Recent Trends in Science Fiction: Serrano among the People of Number

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Commenting upon the roles played by social science in the school finance cases involves complex questions of epistemology compounded by the abundance of potentially relevant decisions and literature; and thinking about thinking is the hardest thinking I know. But a beginning is possible if examination is limited to a representative few of the recent attacks upon the larger fiscal structures of education, in particular the inter-district challenges such as *Serrano v. Priest*¹ and the *Rodriguez*² affair. The focus will be relatively narrow and traditional. Basically this paper will examine what social science has done for and can do for the courts in school finance litigation. First, a general word about the relation of social science to the values that move judges.

* The Sources of Juridical Values

The intellectual operations that mark the judge are distinct from those special to the social scientist (herein often simply "scientist" and his profession "science"). Social science, broadly defined, is the systematic quest for patterns and regularities in human behavior. It is important to emphasize "systematic" in order to distinguish the scientist from the ordinary human observer; the search for patterns and regularities is characteristic not of scientists but of humankind. Further, the distinction between systematic and ordinary inquiry does not lie in the degree of complexity. There is, for example, no process of social discovery more sophisticated than learning one's native language. To apply the epistemology of Tom Lehrer, the task is so simple that only a child can do it. Still, no one has ever qualified as a social

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1 Serrano v. Priest, 5 Cal.3d 584, 487 P.2d 1241 (1971).

scientist merely by learning English; there are other kinds of social patterns
the discovery of which requires methods most people do not know and the
precise description of which often requires another, generally unspeakable,
language—mathematics.

Now the scientist (like most people) looks for patterns that have social
relevance. He does not ordinarily count for the sake of counting, but operates
from hypotheses that make counting a potentially significant act. What is
important to note, however, is that—at least in matters normative—it is not
his science that tells him what is relevant. One may speak loosely of the
normative power of the actual, but ordinarily this is to be understood only
negatively—as the capacity of data to predict impending conflicts among
values and thereby to disclose empirical limits to the moral aspirations of
society. The aspirations themselves are grounded in non-empirical sources.

For example, empirical observation of American society in 1850 would have
been impotent either to justify or condemn the institution of slavery; it might,
however, have provided a useful prediction of the costs and benefits of any
effort by the Supreme Court to effect its elimination. Social science cannot
provide values but, like other bases for prediction, it can suggest the value
trade-offs entailed in the court’s adoption of this or that decisional norm. This
capacity of science to anticipate the consequences of policy change supports
the prudential or reflexive element in adjudication; it assists the judge's
practical reason. Rodriguez, which we will shortly examine could be read
with this role of science in mind.

The ascription of normative relevance to phenomena is, however, a distinc-
tive feature of judicial activity. Legal principles are only one form of the
normative—and, in the larger human picture, a secondary one—but they
have their importance. In the discharge of their special function, courts,
unlike scientists, declare principles for human action and restraint.

The degree to which the court is free to declare new principle depends upon
many factors. Obviously a tightly drawn cranny in the tax code offers fewer
options than the broad poetry of the Fourteenth Amendment. Yet, where the
issue before a court is not simply factual, the judge commonly has normative
discretion, because the economics of litigation assure that conflicts reaching
him are seldom cut and dried. The court, therefore, can—indeed must—
create principle in whatever interstices remain.

And “create” is the proper word for this function. Indeed, the utterance of
juridical norms resembles in an institutional form the activity of autonomous
mind in Kantian epistemology. How close a resemblance remains a philo-
sophical question. But certainly judges are no more independent of their
experience than they are independent of statute or constitution. They must
choose from among the possibilities represented in what they are and know
and believe, including patterns and regularities disclosed to them by social
science. Without experience—without phenomena delivered to the judicial
mind—there is no substance for the work of adjudication. And science is one
provider of phenomena. Yet the distinctive act of adjudication is not to
perceive behavior but to judge it. The judge acts from experience, but the
experience and the act of judgment are not linked by necessity. In a determin-
istic jurisprudence there may be people called judges, but the label is meaningless.

The judicial history of both school finance and racial discrimination strongly confirms the relative independence of courts from science in the selection of the values to be given expression in the law. Without overlooking the ambiguous role accorded social science in the original decision to outlaw segregation, nor ignoring the references in the finance cases to various scientific revelations; it is clear that the courts would never have reached the stage of citing Kenneth Clark or Christopher Jencks, unless they had already made a lusty normative leap unaided by anything more than their non-empirical values. These specimens of research were relevant only because judges had already accepted some notion of human equality as a value to be incorporated in the process of judicial rule selection. In some sense wholly undefined, equality had already become a part of the active normative equipment even of the majority in Rodriguez who voted against the challengers. The majority's rationale manifestly assumes an equality of human desert; the system is to be justified as a system worthy of equals. This dynamic of postulated equality goes much farther than anything required by the structure of either the fourteenth amendment or analogous state formulas (themselves all non-empirical in origin). Indeed, history discloses how narrowly the equal protection guarantee could be construed by a judiciary unconvinced of the moral claims of human equality.

