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Induced Litigation

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Essay

INDUCED LITIGATION

*Tracey E. George & Chris Guthrie**

More judges, more courthouses, more funding.

—Judge Stephen Reinhardt, U.S. Court of Appeals for the Ninth Circuit¹

[T]he federal courts have functioned through wars, natural disasters, and terrorist attacks. During times such as these, the role of the courts becomes even more important in order to enforce the rule of law. To continue functioning effectively and efficiently, however, the courts must be appropriately staffed. This means that necessary judgeships must be created and judicial vacancies must be timely filled with well-qualified candidates.

—Chief Justice William Rehnquist, U.S. Supreme Court²

We need, in addition to a little greed, more seats for judges

And we can't get em, unless the Congress budges.

For a decade they've not acted on the courts of appeals,

Ignoring all my suggested deals.

Today, Circuits one, two and nine,

Have more business than judges to opine.

Take the Ninth Circuit, where business has doubled

It's seventeen years since Congress could be troubled.

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¹ *Is U.S. Justice System in a State of Crisis? Four Prominent Lawyers Examine Problems and Solutions*, NAT'L L.J., Aug. 2, 1993, at 23 (quoting Judge Reinhardt). In this ATLA/NLJ sponsored symposium or question-and-answer session, Judge Reinhardt observed that there are three problems in the federal court system, one of which is "the lack of sufficient judges to handle the volume of cases properly." *Id.*

² WILLIAM H. REHNQUIST, 2001 YEAR-END REPORT ON THE FEDERAL JUDICIARY (2002), available at <http://www.supremecourtus.gov/publicinfo/year-end/2001year-endreport.html>.

*The wheels of justice are going to soon grind to a halt,
If Congress doesn't get to work, it will be its fault.*

—John Dean, former White House Counsel³

INTRODUCTION

If “justice delayed” is “justice denied,”⁴ justice is often denied in American courts. Delay in the courts is a “ceaseless and unremitting problem of modern civil justice”⁵ that “has an irreparable effect on both plaintiffs and defendants.”⁶

To combat this seemingly intractable problem, judges and court administrators routinely clamor for additional judicial resources to enable them to manage their dockets more “effectively and efficiently.”⁷ By building new courthouses and adding new judgeships, a court *should* be able to manage its caseload more efficiently. Trial judges should be able to hold motion hearings, host settlement conferences, and conduct trials in a timely fashion; appellate judges should be able to review briefs, hear oral arguments, and issue opinions expeditiously; and the crippling delay that often hobbles litigants and lawyers should give way to the speedy (or at least speedier) resolution of disputes.

But *will* it?

Intuitively, it seems obvious—even *mathematically so*—that a court will manage its docket more efficiently if it acquires additional judicial re-

³ John Dean, *Rehnquist's Unsung Report on the Federal Judiciary: How to Make the Annual Roundup Rhyme*, Findlaw, at <http://writ.news.findlaw.com/dean/20020104.html> (Jan. 4, 2002) (demonstrating how Chief Justice Rehnquist could have made his 2001 Year-End Report more “appealing”).

⁴ This quote is attributed to former British Prime Minister William Gladstone. See LAURENCE J. PETER, PETER'S QUOTATIONS: IDEAS FOR OUR TIMES 276 (1977).

⁵ George L. Priest, *Private Litigants and the Court Congestion Problem*, 69 B.U. L. REV. 527, 527 (1989).

⁶ Daniel W. Shuman, *When Time Does Not Heal*, 6 PSYCHOL. PUB. POL'Y & L. 880, 883 (2000).

⁷ See, e.g., Admin. Office of the U.S. Courts, *To Serve More Litigants and Justice, the Judiciary Needs More Judges*, THIRD BRANCH, July 2003, available at <http://www.uscourts.gov/ttb/july03ttb/Serve/index.html> (last visited Dec. 1, 2003) (recounting hearings before the House Judiciary Subcommittee on the Courts during which various witnesses testified that the federal judiciary required additional judgeships, due primarily to current caseloads); Dan Christensen, *Federal Judges Make Case for Increased Ranks*, PALM BEACH DAILY BUS. REV., Apr. 17, 2002, at A1 (reporting that South Florida's federal judges are seeking four new federal judgeships from the United States Judicial Council of the 11th Circuit); *Court Asks for 32 Judgeships*, FLA. BAR NEWS, Mar. 15, 1999, at 1 (reporting that the Florida Supreme Court requested six new county judges, twenty-five new circuit judges, and one new court of appeals judge in its annual certification opinion to the state legislature); *Study Finds More Judges Needed*, CLARION-LEDGER, Jan. 1, 2003, at A1 (reporting that the Judicial Advisory Study Committee recommended a new judgeship for each Mississippi court district); REHNQUIST, *supra* note 2 (observing that, as he reflects over his seventeen year-end reports, he is “struck by the number of issues that seem regularly to crop up,” including “the need for additional judgeships”). To be sure, proponents of the “more courts, more judges” agenda seek these additional resources for a variety of reasons; however, for the most part, their pleas are motivated by a desire to improve the processing of the existing stock of cases. See *generally* COMM'N ON STRUCTURAL ALTERNATIVES FOR THE FEDERAL COURTS OF APPEALS, FINAL REPORT (1998).

sources. Imagine, for example, a court in which 1100 cases are filed per year. Suppose in Year One that the court has ten judges who collectively resolve 1000 cases (100 per judge), leaving a backlog of 100 cases. Now suppose in Year Two that this court adds a courtroom and fills it with two additional judges. Populated with twelve judges, this court should now be able to resolve 1200 cases, eliminate its backlog, and have unused capacity (unless, of course, the two new judges are unable to process the existing caseload as quickly as their more experienced colleagues).

Although this account of adjudication is intuitively compelling, it might just be wrong. This account assumes “justice supply” and “justice demand” are unrelated—that is, it assumes an increase in the supply of judicial resources will not have any impact on the demand for justice because litigation demand is exogenous to its supply. In fact, however, researchers from a rather unlikely place—transportation economics—have given us reason to question this “justice exogeneity assumption.” Transportation economists (along with mathematicians, population scientists, operations researchers, and civil engineers) have demonstrated that when governments attempt to meet traffic demand by building new roads or adding new lanes to existing roads, traffic often *increases*. Called “induced traffic,” the basic idea is that an increase in the supply of roads often leads to an increase in demand among the citizenry to drive on those roads.

This Essay relies on this “induced traffic” phenomenon to develop the argument that an increase in the supply of courts or judges may lead to an increase in demand for adjudication. Holding constant the various exogenous factors that might lead to increased litigation—such as a spurt in the size of the population or an expansion of legal rights and remedies due to the enactment of a new statute—we contend that an increase in the supply of courts or judges *in and of itself* can lead to an increase in the demand for adjudication.

The positive argument we develop in this Essay raises important normative questions about the allocation of judicial resources: If adding judicial resources increases the demand for litigation, what should court reformers do? How, in other words, should court reformers respond to Judge Reinhardt, Chief Justice Rehnquist, and others clamoring for more courts and more judges?⁸ Should court reformers increase, maintain, or even decrease society’s store of judicial resources?

One’s answers to these questions turn largely on one’s view of litigation. One group of scholars—which we call the “public adjudication” group—would call for more courts and more judges even if the effect were to induce litigation. For these scholars, litigation is an underutilized public good that should be expanded to meet latent demand among individuals who “sit on their rights” rather than litigate. Another group of scholars—which we call the “private ordering” group—would argue that society is al-

⁸ See *supra* notes 1–2, 7.

ready too litigious. For these scholars, disputes should be resolved not inside, but rather outside, the courtroom.

The views of the public adjudication and private ordering groups seem irreconcilably opposed. One group wants to expand judicial resources to encourage more claimants to invoke the courts; the other group wants to hold judicial resources constant to discourage claimants from doing the very same thing. We argue, however, that society can—and should—reconcile these seemingly irreconcilable views. We concur with the public adjudication group that society should encourage those with viable legal claims to pursue those claims. We concur with the private ordering group that many individuals will fare better if they pursue their claims through less formal and more flexible processes than litigation. Thus, we contend that jurisdictions should expand not only their judicial resources, but also their other dispute resolution resources.

Even if the members of the public adjudication and private ordering groups reject our normative conclusions, however, the positive arguments that we develop in the Essay should still be of interest to them. To be sure, litigation rates are largely a product of such exogenous factors as population, economic conditions, and the like. But in this Essay, we show that changes in judicial resources can also influence the amount of litigation in society and can do so in counterintuitive ways. Increases in the supply of judicial resources may induce more *potential* litigants to become *actual* litigants.

To develop these arguments, we proceed as follows. In Part I, we explain the concept of impure public goods, a category that captures both roadways and courts, and then delineate the economic analysis of those goods. Based on the salient similarities between the two goods, we argue that theories of road traffic can inform theories of court traffic. In Part II, we examine induced traffic theory as it has been applied to roadways, and in Part III, we apply the induced traffic theory to litigation. Having done so, we conclude in Part IV by laying out the normative implications.

I. ECONOMIC ANALYSIS OF IMPURE PUBLIC GOODS

Court reformers and transportation planners might seem to have little in common; however, they confront largely the same problem and propose essentially the same solution. The problem facing both court reformers and transportation planners is excess demand; at any given time, too many people want to use the courts and the roads. The solution both court reformers and transportation planners propose is to increase supply. By providing more courts and roads, the traffic problems plaguing both will dissipate.⁹

⁹ For a discussion of transportation proposals, see *infra* note 44. For court proposals, see *supra* note 7 and *infra* note 74.

Implicit in this analysis is the naive assumption that an increase in supply will *not* lead to an increase in demand; that is, the addition of courts and roadways will not induce more individuals to adjudicate their disputes or to drive on the new roadways. Economic analysis demonstrates, however, that increases in the supply of a good generally lead to a reduction in price and a subsequent increase in demand for that good.¹⁰ When a manufacturer produces more guns or butter, for example, the price of guns and butter drops, and the quantity demanded by consumers rises.

We argue that courts and roadways—like guns and butter—are “goods” susceptible to economic analysis. However, as we explain below, courts and roadways are goods of a particular type—namely, they are public goods subject to crowding or what we will call “impure public goods.”¹¹ This argument is central to our Essay because induced traffic analysis is applicable only to goods of this type. This means that we must establish that both courts and roadways are impure public goods in order to develop the argument that litigation can be induced by increases in the supply of judicial resources, just like traffic can be induced by increases in the supply of roadways.¹²

A. Demand, Supply, and Types of Goods

Classical economic models assume that individuals seek to maximize their subjective expected utility.¹³ When deciding whether to purchase one good or another, individuals assess the costs and benefits of each good and then select the one that promises the greatest rewards.¹⁴ The

¹⁰ See EDGAR K. BROWNING & MARK A. ZUPAN, MICROECONOMIC THEORY AND APPLICATIONS 21–23 (6th ed. 1999) (explaining that an increased quantity is available at each price following an increase in supply of a good); HAL R. VARIAN, INTERMEDIATE MICROECONOMICS: A MODERN APPROACH ch. 1 (6th ed. 2003) (setting forth the general demand and supply behavior of a market).

¹¹ We are adopting the terminology of Richard Cornes and Todd Sandler. See generally RICHARD CORNES & TODD SANDLER, THE THEORY OF EXTERNALITIES, PUBLIC GOODS AND CLUB GOODS (2d ed. 1996).

¹² Transportation studies generally do not examine the nature of roadways as goods. However, public choice scholarship typically includes highways in the list of public goods, particularly when examining public goods subject to congestion. See, e.g., *id.* at 273–77.

¹³ See ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 73 (5th ed. 2001) (defining the concept of “utility” as a means of assigning an objective score to the relative level of satisfaction that a person gets from consuming a good or undertaking an activity); *id.* at 72–75; VARIAN, *supra* note 10, at 54 (laying out the economic theory of “utility” as “a way to describe [consumer] preferences”).

