful for lawmaking if litigants have the ability to recognize issues calling for new law to be made, and if appeals courts would not otherwise learn of these issues.

One might conjecture that litigants have less ability to ascertain which legal rules are in need of rectification or amplification than they have to determine errors of the conventional type, for lawmaking arguably calls for greater knowledge of law than does verifying deviations from reasonably well articulated rules, and lawmaking may also call for complex judgments to be made about social policy. One might also surmise that appeals courts have a better ability to determine when lawmaking is appropriate, without appeals being brought, than they do to determine the commission of errors.<sup>62</sup> In many situations that come to mind, higher courts would (or could) learn where the law is not functioning desirably from generally following trial court holdings, from legal commentary, from press accounts, and the like.<sup>63</sup> By contrast, higher courts would be

<sup>60</sup> This is chiefly by design of most systems of adjudication, which tend to restrict second-level appeals to matters of law. See Herzog & Karlen, *supra* note 1, chs. 4 & 5.

<sup>61</sup> The initial appeal within the Social Security Administration (SSA), called "reconsideration" (because it follows the same procedures as in the original determination of benefits), is said to be concerned solely with the application of known law to new facts, not with making or extrapolating policy. Decisions at reconsideration and the reasoning behind them are not promulgated, so that reconsideration cannot result in changes in the interpretation of SSA rules and procedures. It is apparently true as well that at the second level of SSA appeal, to administrative law judges, and at the third level, to the Appeals Council, the chief intended function of adjudicators remains error correction (the degree to which errors actually are corrected is another question). Lawmaking within the SSA occurs through a variety of mechanisms different from the appeals process (through internal policy statements, circulars, manuals, and public statements, such as about interpretive standards). See Jerry L. Mashaw, *The Management Side of Due Process: Some Theoretical and Litigation Notes on the Assurance of Accuracy, Fairness, and Timeliness in the Adjudication of Social Welfare Claims*, 59 *Cornell L. Rev.* 772 (1974), esp. at 786; and Koch & Koplou, *supra* note 2, at 228 & 268.

<sup>62</sup> This is emphasized in Dalton, *supra* note 6, at 70-71.

<sup>63</sup> Consider, for instance, *Sindell v. Abbott Laboratories*, 26 Cal. 3d 588, 607 P.2d 924 (1980), which established that in the absence of more-probable-than-not proof of causation, liability could be imposed in an amount proportional to the probability of causation. The problems with the customary more-probable-than-not criterion for proof of causation that *Sindell* addressed were arguably apparent to higher courts from a variety of sources; there was no need to rely on the appeals process to bring it to their attention.

unlikely to learn about an error of the usual kind, such as mistaken application of a procedural rule, without being told by the particular disadvantaged litigant involved. At the same time, these speculations are hardly meant to deny that appeals courts sometimes can learn about opportunities for lawmaking only from disappointed litigants; litigants, after all, are the ones who actually experience the effects of legal rules.

What does the foregoing suggest about appeals and lawmaking? It indicates that without the appeals process, higher courts would be able to discharge their lawmaking function to a substantial degree<sup>64</sup> but would also omit or delay considering many issues calling for lawmaking. With the appeals process, however, litigants would be likely frequently to bring to higher courts issues that are inappropriate for lawmaking, wasting their own and judicial resources (in the terminology of the model, this is because separation of disappointed litigants would be poor). A policy that remedies both these problems is to allow courts discretion over which issues that litigants want to be heard on appeal will actually be heard. Under this approach, society enjoys the advantage of the appeals process—the higher court is apprised of issues that it would not otherwise have considered—without suffering the disadvantage of having to waste resources on issues that are not appropriate for lawmaking.

In fact, there is no judicial screening of appeals at the first level of appeal, but there may be at the second level. Perhaps the reason for there not being screening at the first level is that the task would be quite difficult, at least by comparison to that at the second level, where a court engaged in screening will have the considerable benefit of review of the record from the initial appeal.<sup>65</sup> At the second level of appeal, there generally is judicial screening in the common-law countries, where appeals to supreme courts are not heard unless leave for this is granted.<sup>66</sup> In the formerly socialist countries, the policy has been essentially to bar second-level appeals and to let supreme courts decide for themselves which is-

<sup>64</sup> Indeed, where higher courts know when lawmaking is called for, it would not be necessary for them to link their consideration of issues of interest to the resolution of particular cases (especially if that would mean the disposition of cases would upset parties' expectations). Higher courts could instead declare their findings about an issue independently of ongoing cases; their findings could apply in all future cases, nevertheless.