What has science contributed to the ideology of equality as it has penetrated the judiciary? Scientists in their personal roles as social advocates may have exercised great influence, but science as such has been meager on the side of equality. The primary message of the empiricists is that, whatever criterion is employed, people are strikingly diverse in their talents. Even confining our attention to the literature on variations by race, income, or sex, the picture is little different. Of course much depends on how the relevant talent is defined, on what is read, and on what is believed. The evidence is unconclusive as to whether there are significant differences by race, income, or sex. But, neither does it matter or, more accurately, the courts commitments to what they perceive as the principle of equality have nothing to do with empirical findings concerning the distribution of natural talents. Equality is not an inference from data; it is an act of faith about intrinsic human worth.

Equality will continue to elude the scientists. However, it need not elude the judges because they remain free, with Jefferson, to hold truths that are "self-evident" and to act upon them. Law remains free, because its informing principle is an ideal; it is science that is indentured to tomorrow's evidence. Now, this is a bondage to be much admired and maintained at all cost; some institution must remain committed to truth as the ultimate object. But as Edmund Cahn observed, we should not make our constitutional liberties a function of anybody's science.4

Although science cannot disclose to the court its proper object, it may yet be of great importance to the process of adjudication. There are two typical roles for science that were relevant or potentially relevant in the finance cases and may yield some loose generalizations: First, science supplies impact predictions, thereby helping courts to fashion rules for decision that will optimize the values they perceive to be at stake; second, once the decisional rule is selected, science may help prove or disprove alleged violations of that rule. In short, science predicts and science proves. Of course, other kinds of evidence that are not science serve these same functions; science should be distinguished from these not by the manner of its judicial use but by its systematic methodologies.

**The Predictive or Prudential Role of Science**

The employment of science to predict the consequences of a proposed legal rule is a conventional judicial practice. The court commonly subjects the conflicting rules proffered by the parties to assessment of a prudential sort: can such a rule be enforced; what portion of finite judicial energies will it require; will it receive public support; what is the economic cost; what other public values must be sacrificed? Not all such considerations appear in the opinions, but in fact, like the rest of us, judges often choose to avoid vain or costly conduct even at the sacrifice of a principle that—other things being equal—would be preferred. Other things are seldom equal, and the court changes the status quo only when it is reasonably confident that settled values—federalism, legislative discretion, enforceability—will not be unduly jeopardized.

Viewed sequentially the process of rule selection begins with the identification of all the values potentially affected by the proposed rule. The court next invokes whatever sources of prediction are available. It inquires of social science, logic, the sages, and perhaps the muses, what the fate of these values would be under such a rule. Lon Fuller once had one of his make-believe judges include in his written opinion private information gleaned by the judge's niece from the secretary of a public official concerning a probable practical effect of the proposed decision. Fuller implied that this was going a bit far, but whether the judge's sin was more in the relying or in the telling was left an open question. But it is naive to expect that the judicial search for predictive data will be anything but broad where basis values are feared by the judges to be in conflict.

Many of the reflexive or prudential questions encountered by the court in moving toward the selection of a rule for decision are of a sort to which science is relevant; indeed, the examples are potentially infinite. A showing that the elimination of capital punishment is significantly correlated with homicide rates would be prudentially relevant to the settlement of the cruel and unusual punishment question. A demonstration that Chinese children learn

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6 See Furman v. Georgia, 408 U.S. 238 (1972). Note the contrasting uses of social science, "experience," and "common sense" in the concurring opinions of Mr. Justice Marshall, 408 U.S.
English best in the standard curriculum could have been germane in the bilingual education cases.\(^7\)

The inter-district school finance opinions showed varying degrees of interest in on such question—the relation of the cost of an education to its quality. At the threshold there was a definitional question. Quality here could have meant either educational *inputs*—measured by dollars and what they buy or *outputs* that can be measured only by discovering how the child has been changed by school. The issue was argued in both forms in several of the cases. In *Rodriguez*, however, the output criterion was given special emphasis by the Supreme Court and has since commanded primary scientific and journalistic attention. The Court in *Rodriguez* worried explicitly about the lack of any scientific demonstration that reform would be worth the trouble. The children may be formally cheated by the system but, asked the Court, are they significantly worse off in fact? What impact would be wrought by judicial intervention beyond the raising of teachers' salaries?

It is interesting to compare the appellate decisions in *Serrano*, *Robinson*,\(^8\) and *Rodriguez* on this issue. *Serrano* gave it little attention, suggesting its possible relevance in a footnote but giving the trial court no clear direction.\(^9\) Subsequently the trial court took extensive input and output evidence, finding for plaintiffs on both questions but holding that the effect of wealth discrimination upon input was itself sufficient injury to constitute the violation.\(^10\) The California Supreme Court seems likely to affirm this holding. In *Robinson v. Cahill*, the New Jersey Supreme Court affirmed the trial court's findings that money and quality were positively related to both inputs and outputs, but did so in a fashion suggesting that scientific testimony may have been unnecessary; it was enough, perhaps, that the legislature had plainly believed money important to both inputs and outputs. Here is the whole of that court's attention to the issue:\(^11\)

There was testimony with respect to the correlation between dollar input per pupil and the end product of the educational process. Obviously equality of dollar input will not assure equality in educational results. There are individual and group disadvantages which play a part. Local conditions, too, are telling, for example, insofar as they attract or repel teachers who are free to choose one community rather than another. But it is nonetheless clear that there is a significant connection between the sums expended and the quality of the educational opportunity. And of course the Legislature has acted upon that premise in providing State aid on formulas designed to ameliorate in part the dollar disparities gener-


\(^9\) 5 Cal.3d at 601, 487 P.2d at 1253 (f.n. 16).