¹⁴ See BROWNING & ZUPAN, *supra* note 10, at 45–79 (detailing the theory of consumer choice, under which consumers select their most preferred basket of goods given their options and budget); PINDYCK & RUBINFELD, *supra* note 13, at 79, 79–86 (explaining how and why consumers “maximize the satisfaction they can achieve, given the limited budget available to them”).

utility-maximizing decisions of the members of a society make up the *demand* for society's goods.¹⁵

Because utility maximization is a subjective process—that is, individuals place different values on the very same good based on their personal assessment of its costs and benefits—the demand for most goods is “elastic” with respect to price.¹⁶ In other words, the demand for most goods is responsive to the *price* of those goods. Some individuals will purchase a good even if its price is high; others will choose to acquire the good only if its price is much lower; and so on. Generally, more consumers will purchase a good at a lower price than will purchase that same good at a higher price. Thus, the *market* demand for goods is greater when prices are lower.

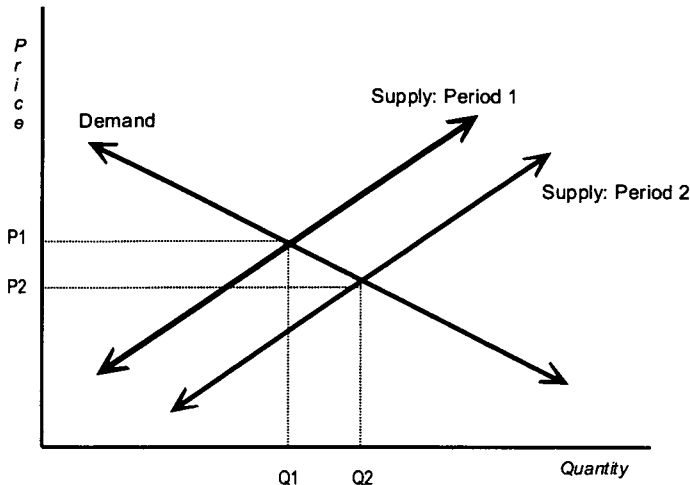
The price of a good is a product not only of the demand for it, but also of its availability or *supply*.¹⁷ As the supply of a good rises, its price tends to drop; as its supply falls, the price of the good tends to rise. Because the demand for a good is affected by its price, changes in price caused by changes in supply will influence the demand for the good.

Figure 1 provides a visual representation of the relationship between supply and demand. In period 1, the price and quantity of a good are set at the point where demand and supply meet: price $P1$ and quantity $Q1$. When supply increases in period 2, the supply curve shifts outward because sellers are now willing to sell a greater quantity at each price level. Thus, the price in period 2 decreases to $P2$ and the quantity increases to $Q2$ because more consumers wish to purchase the good at the new, lower price.

¹⁵ See BROWNING & ZUPAN, *supra* note 10, at 96 (illustrating how “the individual demand curves of all the consumers in the market added together constitute the market demand curve”); *id.* at 96–99; PINDYCK & RUBINFELD, *supra* note 13, at 102–10 (explaining the analytical transition from utility theory to individual consumer demand).

¹⁶ See VARIAN, *supra* note 10, at 270–73, 280 (presenting a mathematical and graphical explanation of price elasticity of demand).

¹⁷ See PINDYCK & RUBINFELD, *supra* note 13, at 23–24 (explaining that the “*equilibrium*, or *market-clearing*, price and quantity” of a good is determined by the intersection of demand and supply of the good).

Figure 1: Demand and Supply: Price and Quantity After Increased Supply

Goods are not uniform, however. Individuals demand, among other things, food, electronic equipment, housing, medical services, access to public parks, use of roadways, a public dispute resolution system, and any number of items that are quite dissimilar from one another. Economic analysis of any good must take into account the characteristics of that good, including whether its availability to one consumer is influenced by the consumption of other consumers.

Early economic models assumed that individuals maximized utility solely by consuming pure private goods.¹⁸ A pure private good is characterized by exclusive use; that is, a pure private good is one that only one person can consume and that is unavailable after consumption.¹⁹ If a person who prefers apples to oranges is offered a choice between an apple or an orange, she will maximize her utility by selecting the apple rather than the orange. When she has consumed it, the apple will be unavailable for anyone else to enjoy. That apple is an example of a pure private good.

Despite the assumptions of the early economic models, individuals receive utility not only from pure private goods, but also from goods that are shared or collective. Economists recognized this long ago, but they failed

¹⁸ It would be possible to cite nearly any work on social welfare or choice functions to demonstrate this point, as Nobel Economist James Buchanan observed in 1965: “The implied institutional setting for neo-classical economic theory, including theoretical welfare economics, is a régime of private property, in which all goods and services are privately (individually) utilized or consumed.” James M. Buchanan, *An Economic Theory of Clubs*, 32 *ECONOMICA* 1, 1 (1965).

¹⁹ See CORNES & SANDLER, *supra* note 11, at 8–10; ALLAN M. FELDMAN, *WELFARE ECONOMICS AND SOCIAL CHOICE THEORY* 106 (1980) (observing that “goods that are really private, or exclusively used by one person, are easy to think of: a glass of beer, a set of false teeth, a pair of socks, a hamburger”).

to include shared goods in the individual utility function.²⁰ Paul Samuelson was the first to delve into the nature of these shared or collective goods; he introduced pure public goods into economic models in 1954.²¹ Samuelson defined pure public goods as “collective consumption goods (X_{n+1}, \dots, X_{n+n}) which all enjoy in common in the sense that each individual’s consumption of such a good leads to no subtraction from any other individual’s consumption of that good, so that $X_{n+j} = X_{n+j}^i$ simultaneously for each and every i th individual and each collective good.”²² To put it more simply, the quantity of a public good (“ X ”) available for consumption by any individual (“ i ”) is equal to the quantity available to the entire group. A pure public good, in contrast to a pure private good, remains available for others, despite any one person’s use and despite any one person’s efforts to prevent others from consuming it.²³

In other words, the defining features of a pure *public* good are “non-rivalry of consumption”²⁴ and the infeasibility of excluding other consum-

²⁰ Adam Smith may have been the first to recognize the difference between private and public goods, when he wrote of goods “which, although they may be in the highest degree advantageous to a great society, are, however, of such a nature, that the profit could not repay the expense to any individual or small number of individuals, and which it therefore cannot be expected that any individual or small number of individuals should erect or maintain.” See ADAM SMITH, *THE WEALTH OF NATIONS: AN INQUIRY INTO THE NATURE AND CAUSES* 779 (Modern Library ed. 1994) (1776).

²¹ Paul A. Samuelson, *The Pure Theory of Public Expenditure*, 36 REV. ECON. & STAT. 387 (1954). Samuelson won the second Nobel Prize awarded in Economics (in 1970) for his large and varied body of work or, in the words of the Committee, “for the scientific work through which he has developed static and dynamic economic theory and actively contributed to raising the level of analysis in economic science.” Nobel E-Museum, at <http://www.nobel.se/economics/laureates/1970> (last modified June 16, 2000).

²² See Samuelson, *supra* note 21, at 387.

²³ Theoretically, public goods are similar to externalities. For example, an individual who is vaccinated against an infectious disease produces nonrival and nonexcludable benefits in the form of a positive externality: others gain because they are less likely to catch the disease now that one individual cannot be a carrier. Each individual’s gain has no effect on the availability of the benefit to others, and it is not feasible to prevent any individual from benefiting. See BROWNING & ZUPAN, *supra* note 10, at 542 (presenting this example). The traditional distinction between externalities and public goods is in the very nature of their supply: the former are the product of private actors’ decisions, while the latter require collective action. However, the underlying theory is closely related, and real world situations reflect components of both. See CORNES & SANDLER, *supra* note 11, at 5 (discussing the relationship between Pigouvian externalities and public goods); S.E. Holtermann, *Externalities and Public Goods*, 39 *ECONOMICA* 78, 78 (1972) (analyzing the relationship between externalities and public goods and finding that “many externally produced commodities have the character of public goods”); Andrew Schotter & Gerhard Schwodiaer, *Economics and the Theory of Games: A Survey*, 18 *J. ECON. LIT.* 479, 500–01 (1980) (arguing that the two phenomena, while distinct, both entail “the most fundamental strategic interdependence among economic agents”).

²⁴ The nonrivalry characteristic may also be described as “jointness of supply.” See, e.g., DENNIS C. MUELLER, *PUBLIC CHOICE III* 11 (2003) (defining a “pure public good” as one that “has two salient characteristics: jointness of supply and the impossibility or inefficiency of excluding others from its consumption, once it has been supplied to some members of the community”); J.G. Head, *Public Goods and Public Policy*, 17 *PUB. FIN.* 197 (1962). A good with extreme jointness of supply has entirely fixed production costs; thus, the (marginal) cost of an additional unit is zero. See, e.g., MUELLER, *supra*, at 11

ers.²⁵ Non-rival consumption means that individuals are not rivals for the good—consumption by one person does not diminish the quantity and quality of the good available to others.²⁶ A classic example is national defense. One person’s consumption of national defense—by enjoying the protection afforded by the armed forces—does not detract from another person’s consumption of the same good. National defense also demonstrates the second salient characteristic of a public good: it is not possible to prevent one member of a community from enjoying the protection afforded by the defense of the community as a whole.²⁷ Because producers of pure public goods cannot exclude members of a society from consuming that good, markets typically fail to provide public goods, and thus the state exists, in part, to do so.²⁸

(explaining how “[j]ointness of supply is a property of the production or cost function of the public good”); Edna Loehman & Andrew Whinston, *A New Theory of Pricing and Decision-Making for Public Investment*, 2 BELL J. ECON. & MGT. SCI. 606, 607 (1971) (defining jointness of supply for a “Samuelson public good” to mean that “once a service is provided to one user at some level, another user can be serviced at the same level for zero extra cost”). For example, the signals of a lighthouse may be consumed by additional ships at no additional cost. All the costs of providing the signal are fixed—unrelated to the number of ships that are able to avoid the shoals due to the light. See also CORNES & SANDLER, *supra* note 11, at 8 (referring to nonrivalry as “indivisibility of benefits” and stating that a “good is nonrival or indivisible when a unit of the good can be consumed by one individual without detracting, in the slightest, from the consumption opportunities still available to others from that same unit. Sunsets are nonrival or indivisible when views are unobstructed.”).

²⁵ See, e.g., CORNES & SANDLER, *supra* note 11, at 8–9 (explaining that a good with excludable benefits is one “whose benefits can be withheld costlessly by the owner or provider;” by contrast a good with nonexcludable benefits is “available to all once the good is provided,” such as “[f]irework displays, strategic weapons, pollution-control devices, and street lighting”); PINDYCK & RUBINFELD, *supra* note 13, at 645 (observing that “it is difficult or impossible to charge people for using nonexclusive goods; the goods can be enjoyed without direct payment”).

²⁶ BROWNING & ZUPAN, *supra* note 10, at 535 (explaining that “nonrival consumption means potential simultaneous consumption of a good by many persons”).

²⁷ A pure public good possesses *both* of these characteristics, but it is possible for a good to have one characteristic but not the other. Consider a television broadcast. The consumption by one person of a television broadcast does not affect the availability of the broadcast for others. However, the broadcaster, by using technological devices, may exclude (at least some) persons from receiving the broadcast without paying. Thus, the television broadcast is nonrival, but exclusive. Likewise, the government may exclude the direct use of public parks by charging entry fees and of roads by charging tolls. Other goods may be rival, but nonexclusive. For example, the air is freely available for everyone to “consume,” but some forms of consumption—such as the emission of pollutants—adversely affect the use of others who seek to breathe the air. See *id.* at 536; PINDYCK & RUBINFELD, *supra* note 13, at 645.

²⁸ See, e.g., MUELLER, *supra* note 24, at 25 (explaining that “[p]ublic goods are a classic example of market failures economists cite as justification for government intervention”); *id.* at 9–25; James Surowiecki, *Leave No Parent Behind*, NEW YORKER, Aug. 18 & 25, 2003, at 48. Surowiecki argues that “children are . . . a ‘public good’” in that everyone benefits from children because “we all gain from having more people going to college and becoming productive workers,” even if we do not all pay for them (because some people don’t have children). *Id.* Consistent with his argument, government should subsidize—or redistribute—the cost of children to ensure that the optimal level of children is raised. Even Adam Smith, the champion of markets, concluded that governments must be charged with “erecting or maintaining those public institutions and those public works” that constitute public goods.