<sup>65</sup> Second-level courts also have greater expertise in lawmaking, being relatively specialized in that task, as will be noted below.

<sup>66</sup> In the U.S. federal system, the Supreme Court has discretion over the cases it will hear; see, for example, Robert L. Stern, *Appellate Practice in the United States* 136 (2d ed. 1989). And in the states the same is true, except in those states where there are no intermediate appeals courts; see *id.* In England, it is the appeals courts (subject to unimportant exceptions) that grant leave for a case to be heard by the highest court, the House of Lords; see Herzog & Karlen, *supra* note 1, at 54–55; and Julian M. Wilson & Sarah Christiansen, *England and Wales*, in Platto ed., *supra* note 1, at 140, 147.

sues they want to consider.<sup>67</sup> In the civil-law countries, the policy is the opposite; appeals to the supreme courts may generally be brought as of right.<sup>68</sup>

*Permissibility and Scope of Appeal: Legal Control over Types of Case and of Types of Issue That May Be Appealed.* It is interesting to consider from the perspective of the theory of error correction the various ways in which legal systems control the types of case and the types of issue that may be raised on appeal.

First, in some countries there is a threshold level of importance of a case, expressed in monetary terms, that must be exceeded before appeal usually is permitted.<sup>69</sup> The presence of such thresholds is approximately consistent with our conclusion that it is not socially desirable for the appeals process to be employed unless a case exceeds a critical level of importance, defined by the social harm caused by error.

Second, the legal system of the United States draws a basic distinction concerning rules versus facts in its separation of issues that can be appealed from those that cannot. As a general matter, an appeal can be made where there is a claim of violation of a rule of some type—concerning the process of fact-finding or the determination of the legally relevant rule or its interpretation—or where there is a claim of error in the application of a rule in combination with the found facts. But an appeal ordinarily cannot be made where there is a claim that the found facts are incorrect, unless these facts were unreasonable, or clearly erroneous to hold, in light of the evidence.<sup>70</sup>

When an error concerns rules or their application to found facts, it is possible in the ideal both for a litigant to recognize the error and for an appeals court to verify its occurrence—each can be imagined to do this by consulting a rule book. (In practice, of course, this may be difficult, especially in relation to the interpretation of legal rules.)

<sup>67</sup> See Herzog & Karlen, *supra* note 1, at 57.

<sup>68</sup> See *id.* at 56–57. Nevertheless, to the degree that appeals are considered first for importance and, if they are not so found, are dealt with summarily, the situation in the civil-law countries may blur into that where higher courts screen requests for appeals proceedings and then exercise their discretionary powers whether to hear the appeals.

<sup>69</sup> See generally *id.* at 10 & 26–27 for a description of monetary limits and appeal. Use of monetary limits is most frequent in the civil-law countries (including France, Germany, and Italy), is found also in England and Australia, is unusual in the United States (although, in effect, a partial monetary limitation exists here because judgments of small claims courts are not appealable), and has been nonexistent in the formerly socialist countries.

<sup>70</sup> The standard is said to involve unreasonableness for jury trials and clearly erroneous findings for trials with judges sitting without juries. On the meaning of these standards and, more generally, on rules versus factual matters and the scope of appeal, see, for example, Fleming James, Jr., Geoffrey C. Hazard, Jr., & John Leubsdorf, *Civil Procedure* 668–74 (4th ed. 1992).

By contrast to a claim that a rule was violated or misapplied, a claim that the found facts are themselves incorrect would often be difficult for an appeals court to corroborate, even though a litigant might know that the found facts were in error. Suppose, for instance, that a witness states that the defendant committed a negligent act and that this is accepted by the trial court, whereas the defendant knows that the testimony of a witness is false. How could an appeals court confirm a claim by the defendant that the testimony is false? There is no ready way for an appeals court to do so, no rule book that it can consult to see whether a witness lied. For an appeals court to assess the validity of the witness's testimony, the appeals court would often have to engage in costly reexamination of the trial court record and perhaps hear live testimony; moreover, such an undertaking might not be thought to yield a substantially more accurate evaluation of the witness's veracity (an appeals court may not have a comparative advantage in the fact-finding process). In consequence, the exclusion of claims of errors of fact from the scope of appeal may make rough sense from the point of view of our theory.<sup>71</sup>