\(^11\) 62 N.J. at 481, 303 A.2d at 277.
ated by a system of local taxation. Hence we accept the proposition that the quality of educational opportunity does depend in substantial measure upon the number of dollars invested, notwithstanding that the impact upon students may be unequal because of other factors, natural or environmental.

Unlike Robinson, however, Rodriguez had come to the federal Supreme Court after a trial in which the cost/quality issue had been virtually ignored. Mr. Justice Powell, nonetheless, inquired outside the record for the state of professional opinion. This search proved significant in Powell’s eyes, not because he found that science had successfully measured the effect of money, but precisely because there was no settled view. Citing Christopher Jencks and others\(^\text{12}\) he noted:\(^\text{13}\)

\[\ldots\text{On even the most basic questions in this area the scholars and educational experts are divided. Indeed, one of the major sources of controversy concerns the extent to which there is a demonstrable correlation between educational expenditures and the quality of education—an assumed correlation underlying virtually every legal conclusion drawn by the District Court in this case.}\]

Later he added more detailed observations about the state of the art, including the following:\(^\text{14}\)

\[\ldots\text{there appear to be few empirical data that support the advantage of any particular pupil-teacher ratio or that document the existence of a dependable correlation between the level of public school teachers' salaries and the quality of their classroom instruction.}\]

This view of its own role and that of science was an interesting departure for the Court. In previous issues of personal rights it had generally avoided the assessment of consequential injury as a criterion of relief. The right was defined as opportunity, and the denial of the opportunity was in itself the injury. "Output" was not the question. Thus, where a convict sought a free transcript or the appointment of appellate counsel to assist his appeal, the likelihood that these aids would effect a reversal of his conviction was left unconsidered.\(^\text{15}\) And, when the Court struck down residential criteria for welfare as a burden on the right to travel, it did so without the slightest empirical evidence of the reality of that burden; indeed, it did so at the request of plaintiffs who had already traveled to the defendant state in spite of the waiting period.\(^\text{16}\)

In this respect Brown and Rodriguez provide a curious comparison. Each made a casual and untechnical use of science—the one to support, the other to reject, the injury to the school child. How would Edmond Cahn have reacted to Rodriguez? His celebrated comment upon the unintended risks of using

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\(^{12}\) C. Jencks, INEQUALITY (1972). And see others cited, 411 U.S. at 43 (f.n. 86).

\(^{13}\) 411 U.S. at 43 (f.n. 86).

\(^{14}\) 411 U.S. at 47 (f.n. 101).

\(^{15}\) Griffin v. Illinois, 351 U.S. 12 (1956) (transcript); Douglas v. California, 372 U.S. 353 (1963) (counsel on appeal). In Douglas the right to counsel was recognized even though the state had established a procedure for distinguishing between cases where counsel would and would not be helpful to appellant.

social science has an uncommonly current ring on the issue of injury to the child.\textsuperscript{17}

There is another potential danger here. It concerns the guarantee of "equal protection of the laws." Heretofore, no government official has contended that he could deny equal protection with impunity unless the complaining parties offered competent proof that they would sustain or had sustained some permanent (psychological or other kind of) damage. The right to equal protection has not been subjected to any such proviso. Under my reading of the \textit{Brown} and \textit{Bolling} opinions, this would remain the law. But if, in future "equal protection" cases, the Court were to hold that it was the expert testimony that determined the outcome of \textit{Brown} and \textit{Bolling}, the scope of the constitutional safeguard might be seriously restricted. Without cataloguing the various possibilities, one can discern at least that some of them would be ominous. It is not too soon to say so, for basic rights need early alarms.

Nothing need be added to Cahn's warning beyond describing what Mr. Justice Powell did in \textit{Rodriguez}. A generation after \textit{Brown} the Court came full circle, now to belittle the interest of the child in acquiring a fuller share of education. As justification for its scepticism about injury the Court cited the work of social scientists, none of whom had testified and some of whose work (specifically Sencs') was so recent as to prevent cross examination even of the sort provided by professional peers and reviewers in scholarly journals. These works had necessarily been based upon the crudest data; and in their conclusions they flatly disagreed with one another as to whether an increase in educational inputs would much improve outputs.

This was a literature which the Court could barely have read, much less mastered. It was a literature prepared for a different purpose whose conflicting findings had to be wrenched into relevance. These were given full dignity in the teeth of the factual assumption adopted by the legislature itself and even by the wealthy districts who supported the state's appeal. The Court simply ignored this "common sense" kind of evidence and concluded the matter with a final order making no provision even for trial of the question, further emphasizing that the discussion is dictum. A more insouciant resolution of such a complex issue is difficult to imagine.

In citing this indeterminate science does the Court adumbrate some principle concerning proof of consequential injury—and, of so, what principle? What quantum of proof would satisfy such a burden if it were to be cast upon the children? And of what would that proof consist—more treatises on the plaintiffs' side? And proof as to what kind of output—reading scores, income, joy, patriotism?