Pure public goods are uncommon, however, because “few, if any, goods satisfy the conditions of extreme collectiveness” required by Samuelson’s definition.²⁹ Most goods that might appear to be pure public goods are not because the use of the good by one consumer decreases the use or enjoyment available to other consumers, typically due to crowding.³⁰ As James Buchanan explains, the “utility that an individual receives from [a public good’s] consumption depends upon *the number of other persons with whom he must share its benefits.*”³¹

Consider, for example, a public monument like the Vietnam War Memorial or the Washington Monument. At first glance, it seems that a public monument is a pure public good akin to national defense because one person’s viewing of it does not deprive any other person of enjoying it as well. Upon closer inspection, however, it becomes clear that a public monument is not a pure public good because the use by some individuals may prevent others from enjoying it due to long lines, difficulties finding parking, a limited number of tour guides, and so on. In short, as Buchanan (writing largely about so-called “club goods”³²) and Mancur Olson (writing largely about the limits of collective action³³) subsequently observed, pure public

SMITH, *supra* note 20, at 779. Economists have debated whether Smith imagined this list to be particularly lengthy and/or whether he expected that publicly traded *corporations*, rather than governments, would be able to provide many of these public goods. See generally E.G. West, *Adam Smith’s Public Economics: A Re-Evaluation*, 10 CAN. J. ECON. 1 (1977).

²⁹ See Buchanan, *supra* note 18, at 1. Samuelson recognized the narrow scope of pure public goods, as he made clear in a subsequent note published the following year. Paul A. Samuelson, *Diagrammatic Exposition of a Theory of Public Expenditure*, 37 REV. ECON. & STAT. 350, 356 (1955) (arguing that “[t]o deny that most public functions fit into my extreme definition of a public good is not to grant that they satisfy the logically equally-extreme category of a private good”).

³⁰ See, e.g., Stephen Enke, *More on the Misuse of Mathematics in Economics: A Rejoinder*, 37 REV. ECON. & STAT. 131, 132–33 (1955) (arguing that “Samuelson’s collective consumption goods comprise a small class at the opposite extreme from his more numerous private consumption goods” because “for a given public expenditure, I can have better service or more consumption enjoyment if other people will not exercise their rights to these benefits or compete with me for their favorable deployment”); Julius Margolis, *A Comment on the Pure Theory of Public Expenditure*, 37 REV. ECON. & STAT. 347, 347–48 (1955) (observing that the consumption of most public services is diminished by “capacity limitations and congestion”).

³¹ Buchanan, *supra* note 18, at 3.

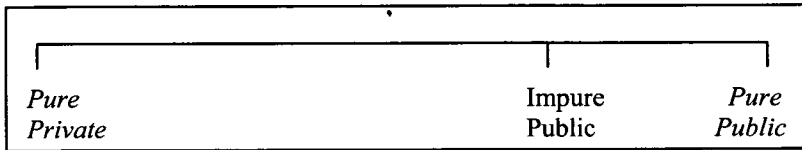
³² *Id.* at 1. A Buchanan club good is a collective good enjoyed by a private, voluntary association with access only to its members. The classic example of a club good is a country club, which makes its golf course and swimming pool available to a group of members. Goods provided by the government may similarly be limited—for example, a city’s public library may be available only to citizens who live within the city’s boundaries. See, e.g., Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416, 418 (1956) (reasoning that “[t]he consumer-voter may be viewed as picking that community which best satisfies his preference pattern for public goods”); MUELLER, *supra* note 24, at 182–89 (arguing that both Buchanan and Tiebout solve the problems of self-rule “by the surprisingly simple device of allowing people to sort themselves out into groups of like tastes”); Todd Sandler & John T. Tschirhart, *The Economic Theory of Clubs: An Evaluative Survey*, 18 J. ECON. LIT. 1481, 1506–08 (1980) (comparing and contrasting the Tiebout community with the Buchanan club).

³³ MANCUR OLSON, *THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS* (1965). See also TODD SANDLER, *COLLECTIVE ACTION: THEORY AND APPLICATIONS* 23–27

goods are quite rare. Most ostensibly “pure” public goods are, in fact, “impure public goods” or public goods whose use or enjoyment is diminished by crowding.

All goods can be arrayed along a spectrum, ranging from “pure private goods” at one end to “pure public goods” at the other.³⁴ As depicted in Figure 2, below, impure public goods, like national monuments, fall between these two extremes, but share more in common with pure public goods than with pure private goods.³⁵

Figure 2: Types of Goods



B. Courts and Roadways as Impure Public Goods

Courts and roadways might appear to be pure public goods because each has an aspect (or output) that is enjoyed by the whole community equally. The highway system appears to be a pure public good in that the availability of roadways allows for the economic growth and development of a city, state, and nation. Likewise, the justice system appears to be a pure public good because the courts resolve disputes peacefully and articulate legal rules that enable people to order their lives. Those benefits (or output) are nonexcludable and nonrival.³⁶

Both courts and roadways, however, have aspects (or outputs) that are not purely public. The individualized use of either good (i.e., the resolution of one person’s complaint or one commuter’s use of the road) is inherently divisible and rival, as one person’s presence precludes others from using the

(1992) (presenting a formal model of Olson’s theory regarding group provision of collective goods); Gary J. Miller, *The Impact of Economics on Contemporary Political Science*, 35 J. ECON. LIT. 1173, 1177–81 (1997) (evaluating the influence of Olson’s work on the development of public choice scholarship in political science, including the concept of public goods).

³⁴ See CORNES & SANDLER, *supra* note 11, at 8–9 (clarifying that there is probably not a unidimensional space that accommodates the various types of goods that exist between the extremes because they differ along more than one dimension).

³⁵ We choose the admittedly broader term “impure public goods,” rather than the term “club good,” to describe government-provided goods to avoid confusion with Buchanan clubs.

³⁶ Cf. Jules Coleman & Charles Silver, *Justice in Settlements*, 4 SOC. PHIL. & POL’Y 102, 114–19 (1986); William M. Landes & Richard A. Posner, *Adjudication as a Private Good*, 8 J. LEGAL STUD. 235, 235–37, 240 (1978) (arguing that state-sponsored adjudication provides a public good—the enunciation of rules and precedent—that cannot be provided efficiently or effectively by private adjudicators such as arbitrators); David Luban, *Settlements and the Erosion of the Public Realm*, 83 GEO. L.J. 2619, 2622–26 (1995) (describing the nonexcludable benefits of trials).

same part of the good during that period.³⁷ The larger the number of persons using courts or roads, the greater the effect on the use by others due to congestion and crowding.³⁸ Thus, the judicial and highways systems are more appropriately categorized as impure public goods,³⁹ comprised of both pure and impure aspects.⁴⁰

Economists sometimes refer to impure public goods, like courts and highways, as “club goods” because congestion creates rivalry among users and may give rise to attempts to exclude some participants, thereby forming a “club.”⁴¹ However, Buchanan developed the concept of a club good to refer to a collective good enjoyed by a private, voluntary association (not a government) that allows access only to its members, such as a golf or tennis club.⁴² Governments may also limit access to, or use of, impure public goods—for example, the National Park Service may limit the number of cars admitted each day to a park or charge a fee to deter some prospective visitors⁴³—but the available mechanisms of exclusion are much weaker than

³⁷ Cf. Landes & Posner, *supra* note 36, at 235–37 (examining the dispute resolution service of courts as a private good in a market that includes arbitration and other alternative dispute resolution services (“ADR”)).

³⁸ See, e.g., Holtermann, *supra* note 23, at 81 (explaining that “the total provision of judicial services enters equally into everybody’s consumption vector as a public good; but the utilization of the services will be different for different individuals, and an increase in one person’s utilization of the facilities decreases the amount available to other people”); Samuelson, *supra* note 21, at 356 (recognizing that courts and highway programs cannot be put into a “rigid category” of “polar” public goods because there is “an element of variability in the benefit that can go to one citizen *at the expense* of some other citizens”).

³⁹ Economists also refer to goods that have pure and impure public good characteristics as “mixed” public goods or “joint” goods. See, e.g., Holtermann, *supra* note 23, at 81–83 (describing goods like roads and courts as “mixed cases which Samuelson has suggested can be analysed fruitfully in terms of some kind of a blend of the models of pure public goods and pure private goods”); CORNES & SANDLER, *supra* note 11, at 9, 542–43 (describing such hybrid goods as “joint product” goods).

⁴⁰ The hybrid nature of both goods can be seen by considering their production and consumption functions. Like a pure public good, many judicial and road system costs are fixed (building the system, running it, creating rules to govern it), therefore the average cost of the good (the cost of production divided by the quantity consumed) *decreases* with each additional user. But, adjudication and transportation are not pure public goods because each has a *positive marginal cost*: an additional user increases the price of the good by increasing congestion and producing delays. The consumer does not incur the entire marginal cost of her use—that cost is also borne by other users of the system. But, “[e]ven a good with falling average costs, although positive marginal costs, has elements of jointness that raise collective provision issues.” MUELLER, *supra* note 24, at 11.

⁴¹ See, e.g., SANDLER, *supra* note 33, at 64 (“Club goods include highways, cities, infrastructure, military arsenals, terrorist commando squads, police forces, zoos, museums, golf courses, universities, learned societies, movie theaters, parks, recreation facilities, straits, canals, trauma clinics, and libraries.”). Sandler, a political economist, considers any “excludable public good” to be a club good. *Id.* at 63 (defining a club broadly to include any “voluntary collective that derives mutual benefits from sharing one or more of the following: production costs, the members’ characteristics, or an impure public good characterized by excludable benefits”).

⁴² See generally Buchanan, *supra* note 18.

⁴³ See Tiebout, *supra* note 32.

those available to private clubs. Thus, courts and roads are more accurately characterized as “impure public goods” rather than “club goods.”

Inherent in any impure public good—whether a court or a roadway or some other item—is congestion or crowding. Both legal scholars and transportation economists are acutely aware of this phenomenon, but only transportation economists have actually attempted to model and measure it. In the next Part, we present the induced traffic model they have applied to roadways, and in the following Part, we use their insights to develop our own model of induced traffic in the courts.

II. INDUCED TRAFFIC

Transportation economists have applied the conventional tools of economic analysis to roadways and roadway congestion. This might seem odd. Because roadways are impure public goods rather than pure private goods, it appears as though they might be immune to market forces. After all, the state generally provides access to roadways free of charge, so an increase in the supply of roadways will not lead to an increase in demand because the price of driving remains the same. By increasing the supply of roads, the state should be able to meet excess demand and relieve congestion.

In fact, however, the laws of supply and demand *do* apply to impure public goods like roadways, despite the fact that policymakers often ignore such laws.⁴⁴ The reason policymakers sometimes misunderstand this is because they adopt an unrealistically narrow view of the “price” of driving. They assume that the only relevant price is what we might call the *explicit price* a consumer has to pay out of pocket. Because roadways are generally available free of charge, drivers do not pay an explicit price to use them. When they think of price in this way, policymakers ignore what we might call the *implicit price* of driving; yet, it is also relevant. Drivers pay an *implicit price* in the form of opportunity costs.⁴⁵ Driving, in short, takes time, and the implicit price of driving is higher when the roads are congested than when they are not. Because drivers are likely to respond not only to changes in explicit prices, but also to changes in implicit prices, changes in roadway supply are likely to influence driver demand. When the state adds a lane to a congested roadway, for example, the implicit price of driving on that roadway drops. This drop in implicit price then leads more drivers to travel on the roadway, causing the implicit price of driving to rise again as

⁴⁴ See, e.g., Mark Hansen, *The Traffic Inducement Effect: Its Meaning and Measurement*, 481 TRANSP. RES. CIRCULAR 7, 7–8 (1998) (criticizing United States road construction advocates for assuming a fixed quantity of traffic and ignoring the relationship between supply and demand of transportation); Peter J. Mackie, *Induced Traffic and Economic Appraisal*, 23 TRANSP. 103 (1996) (observing that the United Kingdom’s Department of Transportation has used a fixed-demand or fixed-trip assumption in its models, which is a vast simplification of a reality that is subject to the law of demand).

⁴⁵ But see Richard Thaler, *Toward a Positive Theory of Consumer Choice*, 1 J. ECON. BEHAV. & ORG. 39, 44 (1980) (proposing that consumers weight out-of-pocket costs more heavily than opportunity costs).

travel times return to, and often surpass, pre-expansion levels. This phenomenon—induced traffic—“is one of the most troubling [issues] facing transportation planning today.”⁴⁶ Transportation economists and other scholars have invested considerable resources in developing a theory to explain induced traffic and in devising empirical methods to measure it.