Nevertheless, one should admit that despite the drawbacks to appeals court consideration of errors in found facts, it is still possible that this effort would be desirable on net. And, indeed, one observes that in the civil-law and the formerly socialist countries, there has apparently been much greater willingness than here of appeals courts to ascertain whether factual errors were made (including by the appeals courts taking evidence afresh).<sup>72</sup>

Apart from our legal system's use of the distinction about rules and facts, there are several other important ways in which it separates appealable issues from those that are not. One is that a claimed error should make a difference to the judicial outcome; an essentially harmless error of the trial court is not appealable.<sup>73</sup> This makes obvious sense from the vantage point of our theory, for an error that does not make a difference

<sup>71</sup> I should note that it is not inconsistent with the point of this paragraph that an appeal can be made on the ground that the found facts were unreasonable in light of the evidence. Unreasonableness is, by definition, something that can be determined by a higher court. Similarly, it is not inconsistent with the point of the paragraph that an appeal can sometimes be made on the ground that new evidence should be heard. Evaluation by an appeals court of this type of error does not require the appeals court to assess fully the evidence; it only requires the appeals court to determine whether, in effect, statistical rules about the amount of evidence necessary to assure a desired degree of confidence in a conclusion have been violated.

<sup>72</sup> See Herzog & Karlen, *supra* note 1, at 26–33. It should also be mentioned that factual errors may sometimes be considered during the appeals process in administrative agencies in the United States.

<sup>73</sup> See, for example, James, Hazard, & Leubsdorf, *supra* note 70, at 668.

to the outcome involves essentially no social harm.<sup>74</sup> Another restriction is that an issue should ordinarily have been raised at trial for it to be appealed (unless this was impossible, because the issue pertained to the decision).<sup>75</sup> The economic virtue of this policy is evidently that it induces parties to bring problematic issues to the attention of the trial court, which is the stage at which they can be most cheaply corrected. An additional restriction is that a litigant cannot have invited a trial court error and then appeal it.<sup>76</sup> This policy is apparently motivated by fear of the adverse incentives that would otherwise be engendered: parties would expend effort on litigation effort for the purpose of confusing trial courts in the hope that they would err, and trial courts would waste some of their time avoiding mistakes on issues that they need not entertain.

Furthermore, appeals generally cannot be made as of right until final judgment has been rendered.<sup>77</sup> The principal merit of disallowing appeal during the course of trial, so-called interlocutory appeal, is preventing wasteful use of the appeals process. If the party who suffers from the claimed mistake turns out to prevail in the final judgment, the error will have been harmless and would not have resulted in appeal; thus, making parties wait for the final judgment before allowing them to bring appeals conserves on the need to use the appeals process. Another benefit of disallowing interlocutory appeal is that it obviates the inefficiencies of piecemeal consideration of multiple claims of error; if appeals can be made only after the final judgment, all claims of error are heard together. The primary advantage of allowing interlocutory appeals appears to be that it may allow avoidance of the expense of fruitlessly completing the trial process or of pursuing the wrong path at trial. To achieve such savings, however, would usually necessitate halting the trial process until the result of the interlocutory appeal is announced. This is likely to entail significant expenses in itself, attenuating the advantage of allowing appeal during trial. In all, then, there seems to be economic rationality in the policy of restricting interlocutory appeal by giving courts discretion over it.<sup>78</sup>

<sup>74</sup> Except for reducing faith in the legal system.

<sup>75</sup> See James, Hazard, & Leubsdorf, *supra* note 70, at 666–67.

<sup>76</sup> See *id.* at 668.

<sup>77</sup> See *id.* at 647–54; and see Herzog & Karlen, *supra* note 1, at 27–28.

<sup>78</sup> Comporting with the view of this paragraph are the circumstances under which interlocutory appeals are allowed. For example, interlocutory appeals may be permitted when a new trial is ordered; here, the cost of completion of the trial process is great—it is an entire trial proceeding—so the advantage of interlocutory appeal is significant. For a description of interlocutory appeal in the United States, see James, Hazard, & Leubsdorf, *supra* note 70, at 674–78. Most discussions of the advantages and disadvantages of interlocutory appeal parallel those of this paragraph; see, for instance, Herzog & Karlen, *supra* note 1, at 27–28; and Posner, *supra* note 6, at 585–87.