The majority's handling of the cost/quality issue in \textit{Rodriguez}, however, is not likely to become typical. Consider if you will the same Court's disposition of the parallel problem the following term in \textit{Lau v. Nichols}. Here the issue was perceived to be whether non-English speaking Chinese pupils, by being treated like everyone else in the school system, were suffering discrimination within the meaning of Title VII of the Civil Rights Act of 1964. There is no

\textsuperscript{17} E. Cahn, \textit{supra} note 4, at 168.
settled theory about the need for bi-lingual instruction nor even about its
definition; but there is a spirited professional debate. Some experts advocate
excusing the child for a period or two a day for special and separate instruc-
tion in English. Others would teach him primarily in his first language.
There are many other views including one holding that special arrangements
for these pupils do as much harm as good. None of these views had been
presented by either plaintiffs or defendants in *Lau*, nor did the Court itself
inquire into the state of professional knowledge about the potential or actual
injury at stake. This was unnecessary, for, as the Court put it:18

We know that those who do not understand English are certain to find their
classroom experiences wholly incomprehensible and in no way meaningful.

That “we know” the effects of thrusting such children into the normal
curriculum is more than a little surprising. Before committing itself to such a
position it might have been worth the Court’s hearing from learning theorists
and educational historians how the immigrant children who populated our
public schools in 1920 learned their English. Certainly any justice who had
joined the majority in *Rodriguez* would have been expected to inquire con-
cerning the state of scientific knowledge. Perhaps a personal note will be
pardoned. At the time *Lau* was decided my four children who spoke only
English were enrolled in the local schools of a foreign country, and until the
Court’s opinion, they were considered blessed for the experience. Of course,
theirs was a distinguishable situation, and the Court was not necessarily
wrong in *Lau*.19 Maybe the Court was better off for its apparent ignorance of
the professional conflict and its intuitive perception of the truth; a little
knowledge can be an effective thing.

Is there a principle by which to determine the proper uses of social science
in predicting the consequences of judicial rule-making? When should the
court “know” the effects of a specific policy, and when should it defer to
science? How strong and clear must the scientific answer then be to persuade;
and if it conflicts with otherwise relevant and useful non-scientific evidence,
is the latter to be disregarded as an inherently inferior form of information?
What is the proper view where science itself is deadlocked on a particular
question?

There is no answer to these questions other than the application of the
ordinary modes of injury derived in the long and essentially evolutionary
experience of courts in developing rules in the face of varying degrees of
indeterminacy as to their impact. There are, of course, several relevant
caveats for the judges. One is that where science is available in the courtroom
(or on remand), ordinarily it should be put through its professional paces if it
is to be used. The court should assure itself that science has claimed no more
than it can demonstrate and that it has sensible standards for what qualifies
as a demonstration. And where, as in *Rodriguez*, science has not been before
the bench for critical inquiry, the courts should be slow to resort to the library

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18 414 U.S. at 566.
19 Indeed, the Project for which I work filed a brief on the winning side.
without providing the parties opportunity to challenge the relevance, conclusions, and methodology of the chosen sources. The force of this may be qualified where the matter at issue is either relatively clear or relatively unimportant; no doubt some questions are trivial enough that considerations of judicial economy and other public values should dominate. But certainly human rights such as freedom from racial discrimination, freedom of speech, and fair criminal process are candidates for protection from the hostile use of unchallenged scientific opinion. For my part the interest at stake in Rodriguez was another.

Nor does the fact that an issue is disposed of only in dictum always excuse full diligence by the court. Dictum on a matter such as the burden to show injury, could have broad relevance in constitutional law outside Rodriguez. Surely there will be other cases in which science will be in similar discord but where the question of injury will be more than dictum. Who then will bear what burden? For example, does the cost/quality conclusion in Rodriguez tend to undermine the stability of the result in Hobson v. Hansen? To the extent that Hobson involves the reshuffling of resources among children of the same race it would seem that plaintiffs might today be required to show that the relatively minor dollar differences there at stake (in comparison to Rodriguez) would make a difference in educational outcomes. But no such conclusion appears to have been intended and there is no principle that would deny the court its use of social science as the basis of dictum so long as that use be well considered.

There is, however, one context which would benefit from a firmer rule; the cost/quality imbroglio could stand as its prototype. Here there exists a non-scientific basis—indeed a legislative presumption—adequate to determine the issue, while science on the contrary finds itself equivocal on the question, either because of conflicting findings or the general flabbiness of its methodology. It seems peculiar that the sheer impotence of science should itself disable what is otherwise compelling non-scientific evidence. So to conclude is to value science not for its wisdom but for its very ignorance. That was the error of Justice Powell.

*Some Prudential Inquiries for Rodriguez II*

The number of possible prudential questions arising out of the inter-district finance cases and potentially involving science is as expansive as the imagination of courts and commentators. And that appears to be considerable. Some critics believe Serrano not only to be of no benefit to children's education but actually to threaten social disasters ranging from increases in property tax to the confounding of land use policies to the paralysis of the Court itself. Within the same amicus brief in Rodriguez it was warned, first that spending for public education would fall drastically and, later, that spending would increase dramatically. Justice Powell himself—in this instance without the help of science—hypothesized a conflict between fiscal neutrality and the value of local control; on the basis of this possible threat to

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20 Brief of Liebman, et al. at 54 and 99.
a decentralized polity the state's employment of wealth discrimination was deemed "rational."21

Such concern about the probable impacts of judicial intervention—some of it real, or at least intelligible—is today generating serious scientific work that will be available to the state courts in the decade ahead and to the United States Supreme Court when it reconsiders Rodriguez in 1986. In addition to its prolonging the unpromising cost/quality debate, science should be interested in four kinds of studies which could bear upon the courts' ultimate calculus of values and its choice of a decisional norm: (1) Under what circumstances will judicial intervention be necessary to open up the legislative process to consideration of fiscal reform; (2) what judicial techniques can limit the problems of enforcing a judgment of unconstitutionality; (3) what capacity has been shown by reforming legislatures to provide for unusual educational needs; (4) has legislative fiscal reform so far meant less or more local control?