A. Induced Traffic Theory

Transportation economists assume that drivers are rational actors who make narrowly self-interested decisions when contemplating travel. When attempting to assess the option that will maximize their utility, drivers consider several factors:

- whether to travel at all (or “trip generation”)?
- to which destination (or “trip distribution”)?
- at what time (or “trip scheduling”)?
- by what mode of transportation (or “modal choice”)?
- by what route (or “traffic assignment”)?
- whether to travel solo or with others (or “vehicle occupancy”)?
- how often to make the trip (or “trip frequency”)?⁴⁷

After considering each of these factors, drivers make the travel decision that is most likely to satisfy their narrow self-interest (and ignore the impact of their decision on others.)⁴⁸

When a state expands its roadways, drivers are likely to take that into account when making travel decisions in both the short term and the long term. In the short term, a driver might take new trips (e.g., a driver might visit a distant store because the cost of travel has decreased); travel the same route more frequently (e.g., a worker might drive home for lunch

⁴⁶ Transp. Research Bd., *Introduction to Special Issue: Highway Capacity Expansion and Induced Travel: Evidence and Implications*, 481 TRANSP. RES. CIRCULAR 5, 5 (1998).

⁴⁷ See Peter J. Hills, *What is Induced Traffic*, 23 TRANSP. 5, 8 (1996); see also Richard G. Dowling & Steven B. Colman, *Effects of Increased Highway Capacity: Results of Household Travel Behavior Survey*, 1493 TRANSP. RES. REC. 143, 144–45 (1995); TRANSP. RESEARCH BD., NAT’L RESEARCH COUNCIL, EXPANDING METROPOLITAN HIGHWAYS: IMPLICATIONS FOR AIR QUALITY AND ENERGY USE 144–45 (Special Rpt. No. 245, 1995).

⁴⁸ These assumptions are not uncontroversial. Legal scholars, behavioral economists, and cognitive psychologists have produced a wealth of empirical evidence demonstrating that individuals are not the purely rational and narrowly self-interested creatures envisioned by economic models. See, e.g., Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1998) (arguing that, on the basis of empirical evidence from cognitive psychology and behavioral economics, individuals are boundedly rational, boundedly self-interested, and possess bounded willpower); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051 (2000) (arguing similarly that individuals are constrained from maximizing self-interest due to limited reasoning abilities, concern for others, and features of the decision context).

rather than eating at her desk); travel at different times (e.g., a worker might commute during rush hour because travel should now be easier at that time); or travel alone (e.g., a commuter might choose not to carpool because the carpool lanes no longer offer the same comparative advantage over the regular lanes). All of these short-term adjustments reflect increases in the *quantity of travel demanded*, which result from an effective decline in the price of driving in the form of faster roads.⁴⁹

In the longer term, drivers will make more substantial adaptations in response to the lower price of driving. For example, a driver might accept a job that is a greater distance from her home and/or only accessible by car, move to a suburb farther from work or school, or increase her capital investment in an automobile because she is using it more frequently. Moreover, third parties will also respond to the longer-term adaptations of drivers. For example, business offices might move out of the city center to take advantage of lower rents, retail stores might move to auto-dependent shopping centers, and companies might establish new locations in areas that were formerly inaccessible. These longer-term changes in response to expanded highways will produce a change in the *underlying demand* for vehicle travel: That is, the quantity demanded at every given price will increase.⁵⁰ Thus, in the longer term, new roads lead to increased demand that may result in greater congestion than existed prior to expansion.

A German operations researcher named Dietrich Braess presented an idea in 1968 that would give rise to induced traffic theory. He demonstrated formally that the introduction of an additional road to a congested network of roads may lead to longer travel times for all users without the addition of new users.⁵¹ A.D. Irvine offers the following explanation:

Despite the fact that each driver seeks to minimize his or her travel time across a system of roadways, it turns out that within congested systems the addition of extra routes will sometimes decrease (rather than increase) the overall efficiency of the system. The result is surprising since in uncongested systems the addition of new routes can only lower, or at worst not change, the travel time of each driver at equilibrium. In contrast, Braess' paradox shows that within

⁴⁹ See Robert B. Noland, *Relationships Between Highway Capacity and Induced Vehicle Travel*, 35 TRANSP. RES.-A 47, 49 (2001).

The underlying theory behind induced travel is based upon the simple economic theory of supply and demand. Any increase in highway capacity (supply) results in a reduction in the time cost of travel. Travel time is the major component of variable costs experienced by those using private vehicles for travel. When any good (in this case travel) is reduced in cost, demand for that good increases.

Id.

⁵⁰ See generally Lewis M. Fulton et al., *A Statistical Analysis of Induced Travel Effects in the U.S. Mid-Atlantic Region*, J. TRANS. & STAT., Apr. 2000, at 1, 2-3; Noland, *supra* note 49, at 51.

⁵¹ Dietrich Braess, *Über ein Paradoxon der Verkehrsplanung*, 12 UNTERNEHMENSFORSCHUNG 258 (1968); see also J.D. Murchland, *Braess's Paradox of Traffic Flow*, 4 TRANSP. RES. 391 (1970) (offering a brief review in English of Braess's paper, which was published in German).

congested systems, the addition of new routes can result in increased mean travel time for all drivers.⁵²

While each driver is trying to find a path that minimizes her individual travel time, the concerted efforts of all drivers lead to too many individuals using the new road. In short, Braess's Paradox predicts that the introduction of a new route to a *congested* network may exacerbate rather than relieve crowding.⁵³

Induced traffic theory builds on the recognition that the use of roadways is characterized by a nonoptimal equilibrium and thus requires a coordination mechanism to maximize social welfare.⁵⁴ The market fails to provide this mechanism: Drivers do not pay the total cost of their use of the roads, and thus, they determine their individual use in a way that results in total public use exceeding the optimal social level.⁵⁵ That is, the social cost of driving on the roadways (the cost to all users from an additional user—i.e., congestion) exceeds the social benefit (the gain to all users from an additional user—i.e., the societal or economic value of the added trip). The market failure results from individuals maximizing their payoffs given their private costs and gains in a setting in which they do not pay the true marginal cost of their increased activity.⁵⁶ Thus, the utility-maximizing behavior of each individual driver decreases the total gains from the collective good.⁵⁷

⁵² A.D. Irvine, *How Braess' Paradox Solves Newcomb's Problem*, 7 INT'L STUD. PHIL. SCI. 141, 144 (1993).

⁵³ See generally Richard Steinberg & Richard E. Stone, *The Prevalence of Paradoxes in Transportation Equilibrium Problems*, 22 TRANSP. SCI. 231, 233–34 (1988) (providing a mathematical explanation of Braess's argument).

⁵⁴ Interestingly, the production, as opposed to consumption, of impure public goods also requires a non-market coordination mechanism to obtain optimal output (from a social welfare perspective). But, on the production side, the problem is one of underproduction due to the difficulty of excluding users; on the consumption side, the problem is one of over-consumption.

⁵⁵ See G. Alperovich, *An Economic Interpretation of Braess' Paradox*, 24 INT'L J. TRANSP. ECON. 145 (1997).

⁵⁶ See Thomas Bass, *Road to Ruin*, DISCOVER, May 1992, at 56, 61 (recounting Rockefeller University Professor Joel Cohen's observation that Braess revealed the circumstances under which "everyone [is] worse off if they pursued their own self-interest" rather than considering the impact of their behavior on others).

⁵⁷ Various proposals have been set forth to tax drivers for using roads as one way to force internalization of marginal costs. See, e.g., Jonathan Marshall, *How to Break Up Traffic Jams*, WALL ST. J., Sept. 15, 1986, § 1, at 32 (describing successful electronic toll programs in Singapore and Hong Kong and advocating their application in the United States). On February 17, 2003, London's mayor introduced a controversial "congestion charge" for auto travel within the city center. See *Special Report: Congestion Charging*, Guardian, at <http://www.guardian.co.uk/congestion/0,12768,868135,00.html> (updated daily) (offering a complete guide to every aspect of congestion charging, including how to pay the charge, where it applies, treatment of violators, and so on); see also Eric I. Pas & Shari L. Principio, *Braess' Paradox: Some New Insights*, 31 TRANSP. RES.-B 265, 273–75 (1997) (testing the parameters under which marginal cost pricing counteracts the induced travel effect).

B. Empirical Evidence of Induced Traffic

Demonstrating that additional roadways lead to increases in traffic is not easy because it is challenging to control for exogenous factors that might also increase traffic.⁵⁸ Most transportation researchers acknowledge that it is extremely hard to distinguish the induced travel effect from other factors such as population and demographic changes. Nevertheless, they have attempted to do so, employing three research methods in an attempt to differentiate an induced traffic effect from other influences on travel: case studies, area-wide studies, and behavioral surveys.⁵⁹

Researchers conducting before-and-after case studies measure the level of travel and travel times on a specific roadway in periods immediately prior to and after construction.⁶⁰ Summarizing these case studies, David Levinson and Seshasai Kanchi report that researchers generally have found that a one percent increase in road capacity produces a one-half to one percent increase in vehicle miles traveled in the long term.⁶¹ That is, over time, *new* traffic, rather than the backlog of existing traffic, may consume anywhere from 50 to 100 percent of the additional road capacity. For example, researchers found that an increase in high-occupancy vehicle lanes in several California communities resulted in an increase in vehicle miles traveled, although travel times remained lower.⁶² Mark Hansen, a University of California-Berkeley researcher, reported that additional lanes in eighteen different California locations resulted in increases in segment traffic, but

⁵⁸ See Fulton et al., *supra* note 50, at 2 (reporting that “[w]hether and to what extent addition of roadway capacity induces additional travel has been a cause of controversy in recent years and is confounded by the fact that other exogenous factors such as increases in population and demographic changes have also driven [vehicle miles traveled] growth”); Phil B. Goodwin, *Empirical Evidence on Induced Traffic: A Review and Synthesis*, 23 *TRANSP.* 35, 36–37 (1996) (reviewing competing analyses of available evidence on induced traffic). Not surprisingly, the arguments have spread to policy debates between those favoring construction (typically business interests) and those opposed (frequently environmental groups). Compare WENDELL COX, *SPEEDING UP THE FLOW OF TRAFFIC MAKES OUR LIVES MORE REWARDING AND OUR ECONOMY MORE EFFICIENT* (The Heartland Institute Working Paper, June 1, 2001), <http://www.heartland.org/article.cfm?artId=1072>, with Sierra Club, *Stop Sprawl—Induced Traffic Confirmed*, at <http://www.sierraclub.org/sprawl/transportation/seven.asp> (last visited Feb. 10, 2003).

⁵⁹ See generally Harry Cohen, *Appendix B: Review of Empirical Studies of Induced Traffic*, in *TRANSP. RESEARCH BD.*, *supra* note 47, at 295 (1995); Denvil Coombe, *Induced Traffic: What Do Transportation Models Tell Us?*, 23 *TRANSP.* 83 (1996) (evaluating multivariate transportation models testing the relative import of various factors in increased traffic).

⁶⁰ For a description of several case studies and an appraisal of their methodology, see *TRANSP. RESEARCH BD.*, *supra* note 47, at 152–55.

⁶¹ See DAVID LEVINSON & SESHASAI KANCHI, *WHENCE INDUCED DEMAND: HOW ACCESS AFFECTS ACTIVITY 2* (California PATH Working Paper UCB-ITS-PWP-2000-21, Oct. 2000) (on file with authors) (observing that economists have found price elasticity of demand for highway capacity to range from -0.5 to -1.0).

⁶² See generally Robert A. Johnston & Raju Ceerla, *The Effects of New High-Occupancy Vehicle Lanes on Travel and Emissions*, 30 *TRANS. RES.-A* 35 (1996).

congestion (measured by the ratio of vehicles to lane miles) decreased.⁶³ In a study of aggregated data from all fifty states, Robert Noland found that an increase in vehicle lanes produces an increase in travel, holding all other factors constant.⁶⁴

Researchers who conduct area-wide studies look at an entire transportation network, typically a metropolitan area, rather than a particular roadway.⁶⁵ The advantage of this approach is that it allows for consideration of route change effects and long-term shifts in land usage in response to the construction of roads. Generally, researchers find even greater responsiveness of demand to supply in area-wide studies than in case studies.⁶⁶

Researchers also use commuter surveys to assess induced travel. Researchers interview commuters at several points in time: prior to the construction of a new road or lane, immediately following construction, and then at a later point in time when the effects of expansion have “settled” (typically two to three years).⁶⁷ Surveys have been the least effective means of discerning the relationship between road supply and demand, in part because the requirements for survey size and scope have been somewhat daunting.⁶⁸ Few survey results have been published.