*Fees and Subsidies for Appeal, Private Costs, and Separation of Disappointed Litigants.* In the analysis of the model, it was sometimes socially advantageous for fees for appeal to be imposed by the state, so as to discourage appeals by those who did not believe errors were likely to have been made, and it was also possible for subsidies to be socially desirable, to encourage appeals by those who believed errors were likely to have been made.

In fact, the use of fees does not seem to be motivated by a desire to separate disappointed litigants into those who believed errors were made and those who did not, although this goal is occasionally expressed. Where fees for appeal are employed, their magnitude tends to be low and is probably not a significant factor for most persons contemplating appeal.<sup>79</sup> One surmises, therefore, that more frequent and substantial imposition of fees would be appropriate in order to accomplish better separation of disappointed litigants. Higher fees might be desirable, for example, where the rate of appeal is over 50 percent, or where the private cost of appeal is small and there is evidence of lack of separation of disappointed litigants.<sup>80</sup> The need to discourage excessive appeals is, however, sometimes noted by commentators<sup>81</sup> and is also of a piece with the use in certain jurisdictions of penalties for abuse of the appeals process.<sup>82</sup>

<sup>79</sup> In the United States, the appellant generally pays a modest filing fee and may bear other small miscellaneous expenses. In the federal courts, the fee for docketing a case is \$100; see 28 U.S.C.A. § 1913. Illustrative fees for filing in the states are these: \$250 in Florida, see West's Florida Statutes Annotated, § 35.22; \$100 in Louisiana, see West's Louisiana Statutes Annotated, Louisiana Revised Statutes, 13:352; \$200 in Michigan, see Michigan Compiled Laws Annotated, § 600.321; and \$75 in New Jersey, see New Jersey Statutes Annotated, 22A:2-27. Also, Herzog & Karlen, *supra* note 1, contains virtually no mention of fees, suggesting that they are unimportant in other countries' legal systems.

<sup>80</sup> A notable illustration is the appeal of federal criminal convictions, the rate of which appears to be in the neighborhood of 100 percent. For example, 6,991 defendants were convicted in 1990 in Federal District Court, excluding guilty pleas, and 9,493 criminal appeals were filed in the Court of Appeals (the excess of appeals over cases terminated one presumes is due primarily to appeals of guilty pleas); see Administrative Office of the United States Courts, *Federal Offenders in the United States Courts* 8 (1986-90), and *Federal Judicial Workload Statistics* 20 (1990). The rate of reversal of criminal appeals was only 8.4 percent in 1990; see *id.* at 23. This suggests that some fee be imposed to winnow out inappropriate appeals, a policy that may be feasible even for nearly indigent prisoners. For example, some district court judges have imposed small fees for initially bringing certain cases, the fees to be paid out of prisoners' commissary allowances; personal communication from Judge Richard A. Posner. Such fees could also be imposed for bringing appeals.

<sup>81</sup> Many writings in recent years view the increased caseload of appeals courts as problematic. See, for example, Carrington, Meador, & Rosenberg, *supra* note 6, at 4-7 & 225; Leflar, *supra* note 6, at 7-10; and Richard A. Posner, *The Federal Courts* (1985), chs. 3-5.

<sup>82</sup> Federal Rule of Appellate Procedure 38 provides that an appellate court may impose sanctions for appeals deemed frivolous; see Robert J. Martineau & Patricia A. Davidson, *Frivolous Appeals in the Federal Courts: The Ways of the Circuits*, 34 *Am. U. L. Rev.* 603, 604 (1985). Also, in certain civil-law countries, parties are threatened with money

Subsidies for appeal, at least for indigent litigants, are more significant than state-imposed fees. Most countries provide legal assistance to poor litigants who wish to bring appeals, on the basis of constitutional or statutory guarantees of equal access to justice.<sup>83</sup> In the United States, such legal assistance for criminal appeals is also guaranteed;<sup>84</sup> for civil appeals, legal assistance is often provided to the poor, though that is not ensured.<sup>85</sup> It is not apparent that those who urge subsidies for appeal are much concerned about going too far and encouraging inappropriate appeals.