First, science could help the court by demonstrating through analysis of legislative voting over time whether existing school finance systems represent structural parallels to the apportionment problem. The Court reapportioned the franchise because legislatures were impotent even to address the issue; underrepresented voters had become discrete and insular minorities lacking political recourse. In school finance litigation plaintiffs' lawyers have asserted (so far without empirics) the following hypothesis: Poor school districts could never generate a legislative majority for reform, because there is nothing for middle-wealth districts in such reform and because the poor districts have nothing to trade for their support. Hence the issue of reform cannot receive a political hearing. The Court is the only authority available to reopen the political system.22 This hypothesis may be true or false, or true only under some circumstances and in certain states. So far no one has published any serious work on the question, and the methodological problems are substantial.

Second, science should take the opportunity posed by the New Jersey and California cases—and by instances of judicial intervention yet to come—to explore the conditions of effective judicial reform. At one moment the New Jersey court seems poised to interfere with the distribution of tax collections as a step toward compliance with its mandate in Robinson. At the next (and currently) it appears to have capitulated to legislative intransigence.23 It has been argued that the delay and difficulty in New Jersey are a function of the vagueness of the standard adopted to define the violation.24 If California finally adopts fiscal neutrality this year in the second round of Serrano, there may be much to learn in the comparison. The inquiry will not be easy, however, as the political and economic variables are numerous.

21 411 U.S. at 49-55. Powell added a general warning that the Court's intervention would generate "an unprecedented upheaval in public education . . . . There is nothing simple or certain about predicting the consequences of massive change . . . ." 411 U.S. at 56.


23 See discussion of the court's most recent decision below at pp. __.

Third, although it would be technically irrelevant under the decisional norms most likely to be adopted, the courts will probably be interested to see whether reforming legislatures have so far shown any sensitivity to the special needs of districts with high costs and to children with special disadvantages. This kind of inquiry will require little more than the monitoring of newly adopted legislated formulas and their intended beneficiaries.25

Fourth, the most important scientific inquiries will follow the impact of reform upon local control. Justice Powell took the position that academic nostrums such as power equalizing could not render the state’s fears of centralization irrational so long as such reforms remained theoretical models. This posture will become less comfortable if Maine, Wisconsin, and California have working decentralized systems that are fiscally neutral.26 The analogy to the history of the “exclusionary rule” of criminal evidence is not far-fetched. The experience of those states which had successfully employed the rule could not have been ignored by the Supreme Court when it decided Mapp v. Ohio.27 The same may well be true for the Court’s encounters with non-unanimous and undersize juries.

So far the scientific analysis of the impact of power-equalizing systems has been disappointing. Economists seem to assume that even well-intentioned legislatures will adopt formulas that are inappropriate to create fiscal neutrality among their districts. There is nothing in Serrano, nor even the practical politics of reform, which impedes the adoption of whatever formula will achieve neutrality in fact. The Maine and Wisconsin systems seem to be living examples of neutrality. Yet otherwise useful and able critics like Professor Feldstein confound the issues.28 Under his or other assumptions a power equalizing formula could favor poorer districts as he predicts. Anything can be badly designed. But why should this be assumed?

The Feldstein empirics have been challenged for inappropriate assumptions and statistical methods.29 But he also incorrectly assumes that his work is relevant to the wisdom of judicial intervention. If social science is to enter the debates about the likely effects of various reforms— as it should—it ought not to impute to the court anything beyond or different from the principles to which it is explicitly committed. This is not to suggest that, in doing impact predictions, science must confine its inquiry to the issues as the law has cast them. It is at liberty to hypothesize whatever it wishes. But it would be better

25 See e.g., the forthcoming chapter by Robert Bothwell, entitled Geographic Adjustments to School Aid Formulæ in School Finance Reform: A Legislators' Handbook (Callahan and Wilken, Eds. 1976). Bothwell carefully and convincingly demonstrates that fears that reforming legislatures would overlook the special problems of urban areas have so far proved unfounded.
to make plain that it thereby pursues its own business, not necessarily the law's.

There is a fifth area of impact research which will be very important. This is the issue of the effects of judicial reform upon low income families. The manner in which this question arose in *Rodriguez* made it inseparable from the definition of the violation itself, and it will be treated in the next section.

The chances of securing judicial intervention should be enhanced by careful empirical work on these and perhaps other questions involving consequential analysis. Of course this assumes that when the conclusions appear, either they will support the challenger's legal claim or, if ambiguous, that the courts will favor the challengers with the benefit of the necessary presumptions. Neither can be guaranteed and may vary from issue to issue.

**Science as Proof of Violation**

Here is the setting for the other major role of social science; the court has settled upon the controlling rule—the decisional norm—and now must determine the facts thereby rendered relevant. When the violation of the chosen rule does not appear on the face of the challenged legislation or government practice, science may often assist in its discovery or disproof. The court provides the hypothesis; the scientist provides the evidence: Racial discrimination is forbidden in jury selection; what is the probability that this jury panel was stacked? Children may not be labeled and treated as emotionally or mentally handicapped without adequate reason; does the test used by this school district actually measure the relevant factors? Schools may not systematically provide fewer resources to minority children; how are the resources of this district distributed?