While these empirical studies have some persuasive force, all are limited by their methods and data. It is simply quite difficult to distinguish changes in travel due to road construction from changes due to the very same factors that prompted the road construction in the first place. Given

⁶³ See Hansen, *supra* note 44, at 9–11; see also Mark Hansen & Yuanlin Huang, *Road Supply and Traffic in California Urban Areas*, 31 TRANS. RES.-A 205 (1997) (using panel data to demonstrate influence of new lane miles on vehicle miles traveled).

⁶⁴ See Noland, *supra* note 49, at 56–67 (using a fixed effects cross-sectional time series model); see also Fulton et al., *supra* note 50, at 13.

The results presented indicate a significant relationship between the level of highway capacity, as measured by lane-miles, and the level of travel, measured by daily VMT, in the Mid-Atlantic region of the United States. After accounting for other important determinants of travel and for potential simultaneity bias, the estimated elasticity between VMT and lane-miles is estimated at 0.2 to 0.6. This implies that a 10% increase in lane-mileage can result in anywhere from a 2 to 6% increase in total VMT.

Id.

⁶⁵ See, e.g., TRANSP. RESEARCH BD., *supra* note 47, at 155–57 (evaluating the area-wide methodology).

⁶⁶ Research appears to indicate that price elasticity of travel demand is greater as a study’s focus expands: moving from 0.3-0.4 for individual highway segments to 0.6 at the county level to 0.9 at the metropolitan level. See Hansen, *supra* note 44, at 11–13; see also Fulton et al., *supra* note 50, at 8 (reporting, in a study of Maryland, D.C., Virginia, and North Carolina, that “after controlling for population and income, a 10% increase in lane-miles correlates with a 3 to 6% increase in daily VMT in the Mid-Atlantic region). By considering a larger geographic region, area-wide studies also may reveal greater social benefits despite the increased travel times because they consider broader economic changes.

⁶⁷ See, e.g., Dowling & Colman, *supra* note 47, at 145–47 (describing methodology of their survey of 700 urban Californians and reporting a small but significant increase in reported trip generation due to highway improvement).

⁶⁸ Peter Bonsall, *Can Induced Traffic Be Measured by Surveys?*, 23 TRANSP. 17 (1996).

the murky results of the empirical tests of induced traffic, some experts question the significance of the phenomenon.⁶⁹ However, even those skeptical of the empirical results acknowledge induced traffic must be taken into account in transportation planning.⁷⁰

Scholars in other fields have also incorporated the theory into their research, despite the challenges of empirical proof. Researchers have drawn upon induced traffic theory to understand induced demand for a wide range of impure public goods (or club goods), including medical services, telecommunications, and computer networks.⁷¹ To our knowledge, however, no one has done so in law.⁷²

III. INDUCED LITIGATION

Congestion is a problem not only on the nation's roadways, but also in the nation's courts. Court reformers, like transportation planners, often contend the perfect decongestant is an increase in supply. By increasing the number of courts and judges, the court reformers argue that the judicial system will be able to accommodate existing demand without stimulating new

⁶⁹ See, e.g., *id.*

⁷⁰ See, e.g., Kevin Heanue, *Highway Capacity and Induced Travel: Issues, Evidence and Implications*, 481 TRANSP. RES. CIRCULAR 33, 44 (1998) (concluding that “[t]he major determinants of travel demand are clearly socio-economic in nature. However, the inducement of travel due to any transportation system change is an issue that needs to be and can be addressed by considering behavioral and land use change mechanisms.”).

⁷¹ See, e.g., Bass, *supra* note 56, at 56 (detailing the work of mathematical biologist Joel Cohen who has applied Braess's Paradox to an amazing array of settings: “Everywhere he looks, Cohen discovers new examples of networks where added capacity can make things worse than before”); Nobuyuki Izumida et al., *An Empirical Study of the Physician-Induced Demand Hypothesis*, 8 REV. POPULATION & SOC. POL'Y 11 (1999) (considering the effects of an increase in the number of physicians on the demand for medical care); Frank P. Kelly, *Network Routing*, 337 PHIL. TRANS. ROYAL SOC'Y 343 (1991) (utilizing Braess's Paradox to understand congestion on computer and telecommunication networks), available at <http://www.statslab.cam.ac.uk/~frank/CP/CPREAD/nr.html>; James Surowiecki, *Fast Times at Nasdaq High*, NEW YORKER, Aug. 13, 2001, at 29 (using induced traffic theory to understand why “adding capacity [to the Nasdaq data center] seems to encourage traders to take advantage of it” such that “[e]very year, Nasdaq adds more and more capacity . . . [a]nd every year the traders trade more than Nasdaq anticipated”); see also Joel E. Cohen & Frank P. Kelly, *A Paradox of Congestion in a Queuing Network*, 27 J. APPLIED PROBABILITY 730 (delineating a general model of queuing networks derived from Braess's Paradox and applicable to any system marked by waiting times due to crowding).

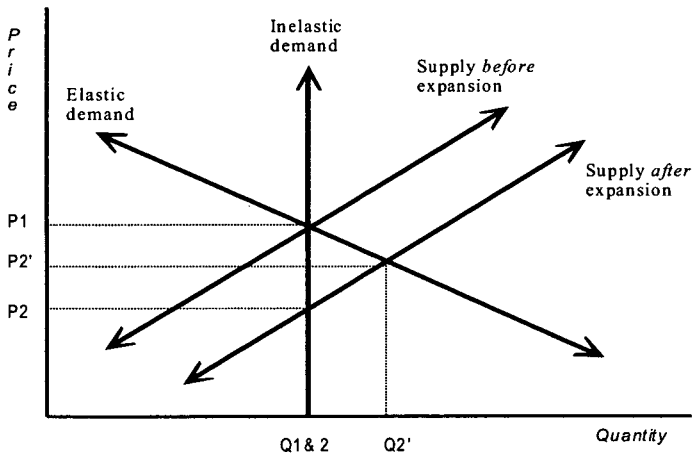
⁷² Legal scholars have recognized that adding more judges and/or decreasing delay may lead to an increase in litigation that may surpass any initial demand. See, e.g., RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* § 21.12 (5th ed. 1998) (explaining how queuing costs may decrease the demand for litigation and thus delay has benefits as well as costs); Richard A. Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, 2 J. LEGAL STUD. 399, 445–48 (1973) (explaining how delay results in a discount in the present value of litigation outcomes and thus increases the probability of settlement); Priest, *supra* note 5, at 539–57 (arguing that court backlogs reflect an equilibrium of delay and any changes will only have a short-term effect on disposition times); see also Kevin M. Clermont & Theodore Eisenberg, *Litigation Realities*, 88 CORNELL L. REV. 119, 129–32 (2002) (reviewing Posner's evaluation of the discounting effect of delay and Priest's equilibrium delay argument).

demand.⁷³ In fact, however, the addition of judicial resources may induce new demand. Relying on induced traffic theory, we develop a model of induced litigation below. To do so, we first explore litigation demand and supply and then propose our model.

A. Litigation Demand

Many court administration studies conclude that an increase in judicial resources will have one consequence—it will reduce delays for existing litigants—and one *non*-consequence—it will *not* induce others to litigate. These studies rest on the dubious assumption that demand is “inelastic” or insensitive to changes in the implicit price that litigants must pay in terms of waiting time to litigate a case to resolution.⁷⁴ These court reformers assume, in short, that litigants are equally willing to litigate their cases whether the expected duration of litigation is three years or three months. To demonstrate why this assumption is problematic, consider the demand curve for adjudication depicted in Figure 3.

Figure 3: Effects of Elasticity of Demand: Before and After Court Expansion



⁷³ See *supra* note 7.

⁷⁴ See, e.g., Admin. Office of the U.S. Courts, *supra* note 7, at 1 (describing most recent U.S. Judicial Conference request for fifty-seven additional judgeships to address growing caseloads). In his examination of alternative dispute resolution systems, Frank Sander recognized that an improvement or expansion of such systems might lead to an increase in disputes:

It is important to realize, however, that by establishing new dispute resolution mechanisms, or improving existing ones, we may be encouraging the ventilation of grievances that are now being suppressed. Whether that will be good (in terms of supplying a constructive outlet for suppressed anger and frustration) or whether it will simply waste scarce societal resources (by validating grievances that might otherwise have remained dormant) we do not know. The important thing to note is that there is a clear trade-off: the price of an improved scheme of dispute processing may

The demand curve depicts the relationship between the desire of individuals to litigate and the price of litigation (i.e., the time required for resolution of a dispute).⁷⁵ Thus, the demand curve shows the quantity of justice demanded at each level of waiting time. The demand curve, by definition, provides information with respect to a particular period of time; that is, all other factors that affect demand are held constant so that we can isolate the relationship between price and quantity demanded. If the quantity demanded is unresponsive to the price of litigation, then the demand curve is a vertical line because the quantity demanded is constant regardless of price; that is, demand is completely “inelastic” with respect to price.⁷⁶ Figure 3 presents such an inelastic litigation demand curve.⁷⁷

In Figure 3, the level of litigation prior to court expansion is $Q1$ and the waiting-time price of litigation is $P1$. If demand is inelastic, increased judicial capacity—reflected in an outward shift of the supply curve—results in a much lower price of litigation ($P2$), while the quantity of litigation remains the same ($Q1=Q2$). If litigation demand is completely unresponsive to changes in the price of litigation, then additional judges and courts will have no effect on the quantity of adjudication demanded. This means that new judges will relieve caseload backlogs in direct proportion to their additional numbers, as many court reform proposals assume.

However, litigation demand is highly unlikely to be inelastic. That is, the inelastic demand curve in Figure 3 is highly unlikely to reflect demand accurately. Potential litigants, at least those represented by counsel, are likely to consider the ability of courts to offer swift and effective resolution when deciding whether to use the judicial system.⁷⁸ Thus, we expect the demand for litigation to increase as the price of litigation decreases, *holding all other factors constant*.⁷⁹ (The *ceteris paribus* assumption allows us to

well be a vast increase in the number of disputes being processed.

Frank E.A. Sander, *Varieties of Dispute Processing*, 70 F.R.D. 111, 113–14 (1976).

⁷⁵ We could treat price as including other factors related to crowding, including lower quality decision making by overworked judges.

⁷⁶ The price elasticity of demand measures the relationship between quantity demanded and price. In terms of the demand curve, elasticity is the slope—the ratio of percentage change in the quantity demanded to the percentage change in the price, *holding all other factors constant*. The larger the ratio, then the more responsive demand is to price. For example, an elasticity or slope of -5 means that a 10 percent increase in price results in a 50 percent decrease in quantity demanded. If elasticity is zero, then the quantity demanded does not change when price changes. A curve with zero elasticity is called inelastic. See generally BROWNING & ZUPAN, *supra* note 10, at 32–35; PINDYCK & RUBINFELD, *supra* note 13, at 30–31, 117, 165.

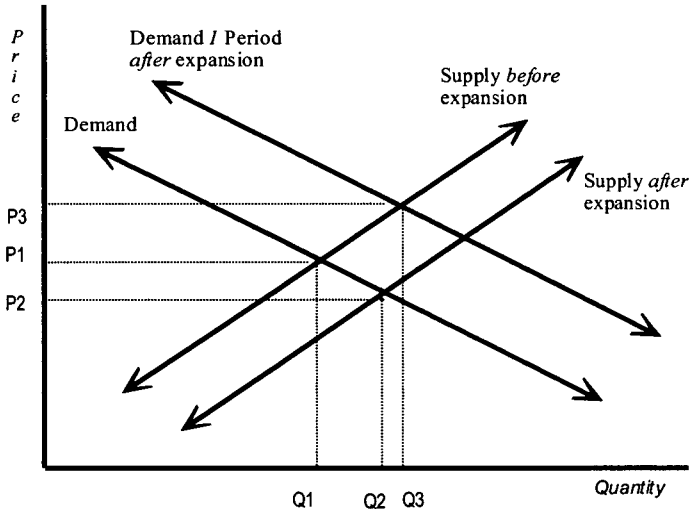
⁷⁷ We assume at present that supply is sensitive to price.