*Levels of Appeal.* In formal legal systems, the number of levels of appeal is usually two.<sup>86</sup> An explanation for the rationality of the limitation to two appeals is the unlikelihood that, after appeals courts have twice focused attention on a particular issue in dispute, another appeals court would correct an error not yet seen. Indeed, one might surmise that after one appeals court has addressed an issue in dispute, the likelihood that a second appeals court would then detect an error is sufficiently small that,

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penalties for abuse of the appeals process at the second level of appeal; see Herzog & Karlen, *supra* note 1, at 57.

<sup>83</sup> See Herzog & Karlen, *supra* note 1, at 13–14.

<sup>84</sup> Under *Douglas v. California*, 372 U.S. 353 (1963), states are required to provide counsel for indigent criminal appeals; see generally, David T. Wasserman, *A Sword for the Convicted: Representing Indigent Defendants on Appeal* (1990), on appeal by indigent criminal defendants.

<sup>85</sup> Although I am aware of no general right to financial assistance for the bringing of civil appeals, the existence of legal aid organizations (which are sometimes publicly funded), legal services provided pro bono, and contingency-fee arrangements work to ameliorate the financial burden for many poor litigants.

<sup>86</sup> In the U.S. federal system, there are two levels of appeal, and in all but 11 states, the District of Columbia, and Puerto Rico, the same is true; in the other states, there is only a single level of appeal to the state supreme court. See Brian Ostrom *et al.*, National Center for State Courts, *State Court Statistics: Annual Report 1992*, at 166–67 (1994). In England, there are two levels of appeal, to the appeals courts and then to the House of Lords. (It is possible, however, for some issues to be appealed from the House of Lords to the European Court of Justice, but this is exceptional.) See Wilson & Christiansen, *supra* note 66. In the civil-law countries, there are two levels of appeal, the appeals courts and the supreme courts (courts of cassation). In the socialist countries, as was noted, although there are supreme courts standing above the appeals courts, private litigants cannot bring cases to the supreme courts.

The number of levels of appeal may be different from two outside of formal legal systems. Notably, in administrative agencies, there may be more than two levels of appeal; moreover, appeals to the formal courts may often be made after appeals within the administrative agency are exhausted, so that the effective number of levels of appeal may be large. In the Social Security Administration, for example, there are three internal levels of appeal, and then appeal may be made to federal district court and beyond this to the Supreme Court, adding to five possible levels of appeal; see note 61 *supra* and the references cited therein. In religious organizations, the number of levels of appeal may also exceed two. For example, in the Catholic Church, it may happen that there are more than two levels of appeal; see Coriden, Green, & Heintschel, *supra* note 2, at 959.

in view of the cost of an appeals proceeding, a second-level appeal is not desirable (recall Section IIC). This intuition, however, does not reflect the social importance of lawmaking; if a decision will have an influence on the law and thus on future behavior, even a small likelihood of correction of error at the first level of appeal may justify a second level of appeal. Moreover, a second level of appeal may also make social sense because the lawmaking function may call for special judicial skills and, thus, for an appeals court distinguished in its capability and its function.<sup>87</sup>

*Quality of Judiciary.* The quality of the judiciary at the trial court level is often acknowledged to be lower than that at the appeals level. This fact is in approximate agreement with the analysis here, which, recall, did not take the quality of the trial courts and of the appeals courts as givens but rather attempted to explain them. In this regard, our conclusion was that because the existence of the appeals courts provides a form of insurance against error, trial court accuracy is, optimally, lower than it would otherwise be. Further, as just mentioned in the last paragraph, the lawmaking function may call for superior judicial skills, supplying a reason for the appeals courts judiciary to be of higher quality than the trial court judiciary.

*Lack of Appeal in Arbitration.* An important, if not *the* important, exception to the use of the appeals process in adjudication concerns binding arbitration agreements. Because such agreements stipulate that the arbitrator's decision is final, they constitute decisions of parties not to use an appeals process. After all, the parties could have elected nonbinding arbitration—in effect, using the trial courts as an appeals process—or they could have provided for appeal to another arbitrator (something which is not unknown).<sup>88</sup>

How can one explain the use of binding arbitration in light of the theory of error correction and appeal? Several answers suggest themselves. First, because parties select their arbitrators,<sup>89</sup> they are able to reduce the chance

<sup>87</sup> Another reason frequently given for there being a second level of appeal is to resolve conflicts that arise among appeals courts at the first level. As will be noted below in Section VI, however, this goal of harmonization of the law is problematic, and it does not seem clear to me that it should be employed to justify the second level of appeals.