Of course a decisional norm only gets us to scientific proof if it poses scientific questions. And in the school finance litigation this may not always be the case. If the court adopts an input measure of quality, for example, differences in quality may be proved without sophisticated data or statistical inferences. And in many cases there may be no factual question posed at all. Indeed, some of the most important challenges already litigated were structured simply as formal normative conflicts. That is to say, the rule proposed is in explicit conflict with the challenged legislation or governmental practice. Suppose, for example, a court were to adopt a principle of equal spending as the constitutional rule. In most states the structure of the finance legislation would conflict on its face with this rule, for it guarantees not equal but unequal spending. Since the judicial norm is a constitutional one, the legislation is void. Explicit racial segregation is an historic example of such formal conflict; once the new governing constitutional rule had been declared by the Supreme Court, the inference of illegitimacy required no empirical mediation. The social science in *Brown* went only to the question of the rule to be adopted; once adopted, no scientific question remained.

The *Serrano* norm of fiscal neutrality appears to have this same quality in relation to the present legislated structures. The state code provisions for taxing, spending, and partial equalization assume on their face that there is to be an influence of school district wealth upon spending. Hence, the norma-
tive conflict is formal, and proof is reduced to the official arithmetic of assessed valuations, taxing, and spending. Indeed, in theory even these figures may be unnecessary except to dramatize the injustice and spark the court’s enthusiasm for imposing the quietus.

Given a rather unusual set of empirical assumptions, however, this prima facie appearance of formal conflict could be false. It is possible to imagine a set of conditions in which the present model of local government would be fiscally neutral. Indeed, this has been imagined in the economic literature if not the litigation. As Reischauer and Hartman have suggested, a whole-hearted adoption of the “Tiebout hypothesis” might be thought to satisfy Serrano. Professor Tiebout would have us view the menagerie of decentralized local governments as a market in public services which consumers purchase along with their residence. If residential prices and rents accurately reflect the property tax burden and the quality of public services that tax supports, there is a rough approximation of the fiscal neutrality that would be achieved under a district power-equalized system. Whatever the merits of this hypothesis, the point is only that, in theory the conflict of the legislation with the constitutional norm could be prima facie only and, therefore, that science should be permitted, if it can, to overcome the plain import of the statute.

Indeed, even a constitutional principle of equal spending could be shown to be unoffended in practice; take, for example, the possible though grossly improbable case that offsetting differences in district wealth and tax rates would in some states produce essentially uniform spending. Spending disuniformity is, of course, simple to prove and ordinarily conceded by the state. It is certainly not a matter requiring social science. The Tiebout hypothesis on the other hand would require sophisticated economic data for its demonstration. This could explain its otherwise curious absence from Serrano and Rodríguez. (My guess is that it was overlooked by defendants.) That the hypothesis is merely unprovable and intuitively wrong would not be enough to exclude it, as we learned from Justice Powell’s handling of other empirical assertions which seem to conflict with both good sense and legislative assumptions. In any event, the hypothesis exemplifies a potential employment of social science—to eliminate a formal normative conflict by demonstrating that in fact the system already does just what the constitutional challengers would require of it.

Assuming now that Tiebout is wrong, substantially wrong, or unprovable, neither a fiscal neutrality nor an equal spending rule would need the support of scientific proof to establish violation. However, several quite different proposed constitutional formulas have appeared in one context or another in the school finance area which for proof of violation might require science of varying content and sophistication. Three of these proposed rules actually made their appearance in various ways in judicial opinions, one achieving recognition as state law. Each represents a misperception of the character and limits of judicial review of legislation. Where the object is major struc-

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tural change the rule should be one amenable to simple proof. A rule requiring vaguely defined or sophisticated empirical proof is unlikely to be adopted; if adopted, it is unlikely to be enforced against a reluctant legislature. Let us review the examples.

The problem appeared early in the history of the finance litigation. The very first attacks on state fiscal structures in 1968–69 proposed the rule that each child’s individual need for educational resources is the measure of his federal constitutional entitlement. Had the federal courts entertained this view, a fair portion of the social science professions could have become engaged in litigation on a full time basis advising courts how to define need and declaring what each child needed and how much of this he was not getting. Fortunately the proposal received short judicial shrift.

The second constitutional rule requiring complex and largely undefined scientific proof appeared in Robinson v. Cahill. There the court adopted as the basis of a personal right a previously undisturbed metaphor in the New Jersey Constitution. The child of that state now holds constitutional entitlement to a “thorough and efficient” education. In its original opinion and in four separate subsequent decisions filling hundreds of pages with majority opinions, dissents, and innumerable essays the court has made little progress in specifying the fault in the system beyond this inscrutable phrase.

Robinson illustrates that losing lawsuits is not the only risk created by employment of such vague formulas. Where the court cannot clearly specify the wrong—where its invalidation of the existing order remains essentially unprincipled—it may expect an unprincipled response from both social science and the legislature. That appears to have been the essential reaction to Robinson. The opinions and the literature on the case disclose a kaleidoscope of unrelated empirics and conflicting policy proposals presented by social science to the court and to a puzzled legislature, each proposal as plausible as any other in its claim to be “thorough and efficient.” The reaction of the New Jersey legislature has been wholly consistent; given an unscrutable mandate, it has responded in kind.