⁷⁸ This “model” assumes complete information; as a practical matter, however, it seems unlikely that any plaintiffs will know much about waiting times applicable to their cases, hence the important inclusion of plaintiffs’ lawyers as sources of knowledge. This basic set of insights also can help us understand the reluctance to sue big, deep-pocket defendants who can unilaterally impose delays on a plaintiff in litigation and thereby increase the price as well.

⁷⁹ Cf. Priest, *supra* note 5, at 542–43 (finding that for marginal litigants the suit-to-trial delay influenced the decision to settle rather than go to trial).

focus on the independent effect of price on litigation.) In other words, the demand for litigation is likely to be elastic with respect to price (i.e., the *quantity* demanded responds to the price level as reflected in the elastic demand curve in Figure 3).⁸⁰ The relationship is negative because a lower price leads to a higher quantity demanded, and the demand curve for litigation slopes downward (i.e., a negative slope).⁸¹ If price of litigation increases due to longer delays in the system, then the number of lawsuits filed falls. This reflects the basic law of demand.⁸² If litigation demand is elastic, the price of litigation falls to $P2'$ after court expansion rather than to the lower price of $P2$, and the quantity of litigation increases to $Q2'$. Thus, a change in the price of litigation will result, in the short term, in a change in the quantity demanded (a move *along* the demand curve).

Figure 4: Shift in Demand One Period After Court Expansion



In the long term, expansion of court capacity will have a more substantial effect: Litigants will fundamentally alter their demand to reflect the relatively lower cost of litigation, producing an outward shift in the demand curve as reflected in Figure 4. This fundamental revision reflects a change

⁸⁰ BROWNING & ZUPAN, *supra* note 10, at 32–35; PINDYCK & RUBINFELD, *supra* note 13, at 30–31.

⁸¹ If the price elasticity of demand is greater than one, then a one percentage point increase in price leads to a greater than one percentage point decrease in quantity demanded and total expenditures will fall. If the price elasticity of demand is less than one, then a one percentage point increase in price results in a less than one percentage point decrease in quantity and total expenditure will rise. If price elasticity is exactly one (known as unit elasticity), a change in price produces no change in total expenditure.

⁸² BROWNING & ZUPAN, *supra* note 10, at 15–17.

in the other activities potential plaintiffs undertake that influence their use of courts over time. This is the same type of change observed in potential travelers who adjust their living and working arrangements to incorporate the availability of a new or expanded road. Likewise, underlying litigation demand will change in character in response to the increased supply. The change could be new suits (civil or criminal), redistribution of suits (e.g., from state to federal court or from one district to another), mode shift (e.g., litigation rather than mediation or plea bargaining), route shift (e.g., increase in motions), or increases in bargaining breakdowns (e.g., individuals negotiating contracts will recognize a decrease in costs of litigation and thus will find certain present negotiations relatively more costly given probabilities of disagreement).

Figure 4 reflects one possible state of the world following court expansion. In the short term (period 1 to period 2), the price of litigation decreases while the quantity increases. But over the longer term, individuals adjust their demand to reflect the new state of the world, and the demand curve shifts to the right. In the Figure 4 example, price in period 3 is higher than it was prior to expansion. Courts are more congested, not less. Induced traffic theory explains how underlying litigation demand can adjust such that court congestion could be *higher* after expansion than it was before expansion.⁸³

The demand curves in Figures 3 and 4 reflect changes only in response to the price of litigation. The demand for litigation obviously is affected by other factors as well.⁸⁴ A change in other variables will produce a shift in the demand curve so that the quantity demanded at each price will change. One salient factor is the price of related goods, including substitutes or complements. For example, the cost of alternative dispute resolution mechanisms (“ADR”), such as mediation or arbitration, should affect the demand for litigation because ADR can provide a *substitute* for litigation. If the price of ADR rises, then the demand for litigation should also rise (i.e., the demand curve shifts out): Trial is substituted for an ADR process like arbitration when the relative cost of arbitration increases.⁸⁵ By contrast, lawyers and litigation are *complements* because the two goods are con-

⁸³ Other states of the world are possible. The demand curve may shift less (or more) than reflected in Figure 4. If demand is less responsive than depicted, then courts will be less congested, although not in direct proportion to the change in judicial supply.

⁸⁴ One aspect of dispute resolution demand that lacks a clear parallel in the transportation context is the effect of another party—defendants in disputes—on demand. While third-party factors certainly influence travel demand (e.g., employers’ and store owners’ decisions about where to locate, etc.), none seem as direct and individualized as the impact of a defendant on a plaintiff or prosecutor’s decision to litigate. Of course, given the role of large entities in defending lawsuits in significant numbers, such as insurance companies in the civil setting and the government in both civil and criminal cases, we might be able to set aside this distinction in drawing the transportation-adjudication analogy.

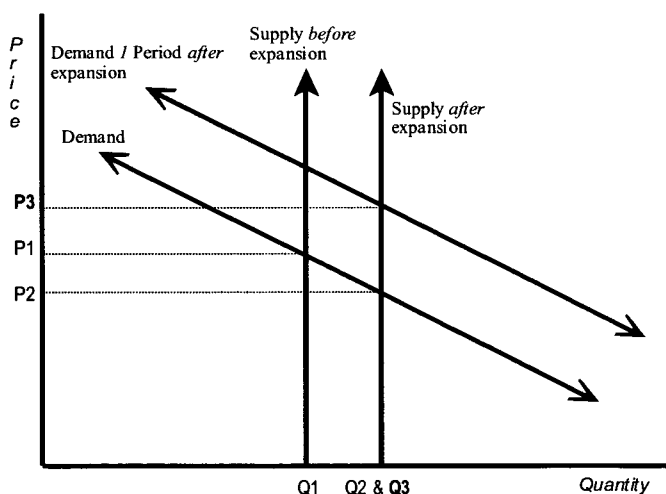
⁸⁵ Goods that are substitutes are marked by negative cross-price elasticity. See *generally id.* at 40.

sumed together. If the contingency fee that lawyers charge rises, then the demand for litigation should decrease (the demand curve shifts in).⁸⁶

B. Litigation Supply

The supply of state-sponsored adjudication, unlike demand, is not responsive to waiting-time price. The supply of judges and courts is fixed at any point in time. Governments may decide to offer more or less adjudication in response to many factors, including tax receipts, interest group pressures, congestion in the courts, and the like. But the willingness of litigants to wait longer will not lead to a direct increase in court resources, although these factors may influence the government's decisions about expanding or contracting resources over time. Thus, the supply curve for litigation is completely inelastic—it is a vertical curve because the quantity of adjudication supplied at a particular time is constant.⁸⁷ Figure 5, below, presents an updated depiction of litigation supply and demand to reflect this.

Figure 5: Inelastic Litigation Supply and Shifts in Demand and Supply



Unlike the supply of market goods, the supply of government-provided public goods—whether pure or impure—does not respond to market forces, but rather responds to political ones. Political pressures often follow from market factors, but they are filtered through the complex relationships of

⁸⁶ See *id.* at 17–18; PINDYCK & RUBINFELD, *supra* note 13, at 33, 109–10.

⁸⁷ See BROWNING & ZUPAN, *supra* note 10, at 40. The (price) elasticity of supply is the percentage change in quantity supplied divided by the percentage change in price. The elasticity of litigation supply is zero, hence the supply curve is vertical. *Id.*

elected officials with constituents, interest groups, bureaucrats, and *other* elected officials.⁸⁸ In the case of litigation supply, all the institutional factors are in play.⁸⁹ Because the supply is constant at any particular point in time, the equilibrium price of litigation is set entirely by the supply curve.

If a government adds judges, then the supply curve would shift outward—to the right—as reflected in Figure 5. Now, at every price, the quantity supplied is equal to the pre-expansion number of judges plus the new judges (i.e., $Q1 + \text{new judges} = Q2$). The equilibrium price of litigation is determined by the intersection of the demand curve and the new supply curve ($P2$). The quantity of litigation, however, is wholly dependent on its supply because supply is inelastic.⁹⁰ By the second period following judicial expansion, induced litigation has resulted in greater congestion (higher price at $P3$) than existed prior to court expansion.

C. The Induced Litigation Model

An increase in the number of judges, and the resulting decline in adjudication delay, should lead to an increase in the number of lawsuits. Of course, the demand for lawsuits comes from many potential sources. We have to consider these other factors influencing demand in order to understand the consequences of changes in court structure. Anyone considering litigation—either the actual plaintiff or the attorney (including prosecutors)—contemplates certain issues:⁹¹

- whether to pursue a dispute at all (or “dispute generation”)?
- by which process (or “modal distribution”)?

⁸⁸ Consider, for example, the decision to split the Fifth Circuit as detailed in DEBORAH BARROW & THOMAS WALKER, *A COURT DIVIDED: THE FIFTH CIRCUIT COURT OF APPEALS AND THE POLITICS OF JUDICIAL REFORM* (1988).

⁸⁹ See the following sources on the role of political factors in the expansion of the federal courts: John M. De Figueiredo & Emerson H. Tiller, *Congressional Control of the Courts: A Theoretical and Empirical Analysis of Expansion of the Federal Judiciary*, 39 J.L. & ECON. 435 (1996) (finding that political goals explained the timing of court of appeals expansion: the federal government is more likely to add judges when both chambers and the executive are controlled by the same party (unified government) and when it is expected that such unification will continue to the time of appointment (if the act takes place in a period straddling presidential terms)); Jon R. Bond, *The Politics of Court Structure: The Addition of New Federal Judges, 1949-1978*, 2 L. & POL’Y Q. 181 (1980); McNollgast, *Packing the Courts: The Politics of Creating Federal Judgeships* (on file with authors).

⁹⁰ The government controls the price of litigation and thus the size of the consumer surplus, which is the difference between what litigants would pay and do pay for litigation. PINDYCK & RUBINFELD, *supra* note 13, at 114. Following the expansion of the court system, potential litigants seek more adjudication and pay a lower price, resulting in more consumer surplus. We can see this gain directly in Figure 5. The consumer surplus in time period 1 is reflected by the smaller right triangle formed by the intersection of the demand curve with the y-axis and the $P1$ price as the base. After the supply curve shifts to the right (reflecting a greater quantity of litigation available), the price for litigation decreases to $P2$. Consumer surplus in time 2 is the larger right triangle with the base at $P2$.

⁹¹ This discussion emulates Peter Hills’s mathematical model of traffic. See Hills, *supra* note 47, at 15.

- in which forum to file (or “jurisdiction shopping”)?
- whether to litigate alone or with others (e.g., class action, joint prosecution)?
- how often to litigate (or “litigation frequency”)?

The answers to these questions, in turn, determine the demand for litigation. Thus, a model of litigation levels would have to consider how these various factors come into play.

The general induced litigation model would take the following form:

$$\text{Cases filed}_{i,t} = \beta_0 + \alpha_i + \beta_k (X_{i,t,k}) + \lambda (\text{price}_{i,t-1}) + \varepsilon$$

The parameters and variables are defined as follows:

<i>Variable</i>	<i>Definition</i>
Cases filed _{i,t}	number of new civil suits filed in district <i>i</i> for year <i>t</i> (dependent variable)
β_0	constant term
α_i	a dummy variable for each district or jurisdiction <i>i</i>
β_k	coefficients for demographic and other explanatory (or independent) variables
$X_{i,t,k}$	value of demographic and other explanatory variables for district <i>i</i> in year <i>t</i>
λ	coefficient for waiting-time price of litigation
price _{i,t+1}	the waiting-time price of litigation in district <i>i</i> for year <i>t</i> lagged by one year
ε	random error term

The model explains the number of new civil suits filed in a given year in a particular district (or court) as a result of the independent, or explanatory, variables on the right-hand side of the equation. The primary variable of interest is the waiting-time price of litigation—this measures the induced litigation effect. The variable is lagged one year to allow potential litigants (or their counsel) to learn of any change in waiting-time price before making a filing decision. The model also controls for other variables that may explain changes in the level of civil filings, such as demographic shifts or dramatic changes in legal rights. In order to control for jurisdiction-specific

effects, the model controls for the identity of the court in a dummy variable.⁹²

This model of induced litigation—derived in part from theoretical and empirical work on induced traffic in other domains—strongly suggests that induced traffic is a phenomenon that affects not only the roadways but also the courts.