<sup>88</sup> Trade associations frequently establish an appeals process as part of their system of dispute resolution. See, for example, the trade associations mentioned in note 2 *supra*; and see also Soia Mentschikoff, *Commercial Arbitration*, 61 *Colum. L. Rev.* 846, 857 (1961).

<sup>89</sup> A slight point of qualification is that parties may not select their particular arbitrators even though they select an arbitration organization or procedure. Under American Arbitration Association rules, for example, parties are presented with a list of arbitrators and cross off those that they do not favor. See George Goldberg, *A Lawyer's Guide to Commercial Arbitration* 36 (2d ed. 1983).

of error and, accordingly, their need for the appeals process.<sup>90</sup> The parties can reduce the chance of error by choosing an arbitrator who is knowledgeable about the issue in dispute and who is known for the soundness of his past decisions. By contrast, parties who come before the courts do not select their judges. Second, and also because parties select their arbitrators, arbitrators have an economic interest in not making errors and in maintaining their reputation. Judges do not have a similar interest. Third, parties and their arbitrators generally are not concerned with lawmaking (notably, because they cannot capture its value),<sup>91</sup> so we have another reason for parties not to establish an appeals process in many arbitral settings.<sup>92</sup>

*Theory of Error Correction as a Guide for Policy Regarding Appeal.* To this point, we have been concerned chiefly with the descriptive interpretation of the analysis of appeals and error correction, but it should be emphasized that the analysis is also of potential utility as a guide for policy. The desirability of evaluating appeal in systems of adjudication in a way that self-consciously reflects the value and the cost of appeal in reducing error would seem amply warranted by society's investment in the appeals process (see note 3 *supra*). This would require serious statistical study of the degree to which the process corrects error. As has been indicated occasionally above, a conjecture is that such study, combined with the other factors, would frequently point toward the desirability of expanded use of fees to cull appropriate cases for appeal, or to the desirability of fee shifting or penalties for losing on appeal, together with reduction of subsidies for appeal. (Of course, it is also possible that greater use of subsidies would be merited in some domains.) Gross changes in adjudicative systems may be worth contemplating in certain venues.<sup>93</sup>

<sup>90</sup> This point needs amplification because, as indicated in the analysis (see text at note 15 *supra* & Section III), other things being equal, the condition for optimality of the appeals process (eq. [7]) is independent of the likelihood of error at trial; it depends only on the ability of the appeals court to correct error and the cost of so doing. However, it is plausible that arbitrators who are relatively accurate in the initial proceeding are also ones for whom errors committed would be hard to detect; this would make the appeals process less attractive.

<sup>91</sup> This point is emphasized by William M. Landes & Richard A. Posner, *Adjudication as a Private Good*, 8 J. Legal Stud. 235, 248, 249, & 252 (1979), in brief but incisive remarks on the absence of appeal in arbitration.

<sup>92</sup> Consistent with this observation is that where arbitration does include an appeals mechanism, in the trade association context, arbitrators apparently are sometimes concerned with lawmaking. See Mentschikoff, *supra* note 88, at 857. Additionally, Christopher J. Bruce, *The Adjudication of Labor Disputes as a Private Good*, 8 Int'l Rev. & Econ. 3, 10 (1988), suggests in his analysis of labor market arbitration that the appeals process may not be necessary to achieve consistency of decisions and lawmaking.

<sup>93</sup> For instance, one is naturally skeptical that the Social Security Administration's three internal levels of appeal and two levels of appeal in the federal courts (see note 87 *supra*) are justifiable on the basis of error correction. One wonders as well about the basic ability

## VI. CONCLUDING COMMENTS: FUNCTIONS OF THE APPEALS PROCESS APART FROM ERROR CORRECTION

Having focused on error correction as a purpose of the appeals process, let me close with observations on its other possible functions. I have already discussed lawmaking as a purpose of appeal, noting the importance of lawmaking in fact but inquiring about the intrinsic need for the appeals process (rather than independent action of higher courts) to serve the lawmaking goal.