The denouement, however, seems at hand. In 1976 the New Jersey Supreme Court in its fifth set of opinions has approved, as “thorough and efficient” a newly enacted school finance system, one which is the match of its predecessor in giving preference to rich districts. The court appears to have capitulated, but only “appears” to have done so because the meaning of this per curiam opinion, like that of its four predecessors, simply eludes the grasp. It is, nonetheless, sufficiently plain that no substantial change has been or will be effected by this interminable litigation despite an avalanche of scientific assistance. The problem has been, perhaps, that science gave the court precisely what it asked for—information unmediated by any central intelligible proposition. The decision was a political act in the political mode; the court and the children were bound to lose.

A third example of a decisional rule forcing improvident employment of social science appears in Rodriguez itself. The manner in which Rodriguez stated the rule would be one amenable to simple proof. A rule requiring vaguely defined or sophisticated empirical proof is unlikely to be adopted; if adopted, it is unlikely to be enforced against a reluctant legislature. Let us review the examples.

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A third example of a decisional rule forcing improvident employment of social science appears in Rodriguez itself. The manner in which Rodriguez
was tried and argued, including the nature of the empirical data presented by plaintiffs, made it possible for the federal Supreme Court to treat the case as if there were a serious factual allegation left wanting scientific proof. The problem had to do with the definition of wealth. The plaintiffs had never been able to settle clearly upon the role of poverty in their theory. From before the filing of the earliest complaint in Detroit in February, 1968, even until today there has been strong disagreement among counsel in all the finance cases as to whether and how personal income should play a part in the definition of the injured class. Those who provided the argument for *Serrano* took the following view: Personal poverty probably does increase the injury to the individual living in a poor district because of the inability of the lower income family to purchase private substitutes; but the constitutional wrong should not be defined in terms of personal wealth but as the relative poverty of the tax bases of state-created school districts. Irresponsible of how low income families may prove to be distributed within the various states, there are plenty living in low wealth school districts; it would be an eccentric and unprincipled policy which would hope to assist poor children by maintaining the privilege of rich school districts in which by chance some of them live. Equally important, the Court is unlikely to adopt a rule employing the subtle definitions and complex scientific proof required by concepts of personal wealth.

The constitutional issue had been resolved earlier on this simpler basis in *Serrano* which had held that disparities in district wealth were enough to show the violation. Nevertheless, in *Rodriguez*, plaintiffs chose to confuse, or at least complicate, the issue by introducing as evidence of constitutional violation a supposed correlation between district poverty and personal poverty. The evidence seemed of dubious relevance and not very persuasive to the Supreme Court. It was rendered even less so by the appearance of a study of the relation of personal to district poverty in Connecticut by the editors of the *Yale Law Journal*. The majority opinion in *Rodriguez* described this study as "exhaustive" and quoted its conclusion that in Connecticut "the major factual assumption of *Serrano*—that the educational financing system discriminates against the 'poor'—is simply false."

The Court did not misread *Serrano* so badly as did the *Yale* editors. Mr. Justice Powell showed in one paragraph that he in fact understood (and rejected) the clear and simple poverty definition embodied in fiscal neutrality. In any case the result in *Rodriguez* probably would not have differed if the question of where the poor live had never been raised. The decision was based a good deal more upon the majority's values than upon the state of science. Yet one can wonder. The *Yale* "findings" made it possible for the majority to emerge from *Rodriguez* looking almost as if it had protected from fatuous intermeddling a special privilege enjoyed by poor families under the existing system. Perhaps someone among the majority even believed this and gave it weight. During oral argument one concurring justice recalled that, when he

34 5 Cal.3d at 601; 487 P.2d at 1252-3.
35 411 U.S. at 15.
37 411 U.S. at 28, quoting 81 Yale L.J. at 1328-9.
was a boy, the fanciest schools in his state were in the mining towns where the ethnic minorities were clustered. Presumably he saw the issue as personal poverty; perhaps he continued to do so until the end.

After *Rodriguez* was decided, it was discovered by Grubb and Michelson that the *Yale* comment was seriously in error both as to methodology and empirical conclusions. Not only is there a substantial overall correlation of personal and district wealth in Connecticut, but the Yale editors had been wrong even with regard to the location of the welfare poor. Dean Clune has demonstrated the same relationships for Illinois. Inquiries in 1969 suggested a slightly different pattern in California, but much depends on the definitions employed, and the national pattern, if any, remains to be charted.

The problem of the constitutional role, if any, of personal poverty is a difficult one. Clune and others have shown its several empirical faces and here we will go no further than briefly to suggest the wisest employment of the data. The constitutional standard the courts probably will and should ultimately accept is fiscal neutrality based upon whatever is the official measure of local taxable wealth; ordinarily this is taxable property per pupil. That definition of wealth should be left uncomplicated and unrefined by any incorporation of family income in the description of the alleged violation except where the local source of revenue becomes a tax on income. It is unlikely that poverty can be defined to the satisfaction of the court once we pass beyond the simple arithmetic of the official system.