IV. NORMATIVE IMPLICATIONS OF INDUCED TRAFFIC

Court reformers may face an unwelcome surprise if they allocate additional resources to courts. Rather than facilitating the efficient resolution of existing cases, they might actually induce litigation. More courthouses, more courtrooms, and more judges may simply mean that more litigants bring their disputes to court. This raises important normative questions about society's investment in dispute resolution: If additional judicial resources will induce litigation, should court reformers heed the calls of the Chief Justice⁹³ and Judge Reinhardt⁹⁴ for more judges and more courts? Or should they turn a blind eye to the judicial elite and hold resources constant to prevent increases in litigation rates? Might it even make sense to *contract* judicial resources in an attempt to decrease litigation? One's answers to the normative questions raised by this Essay depend on one's view of the proper role of litigation in a constitutional democracy.

A. Over-Litigation

One group of scholars and commentators—which we call the “private ordering” group—focuses on the impure public good component of litigation. The members of this group contend that America is too litigious. Beginning at least as early as 1970 and continuing to the present, members of this group have complained about a “litigation explosion” in American courts.⁹⁵ In 1973, for example, Justice Warren Burger, one of the early leaders of this group, warned of an “unprecedented explosion of litigation” and claimed that “the number of cases filed and the number tried and disposed of have undergone an explosive increase in the past ten

⁹² For an explanation of dummy variables, see ERIC A. HANUSHEK & JOHN E. JACKSON, STATISTICAL METHODS FOR SOCIAL SCIENTISTS 101–08 (1977).

⁹³ See *supra* note 2.

⁹⁴ See *supra* note 1.

⁹⁵ See Marc Galanter, *The Turn Against Law: The Recoil Against Expanding Accountability*, 81 TEX. L. REV. 285, 292 n.44 (2002) (claiming that the term “litigation explosion” first appeared in print in 1970 and attributing it to Justice Macklin Fleming of the California Court of Appeals); Arthur R. Miller, *The Pretrial Rush to Judgment: Are the ‘Litigation Explosion,’ ‘Liability Crisis,’ and Efficiency Cliches Eroding Our Day in Court and Jury Trial Commitments?*, 78 N.Y.U. L. REV. 982, 985 (2003) (“The contemporary perception of a crisis in the judicial system first became prominent in the 1970s.”).

years.”⁹⁶ More recently, former Vice President Dan Quayle and the President’s Council on Competitiveness asserted that “America has become a litigious society”⁹⁷ with “one lawsuit for every ten adults.”⁹⁸ Arthur Miller, a prominent observer of the civil justice system, described the “recent outcry in this country over the social costs of litigation” as “unprecedented in its decibel level and sense of urgency.”⁹⁹

The private ordering group supports its claim that America is in the midst of a litigation crisis by pointing to the dramatic rise in per capita case filings.¹⁰⁰ In the state courts, for instance, the number of civil cases filed from 1984 to 2000 increased by 30 percent, rising from 11,485,973 cases in 1984 to 14,957,085 in 2000.¹⁰¹ During this same time period, the population increased by 19.5 percent, rising from 236.3 million in 1984 to 282.3 million in 2000.¹⁰² As Figure 6 shows, civil case filings grew approximately 50 percent faster than the population.¹⁰³

⁹⁶ Warren Burger, *The State of the Federal Judiciary—1972*, 58 A.B.A. J. 1049, 1049 (1973).

⁹⁷ PRESIDENT’S COUNCIL ON COMPETITIVENESS, AGENDA FOR CIVIL JUSTICE REFORM IN AMERICA 1 (1991) [hereinafter PRESIDENT’S COUNCIL].

⁹⁸ *Id.* (referring to 1989).

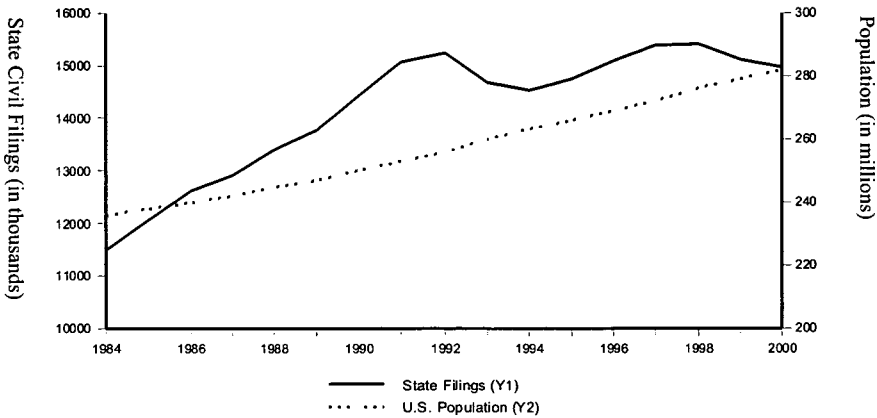
⁹⁹ Miller, *supra* note 95, at 986.

¹⁰⁰ See, e.g., Samuel Jan Brakel, *Using What We Know About Our Civil Litigation System: A Critique of “Base-Rate” Analysis and Other Apologist Diversions*, 31 GA. L. REV. 77, 88 (1996) (“Some things cannot be denied. The steep rise in the number of cases filed in American courts in recent decades is one such thing.”); Marc Galanter, *The Day After the Litigation Explosion*, 46 MD. L. REV. 3, 5 (1986) (“The core observation that supports the ‘litigation explosion’ or ‘hyperlexis’ reading of contemporary American life is that there is more litigation—that is, that more cases are filed in American courts.”); Miller, *supra* note 95, at 985 (observing that “the phenomenon described in the [litigation explosion] literature involves increasing rates of litigation”).

¹⁰¹ These data are taken from the National Center for State Courts Court Statistics Project. See http://www.ncsconline.org/D_Research/csp/2000_Total_Caseloads.html; see also Brakel, *supra* note 100, at 139 (“New compilations from the National Center for State Courts document a 24% rise in civil case filings between 1984 and 1994, a period during which the U.S. population grew roughly 10%.”).

¹⁰² These data are taken from the online version of the Statistical Abstract of the United States, maintained by the U.S. Census Bureau, which is at <http://www.census.gov/prod/2003pubs/02statab/pop.pdf>. National population figures (in millions) are as follows: 1984 – 236,348,000; 1985 – 238,466,000; 1986 – 240,651,000; 1987 – 242,804,000; 1988 – 245,021,000; 1989 – 247,342,000; 1990 – 250,132,000; 1991 – 253,493,000; 1992 – 256,894,000; 1993 – 260,255,000; 1994 – 263,436,000; 1995 – 266,557,000; 1996 – 269,667,000; 1997 – 272,912,000; 1998 – 276,115,000; 1999 – 279,295,000; 2000 – 282,339,000; 2001 – 285,024,000.

¹⁰³ Here are the civil filings in state courts from 1984 to 2000: 1984 – 11,485,973; 1985 – 12,042,318; 1986 – 12,605,549; 1987 – 12,916,756; 1988 – 13,399,310; 1989 – 13,751,592; 1990 – 14,432,413; 1991 – 15,069,222; 1992 – 15,240,570; 1993 – 14,666,165; 1994 – 14,520,921; 1995 – 14,739,442; 1996 – 15,074,509; 1997 – 15,385,638; 1998 – 15,408,397; 1999 – 15,122,241; 2000 – 14,957,085. See National Center for State Courts Court Statistics Project, *supra* note 101.

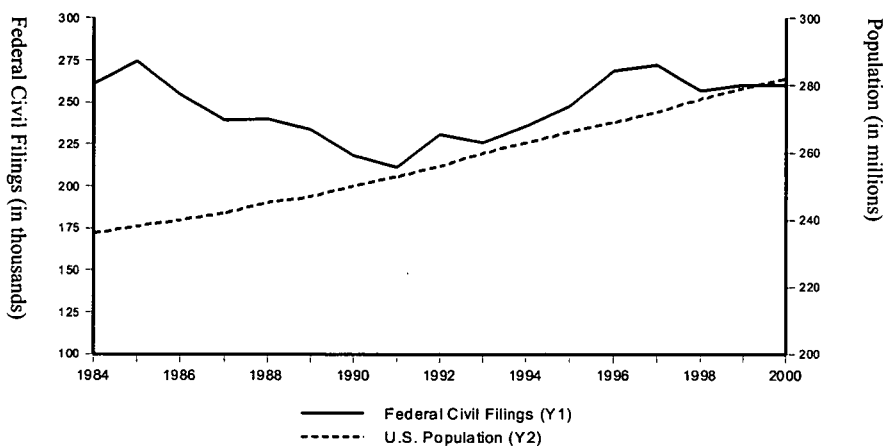
Figure 6: Growth in State Civil Filings Compared to Population

The growth in civil case filings has also been pronounced in the federal courts. From 1993 to 2002, the number of civil cases filed in federal district courts increased by 21.5 percent, rising from 226,165 cases in 1993 to 274,841 cases in 2002.¹⁰⁴ During this same period, the population increased by approximately 10.8 percent, rising from 260.3 million in 1993 to an estimated 288.4 million in 2002.¹⁰⁵ As Figure 7 shows, civil case filings grew at roughly twice the rate of the population during this period.¹⁰⁶

¹⁰⁴ These data are taken from the U.S. Courts website at <http://www.uscourts.gov/judbususc/judbus.html>. See also PRESIDENT'S COUNCIL, *supra* note 97, at 1 (noting that the total number of cases filed in federal district courts nearly tripled from 1960 to 1990, rising from 89,112 in 1960 to 251,113 in 1990); WILLIAM P. MCLAUCHLAN, FEDERAL COURT CASELOADS 200 (1984) ("More and more cases are being filed in or appealed to the federal courts as time goes by, and the rate of increase seems to be growing as well.").

¹⁰⁵ For population figures, see *supra* note 102. We use the term "approximately" because the U.S. Census Bureau has only estimated the population through July 2002. See U.S. Census Bureau, Population Estimates, at <http://c2k0.census.gov/popest/estimates.php>.

¹⁰⁶ Here are the civil case filings in federal courts from 1993 to 2002: 1993 – 226,165; 1994 – 236,391; 1995 – 248,335; 1996 – 269,132; 1997 – 272,027; 1998 – 256,787; 1999 – 260,271; 2000 – 259,517; 2001 – 250,907; 2002 – 274,841. See Admin. Office of the U.S. Courts Website, <http://www.uscourts.gov/judbususc/judbus.html>.

Figure 7: Growth in Federal Civil Filings Compared to Population

The private ordering group views these statistics with alarm, arguing that litigation imposes significant costs on society,¹⁰⁷ threatens American's competitiveness in the global marketplace,¹⁰⁸ and reflects, reinforces, and perhaps even causes tears in America's moral and social fabric.¹⁰⁹ From the perspective of the private ordering group, society should not expand judicial resources if it will induce litigation that would not otherwise arise. Rather, society should deter disputants from filing suit and encourage them to resolve their disputes outside the courts.

B. Under-Litigation

Another group of scholars and commentators—which we call the “public adjudication” group—focuses on the pure public good component of

¹⁰⁷ See, e.g., ROBERT A. KAGAN, *ADVERSARIAL LEGALISM: THE AMERICAN WAY OF LAW* 100, 105–11 (2001) (arguing that “adversarial legalism makes American civil litigation especially costly, unpredictable, and alienating” and describing some of these effects in detail); PRESIDENT’S COUNCIL, *supra* note 97, at 1 (arguing that the “dramatic growth in litigation carries with it very high costs for the U.S. economy”). For a general treatment, see WALTER K. OLSON, *THE LITIGATION EXPLOSION: WHAT HAPPENED WHEN AMERICA UNLEASHED THE LAWSUIT* (1991).

¹⁰⁸ See, e.g., Miller, *supra* note 95, at 984 (“Critics maintain that excessive and frivolous litigation overwhelms the judicial system’s capacity to administer speedy and efficient justice, leads to higher costs for litigants and society at large, and even hinders America’s competitive position in the global economy.”); PRESIDENT’S COUNCIL, *supra* note 97, at 3 (“In a survey of over 250 American companies, more than three-quarters of the executives said they believe that the United States will be increasingly disadvantaged in world markets unless modifications are made in the liability system.”). For a general treatment, see OLSON, *supra* note 107.