A closely related function that the appeals process is often said to satisfy is harmonization of the law, namely, resolution of conflicts in the interpretation of the law among trial courts.<sup>94</sup> Yet it is not clear why harmonization per se should be taken as a goal. On the one hand, it may be socially desirable for the law to vary among trial court jurisdictions because of differences in their circumstances. On the other hand, it may be desirable for the law to be the same in different jurisdictions, not because of a preference for harmonization in itself, but rather because of underlying, consequentialist advantages. Suppose that if product safety requirements are identical across jurisdictions, costs of manufacture will be reduced because economies of mass production can be enjoyed. Then uniform safety requirements may well be the result if the law is correctly formulated, so as to maximize a consequentialist formulation of social welfare; there is no need to invoke the specific goal of harmonization to reach this result. More generally, where harmonization serves instrumental ends, harmonization will naturally come about through correct legal decision making that reflects these ends. In this sense, the goal of error correction implicitly includes the goal of harmonization when—but only when—it is appropriate. Moreover, even if harmonization were taken to be an independent goal, it would not seem to create a need for the appeals process. Conflicts among the courts are by their nature self-evident and do not need to be called to the attention of a higher court by litigants. A higher court could therefore resolve lower court conflicts on its own initiative.

Another purpose of the appeals process apart from error correction is error prevention: inducing trial court judges to make fewer errors because

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of individuals to detect error at the first level of SSA appeal (reconsideration), because they are typically not represented by lawyers at that stage; see Koch & Koplou, *supra* note 2, at 222. Given the vast caseload of the SSA, the value of even modest improvements in its system of decision making would be high.

<sup>94</sup> Commentators typically mention harmonization as an important function of the appeals process and tend not to differentiate it clearly from lawmaking. See, for example, Leflar, *supra* note 6, at 4 & 5; and Herzog & Karlen, *supra* note 1, at 5. However, lawmaking can occur without harmonization: an appeals court can interpret the law, but provide for it to apply differently in different trial court jurisdictions. Conversely, lawmaking can obviously occur even where there are no conflicts among trial courts.

of their fear of reversal.<sup>95</sup> This, as the reader may recall, was considered in the extensions to the model. There error prevention came about because judges devoted greater effort to their decisions, but, more generally, it may also occur because judges are less likely to follow their predictions or to exercise favoritism. One should also remember that the appeals process fosters error prevention only if it channels errors to the higher courts; otherwise random selection of cases by a higher court would do as well to discipline trial court mistake. Additionally, it should be observed that, to a degree that is probably substantial, error prevention comes about without formal appeal, namely, during trial, when litigants raise objections to what they see as mistakes; this is a system of appeal in the small.

An additional purpose of the appeals system is said to be to lend legitimacy to the legal process.<sup>96</sup> The notion is that when a disappointed litigant knows he can ask a different and ostensibly neutral court to reconsider his case, the litigant will have more reason to believe that his case has received adequate consideration; that may well instill respect for, and engender accession to, the judgments of the adjudicative system. It seems plain, however, that any need for legitimating the legal process must be rooted in the possibility that the process might result in error; otherwise, by definition, the legal process would be regarded as legitimate. Hence, the goal of legitimating the legal system should not be taken as a ground for the appeals process distinct from error correction. Moreover, it should be borne in mind that the choice parties frequently make for binding arbitration indicates that they can feel quite comfortable with a process entailing but a single stage of adjudication.

A final conceivable purpose of the appeals system is to enhance the power of the central state authority. If the central authority controls the appeals system, it will have substantial control over the legal system and be in a position to dispense favors to litigants.<sup>97</sup> (To be sure, this is not necessarily a social justification for appeals courts, but it is a purpose that they can fulfill.)

Whatever is a reader's opinion about the relative importance of these various purposes of the appeals process, all readers should, by definition, care about error correction, and my hope is that the analysis here will have illuminated the ways in which the appeals process may, or can be designed to, foster that goal.

<sup>95</sup> See, for example, Pound, *supra* note 6, at 3; and Dalton, *supra* note 6, at 86–93.

<sup>96</sup> See, for example, Herzog & Karlen, *supra* note 1, at 4 & 5; and Martin Shapiro, *Appeal*, 14 *Law & Soc'y Rev.* 629, 636 (1980).

<sup>97</sup> This and related roles of appeal are emphasized by Shapiro, *supra* note 96, esp. at 634–38; see also Herzog & Karlen, *supra* note 1, at 5.