Some assert that only by defining the class in terms of personal poverty can a doctrinal link be forged with judicial precedent. Perhaps this is so, but, if it were thought necessary as a doctrinal matter to employ personal wealth in the legal standard, the better way would be to argue as follows: Wealth is the capacity to purchase a specific good; here that good is education. Wealth, however, must be defined differently for purposes of private and public education. One buys private education with private wealth; he is education-poor in the private market when his personal income is inadequate to afford tuition. One buys public education only with public money; he is education-poor in the public market if his school district is poor. In the case of public education, personal wealth and district wealth are identical, because the only wealth a family has available for the purchase of public education is that of its school district. If a family's district is poor, that family is poor insofar as its ability to purchase public education is concerned. Analytically it is hard to know what else could be meant by "personal" poverty in relation to the purchase of public education. So far as proof of the constitutional violation is concerned, it is proper literally to identify district poverty with personal poverty.

This approach would eliminate science from the litigation insofar as proving the violation is concerned; proof would be at most a matter of the official

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38 Mr. Justice Blackmun, Transcript of argument, p. 21.
arithmetic of assessed valuation. The basic constitutional standard would remain clear and manageable. Yet, Clune and others are perfectly correct in thinking that the courts will be interested in the actual impact of the adoption of fiscal neutrality upon lower income persons, families, and children—that vague class for which judges have historically shown a measure of special concern. But violation of the decisional norm is one question, and the impact of judicial intervention is quite another. Regarding poverty, the proof of the constitutional wrong should be sharply distinguished from predictions of the consequences. The manifest and crucial role of social science here is not to show the violation of the decisional norm but to prepare a map of lower income families for each of the fifty states which will permit the intelligent appraisal by the Court of the probable consequences of judicial intervention for various income classes. And in defining such classes, science should exercise all the freedom it needs. There is a good deal more leeway and ambiguity to be tolerated in the selection of what is relevant when science is predicting consequences than when it is determining the violation of a standard fixed by the court for deciding the dispute.

Ambiguous decisional standards promise to remain a problem. An example is the current "urban Serrano" in New York. The parties there are preparing for trial in a suit attacking discrimination against New York City pupils, a discrimination alleged to be the consequence of the state system of school finance. New York City has a high assessed value per pupil and spends about $2400 per year. Plaintiffs, however, hope through social science to demonstrate that, when municipal overburden, high costs, special pupil needs, and other factors are accounted for, the city's children somehow are being cheated. If the court is willing to receive a mountain of scientific data, definitions, and expert opinions from both sides, the trial may become—like Robinson v. Cahill—an interesting seminar in school finance and local government. That it will result in a judgment for plaintiffs seems doubtful given the near total absence of legal standards by which to judge the system. And no quantum of science can make up for the normative vacuum.

The point in all this is not that science is inherently unsuited to provide evidence of violations in school finance cases. Obviously everything depends upon the nature of the particular dispute and the decisional norm appropriate to its resolution. Many situations have already arisen or could be imagined in which science was or would be crucial to proof of the violation. In some of the school exclusion cases science played an indispensable role in exposing the misuse of administrative criteria which were either improperly excluding children from school, misassigning them to schools or classes for the retarded, or relegating them to lower tracks on the basis of culturally biased and wholly inadequate test instruments. In these cases the scientist was given a reason-

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ably clear question about the efficacy of testing and/or its application to individual children.

Likewise, in intra-district finance litigation such as *Hobson II*, Judge Wright was able to put to the parties a set of empirical questions at a level neither too simple nor too abstruse. Economists could respond in a professional manner, and their answers would help determine the questions of violation. In the end the clash between experts generated conceptual conflicts that went beyond the "moral and constitutional arithmetic" finally adopted by the court; yet it appears that the contribution of the experts to understanding the relevant empirical situation was substantial.

Ultimately questions of constitutional violation requiring scientific proofs may reappear even in inter-district litigation. No one can predict how various states will define the legal questions under their own constitutions; certainly fiscal neutrality will not be the only principle promoted by reformers. Even if it were, in some future test of a reformed system it might become relevant to incorporate in the definition of wealth such elements of "wealth" as geographical cost differences. That issue alone could give useful and interesting employment to many an economist.

Conclusion

There is a rich mine of scholarly and analytical opportunities in this area, only a few of which have been noted here, and only in answer to the question of what science should and should not be asked to do for courts. This is the relatively narrow perspective of a lawyer, and one who, in addition, has a policy axe to grind. There are a dozen other approaches, some more academic, others holding promise of fairly immediate policy relevance.

One could approach the judicial behavior involved in these recent cases as itself a matter fit for scientific analysis within a paradigm supplied by game theory or small group politics. Or the material could be organized according to professional disciplines—economics, learning theory, political science and sociology. It could on the other had be approached through each of its substantive contents—the cost-quality issue, the coincidence of personal and district poverty, the modeling of power equalized systems. Still another question is the insight to be gleaned from comparative case studies, illustrating the strategies and groping of social scientists and lawyers in particular litigation. It would be particularly useful to compare in detail the legal-scientific strategy in the New Jersey and California cases which differed so greatly.

But most of all, we should venture beyond the fascinating technical issues and attempt a systematic response to the warning of Edmond Cahn. It is wisdom to ask and to continue to ask at what point the court’s deference to science becomes the surrender of an important outpost of judicial responsibility. At least where science is locked in basic conflict, there must be a more principled judicial approach than the refusal to consider the issue even on non-scientific grounds. *Silent leges inter armas* is no maxim for the civil wars of social science.

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