¹⁰⁹ See, e.g., Galanter, *supra* note 100, at 5 (“It has become a commonplace that the United States is the most litigious nation on earth, indeed in human history, and that excessive resort to law marks America’s moral decline and portends painful political and economic consequence.”). For a general treatment, see OLSON, *supra* note 107.

litigation. The members of this group contend that Americans are not litigious enough. They do not advocate litigation for litigation's sake, but they do contend that Americans often sit on their rights to their own detriment and to the detriment of society. For the members of the public adjudication group, the crisis in the courts is "a crisis of underclaiming rather than overclaiming."¹¹⁰

The public adjudication group acknowledges that litigation rates have risen on a per capita basis,¹¹¹ but its members contend that "[r]ates per capita are only a surrogate measure for the propensity to litigate."¹¹² To appreciate whether individuals are overly litigious (as the private ordering group contends) or insufficiently litigious (as the public adjudication group contends), the public adjudication group argues that court reformers should look not at the rate of per capita court filings, but rather at the rate of court filings relative to injuries suffered.¹¹³ That is, court reformers should measure the rate at

¹¹⁰ Richard L. Abel, *The Real Tort Crisis—Too Few Claims*, 48 OHIO ST. L.J. 443, 447 (1987); see also PAUL C. WEILER ET AL., *A MEASURE OF MALPRACTICE: MEDICAL INJURY, MALPRACTICE LITIGATION, AND PATIENT COMPENSATION* 140 (1993) (reporting that "our analysis of malpractice litigation data demonstrates that the problem is not a litigation surplus, but a litigation deficit"); Michael J. Saks, *Do We Really Know Anything About the Behavior of the Tort Litigation System—And Why Not?*, 140 U. PA. L. REV. 1147, 1183 (1992).

One of the most remarkable features of the tort system is how few plaintiffs there are. A great many potential plaintiffs are never heard from by the injurers or their insurers. The first and most dramatic step in this process of nonsuits is the failure of so many of the injury victims to take measures to obtain compensation from those who injured them.

Id.

¹¹¹ See, e.g., Galanter, *supra* note 100, at 5 ("Per capita rates of filing civil cases have risen in most localities during recent decades."). Note, however, that this recent rise pales relative to litigation rates in the past. *Id.* ("Before these increases are taken as proof of runaway litigiousness, it should be noted that these rates are not historically unprecedented. Several studies document higher per capita rates of civil litigation in nineteenth and early twentieth century America, as well as in colonial times."); see also Galanter, *supra* note 95, at 285 ("A century ago, Americans invoked the civil courts more frequently on a per capita basis than they do now.").

¹¹² Galanter, *supra* note 100, at 5 n.11; see also Saks, *supra* note 110, at 1211.

Why is population, and population alone, the statistical control used in trying to make sense of filings data? This adjustment strategy implicitly assumes that the number of injuries is a simple function of the number of people – regardless of changes in age, economic condition, types of employment, and activities. Why is the appropriate control the number of people in each state rather than *the number of actionable injuries*?

Id.

¹¹³ See, e.g., Galanter, *supra* note 100, at 5 n.11 (observing that the propensity to litigate "depends on the portion of occasions—troubles, injuries, problems, claims or however one characterizes instances of possible litigation—that do lead to filings"); Saks, *supra* note 110, at 1173 ("Any assessment of whether the propensity to sue is increasing, decreasing, or remaining the same can be made only in relation to the waxing or waning of the pool of injuries from which suits properly arise.").

Another problem with case filings as a measure of litigiousness is that they reflect not only the propensity of plaintiffs to sue, but also the tendency for defendants to resist resolving disputes short of litigation. Galanter, *supra* note 100, at 7 ("A filing represents not only a claim but a refusal by the defendant to satisfy it. Thus, we must be open to the notion that changes in the rate of filing may represent not only changes in plaintiff propensity to claim, but also changes in defendant propensity to resist.").

which individuals who have suffered potentially legally cognizable injuries seek redress in the courts. How often, in other words, do those who have suffered harms that the civil justice system might remedy actually go to court?

Studies show that Americans pursue only a fraction of potentially meritorious claims in the courts. In perhaps the most famous claiming study, William Miller and Austin Sarat contacted households by telephone to inquire about potentially legally remediable injuries that their members had suffered.¹¹⁴ They found that only 50 of every 1000 such instances resulted in a lawsuit filing.¹¹⁵

Other researchers have reached similar conclusions. A study of malpractice claims in the mid-to-late 1970s found that a maximum of 10 percent of those who suffered an injury due to medical negligence filed claims.¹¹⁶ In a more recent malpractice study, a multi-disciplinary team of Harvard researchers¹¹⁷ evaluated medical practice in New York state hospitals and found that "eight times as many patients suffer an injury from medical malpractice as there are malpractice claims."¹¹⁸ A broader RAND Institute survey of individuals with disabling injuries found that only nineteen of every one hun-

¹¹⁴ See Richard E. Miller & Austin Sarat, *Grievances, Claims, and Disputes: Assessing the Adversary Culture*, 15 LAW & SOC'Y REV. 525, 534-46 (1980-81); see also William L.F. Felstiner et al., *The Emergence and Transformation of Disputes: Naming, Blaming, Claiming . . .*, 15 LAW & SOC'Y REV. 631 (1980-81) (showing generally how injurious experiences become grievances and disputes); David M. Trubek et al., *The Costs of Ordinary Litigation*, 31 UCLA L. REV. 72, 86-87 (1983) (using a dispute pyramid to show the frequency of litigation).

¹¹⁵ Miller & Sarat, *supra* note 114, at 544. The researchers did observe some differences across different types of injuries. For example, only eight of 1,000 discrimination grievances resulted in a court filing. *Id.* By contrast, 451 of 1000 post-divorce grievances resulted in a court filing. *Id.*

¹¹⁶ PATRICIA M. DANZON, *MEDICAL MALPRACTICE: THEORY, EVIDENCE, AND PUBLIC POLICY* 23-24 (1985).

¹¹⁷ For a description of the participants, see WEILER ET AL., *supra* note 110, at vii-xiv.

¹¹⁸ 1 HARVARD MEDICAL PRACTICE STUDY, *PATIENTS, DOCTORS, AND LAWYERS: MEDICAL INJURY, MALPRACTICE LITIGATION, AND PATIENT COMPENSATION IN NEW YORK, THE REPORT OF THE HARVARD MEDICAL PRACTICE STUDY TO THE STATE OF NEW YORK* ch. 7, at 1 (1990). Note that this figure probably underestimates the actual claiming rate.

These aggregate estimates do not consider whether those who file claims, and sometimes those who receive awards, might be judged as not having suffered adverse events from medical negligence. When we identified the 47 malpractice claims actually filed by patients in our sample and reviewed the judgments of our physicians, we found that *even fewer than one in sixteen adverse events with negligence produced litigation.*

Id. (emphasis added); see also Troyen A. Brennan, *An Empirical Analysis of Accidents and Accident Law: The Case of Medical Malpractice Law*, 36 ST. LOUIS U. L.J. 823, 848 (1992) ("[T]here is a huge gap between negligent adverse events and claims. Even if we are as conservative as possible in our interpretation of the matching results, we must conclude that fewer than one in twenty-five injuries caused by substandard care produces litigation or a request for monetary damages.").

Like the victims of medical malpractice, consumers who believe they have purchased defective products are also unlikely to assert claims. See Arthur Best & Alan R. Andreasen, *Consumer Response to Unsatisfactory Purchases: A Survey of Perceiving Defects, Voicing Complaints, and Obtaining Redress*, 11 LAW & SOC'Y REV. 701, 712 (1977) (reporting that only 30.7 percent of consumers perceiving problems voice complaints).

dred of these injured citizens even contemplated seeking compensation for their injuries and only two of them filed suit.¹¹⁹ Taken together, these and other studies suggest “this country’s citizens (and its lawyers) are not wantonly litigious.”¹²⁰ Indeed, the number of lawsuits is “a thin shadow trailing behind a fat number of injuries,”¹²¹ and there is little, if any, evidence “demonstrating that the proportion of lawsuits to actionable injuries has grown over the years.”¹²²

The public adjudication group is disheartened by the statistics on claiming. For the members of this group, litigation is a valuable public good, and prospective litigants who fail to pursue potentially meritorious claims deprive themselves of remedies they deserve and deprive society of such collateral benefits as justice, deterrence, greater clarity, and predictability in the law, and so on.¹²³ The public adjudication group believes that society should provide ample judicial resources to accommodate the potential demand for litigation.¹²⁴

C. Reconciling the Over and Under

The views of the private ordering group and the public adjudication group may seem irreconcilable, but we believe that both groups are onto

¹¹⁹ DEBORAH R. HENSLER ET AL., RAND INSTITUTE FOR CIVIL JUSTICE, COMPENSATION FOR ACCIDENTAL INJURIES IN THE UNITED STATES 122 (1991); see also Abel, *supra* note 110, at 450 (reporting that only “about half of road accident victims, somewhat fewer work accident victims, and hardly any victims of other accidents, who are by far the largest category” ever file claims); Clermont & Eisenberg, *supra* note 72, at 135.

Infinite experiences produce countless disputes, which yield few cases. For example, only a small percentage of grievances ripen into claims, by the aggrieved’s voicing the grievance to the injurer; most aggrieved persons accept their injury, taking it as part of life or just figuring that no remedy is available; tellingly, the theorists in this subject sometimes refer to acceptance as ‘lumping it.’ Similarly, most disputants never make it to a lawyer, much less to a courthouse.

Id.

¹²⁰ Paul C. Weiler, *Fixing the Tail: The Place of Malpractice in Health Care Reform*, 47 RUTGERS L. REV. 1157, 1165 (1995) (citing HENSLER ET AL., *supra* note 119, at 123).

¹²¹ Saks, *supra* note 110, at 1166.

¹²² Miller, *supra* note 95, at 994–95.

¹²³ See, e.g., Galanter, *supra* note 100, at 34 (arguing that litigation “may encourage claimants and lawyers to pursue claims of a given type. It may provide symbols for rallying a group, broadcasting awareness of grievances, and dramatizing challenges to the status quo.”).

¹²⁴ See, e.g., Abel, *supra* note 110, at 454–55.

I believe that our enthusiasm for participation in politics, the market, cultural life, and social services should extend to participation in the legal system. Litigation is an important form of political activity: courts exercise political authority, modify substantive laws, and allocate resources. Litigation also affects the economy, conveys information, alters prices, and corrects market imperfections. Litigation declares and changes fundamental cultural values. Additionally, litigants consume a vital social service, since courts (and of course legislatures) are subsidized by the state.

Id.; see also Frank Cross, *In Praise of Irrational Plaintiffs*, 86 CORNELL L. REV. 1, 24–32 (2000) (arguing generally that litigation is a public good particularly when it produces balanced precedents); Owen Fiss, *Against Settlement*, 93 YALE L.J. 1073, 1089 (1984) (arguing that adjudication should be understood in “public terms,” that it “is an institutional arrangement for using state power to bring a recalcitrant reality closer to our chosen ideals” and that it “may help secure all that law promises”).

something. We agree with the public adjudication group that society should encourage those individuals with important legal claims to pursue their claims in court; we agree with the private ordering group, however, that society should encourage other individuals to resolve their claims in less formal ways. Thus, we believe that society should think about courts *not* in isolation but rather as one of many dispute resolution processes that claimants can use to seek redress for harms allegedly suffered. We support, in other words, the erection of literal or figurative “multi-door courthouses” containing “a flexible and diverse panoply of dispute resolution processes (or combination of processes)” for disputants.¹²⁵ Several municipalities have dealt effectively with their traffic problems by developing simultaneously their roadways *and* their mass transit systems;¹²⁶ likewise, society should address its litigation traffic problems by carefully assessing the appropriate supply of *dispute resolution resources*, not just *judicial resources*.

CONCLUSION

This Essay offers a cautionary tale for court reformers who assume that demand for litigation is insensitive to its supply. In much the same way that increases in the supply of roadways can induce demand for transportation, increases in judicial resources can induce demand for litigation. Court reformers who ignore this phenomenon do so at their peril; in the spirit of the “be careful what you wish for” adage, those who request more *judicial resources* may get more *lawsuits*.

¹²⁵ Sander, *supra* note 74, at 130–31 (advocating the adoption of multi-door courthouses).

¹²⁶ See Robert T. Dunphy, *Widening the Roads: Data Gaps and Philosophical Problems*, 481 TRANSP. RES. CIRCULAR 16, 18–19 (1998).